

# I<sup>2</sup>EV (My Electric Avenue)

## 3<sup>rd</sup> Project Six Monthly Progress Report

Project Number	SSET205
DNO	Southern Electric Power Distribution Ltd
Project Lead	EA Technology
Reporting Period	January 2014 – June 2014

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*The 'My Electric Avenue' project is the public identity for the Low Carbon Network (LCN) Fund Tier 2 project "I<sup>2</sup>EV". The formal title "I<sup>2</sup>EV" is used for contractual and Ofgem reporting purpose.*

### Project leads



### Project partners



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

### Version History

Date	Version	Author/s	Notes	Reference documents
18/06/2014	0.1-0.15	TB		Customer Engagement Plan
18/06/2014	1.2	DAR	Issued to SSEPD	Project Risk Register Project Direction
19/06/2014	1.4	NB	Updated with Project Bank Account details	

### Final Approval

Date	Version	EA Technology authorisation by:	SEPD authorisation by:
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## Executive summary

This project was submitted to Ofgem's Tier 2 Low Carbon Networks (LCN) Fund as Innovation Squared: Electric Vehicles "I<sup>2</sup>EV" but was rebranded early in 2013 to improve public acceptance to 'My Electric Avenue.' The project is led by EA Technology, with project partners Scottish and Southern Energy Power Distribution Limited (SSEPD) (the host Distribution Network Operator), Nissan (EV supplier), Fleetdrive Electric (electric vehicle rental programme management), and Zero Carbon Futures (charging point network developer), and Northern Powergrid (collaborating DNO). In addition there are two academic institutions supporting the project, the University of Manchester (providing network modelling and analysis), and De Montfort University (providing socio-economic data gathering and analysis). Ricardo is independently verifying the project.

Further details available on the project website at [www.myelectricavenue.info](http://www.myelectricavenue.info).

The paragraphs below detail progress of the project towards the end deliverables in the reporting period January 2014 – June 2014.

### Progress

Work has completed on recruitment for the Technical Trials, with 110 customers distributed over 11 clusters having signed contracts to participate in the project; of these 11 clusters, eight have at least ten participants.

Of these, nine clusters have been fitted with the Monitor Controller (MC) in the associated substation enabling monitoring of the feeder and ten have been fitted with charging points in preparation of the vehicle deliveries.

Monitoring of the Low Voltage (LV) Feeders via these MCs is in progress, providing data on the usage of the feeders in advance of the implementation of controlled charging.

Information on each participating vehicle's usage and charging is being downloaded by the Nissan LEAF CARWINGS system with information on more vehicles being accessed as they are delivered.

Recruitment for the Social Trials has progressed well, with 97 customers having signed contracts to participate in the trials.

### Key Issues

- Investigation into unforeseen communication problems identified that some Intelligent Control Boxes (ICBs) had not been wired in accordance with the installation instructions. On identification of the problem, the installer investigated every potentially affected unit and corrected the wiring where necessary.
- One ICB failed under test and was disconnected and removed for failure analysis purposes. This identified a potential problem and consequently the installed ICBs have been bypassed whilst a minor redesign is implemented.
- During the planned installation of a repeater cabinet in South Shields 1, residents who are not participating in the trials approached Northern Powergrid personnel. These residents strongly expressed their feelings about the installation of a cabinet to house repeaters above ground in front of their neighbour's property and Northern Powergrid personnel were unable to complete the installation.

### **Key Risks – Closed**

- Technical Trial recruitment would not meet the minimum contractual requirements: at least 100 participants with at least seven clusters of at least ten participants.

### **Key Risks – Ongoing**

- Social Trial recruitment does not meet the required minimum threshold to meet the Project Direction conditions of 100 participants.
- Delay to cluster installations through lack of available equipment.
- Delay to cluster installations through lack of electric vehicles.

### **Learning**

The key project learning outcomes for this reporting period are:

- Absolute clarity is required in guidance documentation for installation, and where practical equipment should be located outside a property (reduced need for access for repairs and commissioning).
- Customers expect a level of service, irrespective of the purpose of the trials. Customers have a low tolerance for delays that are caused by contractual or technical restrictions, far removed from their position in the trial.
- Advice provided to customers with contact information is not always utilised fully; customers will use a mode of communication that they prefer as a first instance rather than reviewing the Welcome Pack or any other project related documents.
- Continual frequent communication between project partners is paramount to avoid duplicating work, keep abreast of changing situations, and ensure that communication provided to customers is consistent.

## Contents

Executive summary .....	3
Contents .....	5
Table of Tables.....	5
1 Project manager’s report .....	6
2 Consistency with full submission.....	12
3 Risk & Issue Management .....	13
4 Successful delivery reward criteria (SDRC).....	19
5 Learning Outcomes .....	21
6 Business case update.....	26
7 Progress against budget .....	26
8 Bank account .....	29
9 Intellectual Property Rights (IPR) .....	29
10 Other .....	29
11 Accuracy assurance statement.....	31
Appendix A Project Bank Account Statement.....	32

## Table of Tables

Table 1-1 : Technical trial clusters submitted to Ofgem and in progress of establishment.....	6
Table 1-2: Technical trial clusters submitted to Ofgem: changes since submission .....	7
Table 1-3: Social trial recruitment status .....	11
Table 3-1: Snapshot Risk Summary and status.....	13
Table 3-2: Recruitment Risk .....	14
Table 3-3: Procurement Risk- Charging Points.....	15
Table 3-4: Procurement Risk- ICBs .....	15
Table 3-5: Procurement Risk - Electric Vehicles .....	16
Table 3-6: Equipment issues- Incorrect Installation of ICBs.....	16
Table 3-7: Equipment issues - ICB faults .....	17
Table 3-8: Equipment Issues - Installation of repeater cabinets.....	17
Table 3-9: Communications - iHost data collection – monitor controller.....	18
Table 3-10: Communications - Data collection - ICBs .....	18
Table 4-1: SDRC Overview .....	19
Table 5-1: External Dissemination.....	23
Table 7-1: Current expenditure against project category .....	26
Table 7-2: Cumulative Project Expenditure.....	27
Table 7-3: Forecast Cost At Completion.....	28

## 1 Project manager's report

### 1.1 Technical Trial Recruitment Progress

Since the last reporting period a further four clusters have been established and submitted to Ofgem, in addition to the seven clusters established and submitted previously.

The table below details the final mix of recruited customers/ clusters that were submitted to Ofgem on 7 March 2014, prior to the stated deadline of 12 March 2014 for SDRC 9.5.1. In total, the project has met and exceeded recruitment and customer engagement targets initially set by Ofgem by:

- Achieving 110 signed lease contracts overall in the technical trials; at least 100 were required;
- Recruiting eight clusters with 10 or more people in each; seven clusters of at least 10 were required;
- Recruiting 11 clusters overall in the technical trials; at least 10 clusters in total were required.

Evidence of establishment of these clusters was provided with the SDRC 9.5.1 deliverable. Each cluster evidence pack included information on the number of Declarations of Intent, Signed Contracts, and satisfactory results from credit checks and network/property checks. For those clusters submitted prior to March 2014, an updated report was provided to highlight the growth or attrition of the cluster and provide additional explanation for the changes since the last submission.

**Table 1-1 : Technical trial clusters submitted to Ofgem and in progress of establishment**

DNO licence area	Network type	Cluster	No. of households on LV feeder	No. of EVs / customers	Actual establishment date	EV totals
SEPD	Urban	Chiswick	138	8	27/09/2013	110
SEPD	Urban	Marlow	139	9	30/09/2013	
SEPD	Urban	Chineham	125	10	11/11/2013	
SEPD	Urban	Whiteley	58	10	13/11/2013	
NEDL	Urban	South Gosforth	57	10	27/09/2013	
NEDL	Rural	Wylam	72	10	27/09/2013	
NEDL	Urban	South Shields 1	54	11	14/10/2013	
SEPD	Business	Slough Borough Council	N/A	10	05/03/2014	
SEPD	Rural	Lyndhurst	34	7	04/03/2014	
NEDL	Urban	South Shields 2	62	12	19/02/2014	
NEDL	Business	Your Homes	N/A	13	12/02/2014	

In December 2013 and leading up to the SDRC 9.5.1 deadline, the project experienced a reduction in the number of participants within both the Marlow and South Gosforth clusters. Therefore, there was a high risk that unless these clusters could be boosted back to a cluster of 10, the project may fall short of the SDRC requirements and only achieve six clusters of 10.

The project took action to restore each of these clusters to a cluster of 10, and secure the clusters of 10 through commencing the roll out of vehicles. A further participant was recruited at South Gosforth, but their credit clearance was delayed for several weeks. In February 2014, and with only six clusters of 10 or more participants, the project team authorised the initiation of Slough Borough Council as an additional cluster of 10 to reduce the risk of not meeting the recruitment target.

The table below provides further details of the attrition rate from earlier submission.

**Table 1-2: Technical trial clusters submitted to Ofgem: changes since submission**

Cluster Name	Previously Submitted to Ofgem	Movement (attrition or increase)	Submitted to Ofgem (March 2014)	Reason for movement
Chiswick	10	-2	8	2 x Vehicle need – purchased alternative car
Marlow	10	-1	9	Vehicle need – purchased alternative car
South Shields	10	+1	11	Additional trial participant engaged
Whiteley	11	0	11	
Your Homes Newcastle	11	+2	13	Additional 2 trial participants engaged
South shields 2	10	+2	12	Additional two trial participants engaged
South Gosforth	10	0	10	1 participant left area for new job 1 new participant engaged (credit clearance completed after 6 weeks)
Wylam	10	0	10	
Chineham	10	0	10	
Lyndhurst			7	
Slough Borough Council			10	

Since last submission to Ofgem, the clusters have experienced further attrition. One participant in Whiteley has withdrawn from the project due to a pressing need for a vehicle, and one participant in the Your Homes Newcastle cluster has changed jobs and has therefore been replaced by one other employee at Your Homes Newcastle. Attrition has been experienced in some clusters, principally due to a difference in expectations in delivery timescales for their vehicle. These timescales were affected initially by the funding restrictions imposed through the Project Direction and latterly by the availability of vehicles due to the high volumes and being ordered in a short period.

Some fluctuation in cluster composition from this point is to be expected as participants' personal circumstances may change over time; these changes are not within the control of the project. Although the project's contracts with these customers are binding, the project team did not deem it appropriate for an LCN Fund project to penalise volunteer participants, in addition to the clauses already enforced through their contract, for a decision to withdraw. As such, customers will be subjected to the normal penalty procedures for withdrawing from the lease contract but no further penalty will be applied.

The attrition rate has largely stabilised in this last period, as the majority of participants are now receiving delivery of their Electric vehicles (EVs) under the Technical Trials however there may be further attrition due to delays in car delivery.

## 1.2 Technical Trial Installation Progress

### 1.2.1 Method Statements

Method statements have been developed for checking the Power Line Carrier (PLC) communication in clusters and for commissioning the ICBs.

The method statement for installing the monitor controllers in ground-mounted substations was developed in conjunction with SSEPD and NPG, each DNO modifying it to refer to their specific working practices and policies. A metal cabinet and earthing arrangement as specified by NPG was utilised as this had been deployed in previous innovation projects. One substation in SSEPD's licence area has a different earthing arrangement than expected, therefore an insulated cabinet is currently being built to replace our standard metal enclosure. A temporary workaround has been implemented using insulated bushings.

Only one pole-mounted installation of a monitor-controller is required in SSEPD's license area and a specific method statement has been developed for this by EA Technology with SSEPD staff and is currently in the approval process. A suitable cabinet and bracket have been procured and a site visit has been undertaken to confirm the best location for installation. Given the various designs of pole-mounted arrangements, the method statement could not cover all possible designs; however, the approach developed in this project is supporting the design approach for installing other pole-mounted monitoring equipment under SSEPD's New Thames Valley Vision LCN Fund project.

### 1.2.2 Vehicle Deliveries

As of 18 June 2014, 96 EVs had been delivered to Technical trial participants in total, with only the last two clusters to be established (Lyndhurst and Slough Borough Council) awaiting delivery of vehicles.

### 1.2.3 Equipment Installations

**Substation located equipment:** In total, nine clusters have had the monitor/controller (MC) installed as part of the Technical trials. The exceptions are the Lyndhurst and Slough Borough Council clusters. We continue to gather data from the installed MCs and the project is using this to monitor the phase currents of the feeders. Greater understanding of each cluster's current profile will allow us to determine more appropriate phase current limits for the MCs.

Lyndhurst is the only cluster to utilise a pole-mounted transformer; all other clusters are fed by a ground-mounted substation. As a result, the Esprit installation for Lyndhurst has required a different cabinet and installation for the MC. The project has designed and is working through the approval process to deploy an alternative cabinet for this site.

At the beginning of the recruitment phase of the project, we intended to recruit only ten Technical trial clusters to the project. Due to levels of attrition over the course of the recruitment period, we took the decision to recruit one additional cluster to ensure recruitment criteria were met.

As Slough Borough Council is the 11<sup>th</sup> Technical trial cluster, additional equipment has had to be ordered. Lead times for components have caused delays in the installation for this final cluster. All equipment required for this additional cluster is on order and installation is planned for June / July 2014.

**Customer located equipment:** Ten clusters have had charging points and Intelligent Control Boxes (ICBs) installed; the last cluster Slough Borough Council is yet to have these installed. This installation is planned for June/July 2014.

The project discovered a wiring fault with one installed ICB during an inspection and consequently all installed ICBs have been by-passed, while the project undertakes further investigations. Therefore, all Technical trial participants who had ICBs installed are able to charge their EV, albeit without control.

While this may delay gathering some data from the trial, it will allow both the project team and customers to compare charging with and without control and the acceptability of Esprit more effectively (SDRC 9.5.1).

The ICB provides two main functions: firstly to send charging data to the monitor-controller, and secondly to receive, and act on, switch off instructions.

Regarding data, we have an additional data stream from the Nissan CARWINGS system that allows us to collect charging data. The mitigations we have put in place to give us confidence the CARWINGS data sets are adequate are:

- Working with Nissan to ensure the required information can be extracted from the data fields
- Contacting customers to ensure the CARWINGS system is activated (approx. 90% compliance)
- Working with Nissan to ensure that historic data is not lost (confirmed that we have access to data for the full lease period with no time-based data overwriting)
- Reinforcing the obligation that participants must allow data collection from their vehicles.

Regarding the switch off instructions, it is very unlikely that the Esprit system would operate over the summer months due to the reduced network loading, therefore there is no impact on learning. All ICBs are programmed to be re-installed before we would expect to see increased network loading (September/October).

It is emphasised that whilst some data will not be collected from the ICBs, the equivalent will still be available via the Nissan CARWINGS system for each participating vehicle.

#### **1.2.4 PLC Communications**

We have begun assessments of the reliability of the PLC communication systems used by Esprit to provide confidence that the technology is appropriate for the specific cluster networks. This activity will re-commence once ICBs are re-commissioned.

As part of the PLC requirements, repeater units have been installed in several clusters. These are located in a variety of locations:

- A street cabinet;
- Connected to a link box;
- At the connection point of a 3-phase water pumping station that was conveniently located on the feeder;
- Repeaters installed on a pole to a low power 3-phase overhead connection.

In addition, the Customer Engagement Plan has been updated and approved, allowing the project to install repeater units in customer properties providing a low cost repeater connected to a single phase. The circumstances in which this will be utilised are rare, requiring properties to be connected to the correct phase and be within a very narrow geographic range.

#### **1.2.5 Retrieving Data from the Nissan LEAFs**

The project is making use of data captured from the EVs over the duration of the trial, supplied via Nissan's CARWINGS service. To provide this data, the CARWINGS account must be activated, and the customer must then press a button each time they drive the vehicle.

To ensure that the account is activated, Fleetdrive Electric has taken a larger role in the delivery process and acting as the single point of contact for delivery of vehicles, rather than the Nissan dealer. Fleetdrive Electric ensured that all deliveries have a CARWINGS account set up for the customer prior to delivery and also ensure planned delivery dates for vehicles are communicated to De Montfort University enabling surveys to be sent out at the most appropriate time.

To provide an ongoing confirmation that customers are activating the CARWINGS system, Fleetdrive Electric added an instruction to delivery notes requesting customers contact Fleetdrive Electric and confirm that they are activating the system. The delivery note is the last email sent to participants prior to delivery, which includes delivery and contact information and the Welcome Pack.

The project is in the process of conducting this audit again, making use of online surveys and documenting results.

For EA Technology to retrieve the data from the CARWINGS systems, Nissan require the unique identifier for each car, the Vehicle Identification Number (VIN), for all cars delivered under My Electric Avenue. VINs are produced by Nissan and then used within their API<sup>1</sup> system to locate the data for each individual driver. The CARWINGS system collects a range of information relating to the car and its performance and the project is only interested in a small proportion of the data. We have worked with Nissan to ensure we can extract the required information for us to build up EV charging data, temporarily in lieu of the ICB charging data. EA Technology now has direct access to Nissan's API.

Fleetdrive Electric, Nissan Motors GB and participating Nissan dealerships are working together to minimise the risk of delays in delivery dates, and ensure a joined-up approach in delivery of the vehicles.

#### **1.2.6 Network Operation**

The project is monitoring all established clusters through Nortech's iHost system. The MCs installed on the LV networks feeds the data gathered to iHost enabling download and analysis. Additionally, iHost can be set to trigger alerts either if unusual data is detected due to abnormal network conditions or the equipment providing spurious readings. Emails/Texts to flag up these alarms are sent to EA Technology and SSEPD.

If an alarm is received, a manual check can then be used to either distinguish if there is an issue and implement mitigation actions or evaluate changing the alert settings.

#### **1.2.7 Data Monitoring**

Analysis of the data received to date is underway, with refinements being implemented to data provided by CARWINGS and provided via iHost from the MCs and ICBs where necessary to maximise potential learning.

#### **1.2.8 Social Surveys**

All Pre-Trial Questionnaires have been issued and completed for the Technical Trial participants and are up-to-date for the Social Trial participants. To date, the numbers for these are:

- Technical Participants - 114
- Social Participants – 87

There are more technical trial surveys being undertaken than vehicles as in some cases, second drivers have volunteered to provide input to the project, further increasing the learning to be gained.

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<sup>1</sup> Application Programming Interface – Protocols for accessing the trial CARWINGS data on Nissan servers.

Other items of work undertaken in this area are:

- Questionnaires for use later in the project have been developed and finalised;
- Developed and finalised interview guide for the face-to-face interviews;
- Interviews are underway for technical trial clusters.

### 1.3 Social Trial Recruitment Progress

Following our structured marketing approach, we have made significant gains within the reporting period on social trial recruitment. Against SDRC 9.5.3 (minimum quantity of 100 by end August 2014), we now have 97 signed contracts with passed credit checks.

Recruitment is expected to exceed the minimum target, with a continued high interest in the project. Our ongoing marketing activity, although not specific to social trial recruitment, is:

1. High profile information on [www.myelectricavenue.info](http://www.myelectricavenue.info).
2. Initial press release on [www.green-car-guide.com](http://www.green-car-guide.com).
3. Quarterly e-newsletter article focusing on the Social trials, following successful recruitment to the Technical trials.
4. Publicity by proxy through promotion of established technical trials, see press releases at <http://myelectricavenue.info/news>.
5. LCN Fund / Innovation conferences.

Table 1-3: Social trial recruitment status

Social trial EOI	Social trial Ordered	Social trial credit check passed	Social trial deliveries
1046	99	97	62

The Social trials have been publicised directly from a media launch event organised to promote the first established cluster within SSEPD’s distribution area. The project received 78 registrations of interest for the Social trials in the days following our media launch event in Marlow, Buckinghamshire on 3<sup>rd</sup> April. One of the key messages for this event was centred on the launch of the Social trials, and availability of spaces following the successful completion of the technical trial recruitment period.

Further promotion of the social trial offering has been disseminated in Northern Powergrid’s area, focusing on the establishment of two clusters on one housing estate (South Shields), the first established workplace cluster. Zero Carbon Futures have launched a press release and case studies on the South Shields cluster and Your Homes Newcastle, one of only two workplace clusters within our Technical trials. The story has been picked up by BBC Newcastle, and promoted via a radio interview with Zero Carbon Futures on BBC Newcastle’s breakfast show.

### 1.4 Key Issues

**Change Request:** A change request was submitted to Ofgem in August 2013 following late changes in the Project Direction, this was to change cost category amounts with no change to the overall budget. In late December 2013 / January 2014 it was decided to withdraw the change request whilst all efforts were focussed on customer recruitment for the technical trials and stabilising the clusters. The revised Change Request is currently under development and will be submitted to Ofgem shortly.

**Equipment Resilience:** One ICB failed under test and was disconnected and removed for failure analysis purposes. This identified a potential problem and consequently the installed ICBs were bypassed whilst a minor redesign was implemented.

**Repeater Installation:** During the planned installation of a PLC repeater cabinet in South Shields 1, residents who are not participating in the trials approached Northern Powergrid personnel. These residents strongly expressed their feelings about the installation of a cabinet to house repeaters above

ground in front of their neighbour's property and Northern Powergrid personnel were unable to complete the installation. The project team had sought and was granted approval from the local authority and the resident in the adjacent property where the repeater was to be installed had stated his consent. However, in light of the angry response, we are now pursuing a below-ground solution to house the PLC repeaters.

## 2 Consistency with full submission

The project has proceeded in accordance with the full submission with respect to the planned work activities, procedures being established and adhered to. In addition, all deliverables to date have been achieved either on or ahead of the schedule detailed in the Project Direction.

An important clause under the Project Direction (8(i)) is the establishment of seven clusters of ten Trial Participants. Since the last reporting period, the project has exceeded this clause and recruited 11 clusters, 110 Technical trial participants and 8 clusters of 10 or more participants.

We have experienced a limited number of dropouts from the project, between contract sign (vehicle order) and delivery. We are confident this will not impact the strength of the learning and this does not represent a consistency issue with the full submission.

Current expenditure is in line with financial governance; however, the forecast for the project budget diverges from the Full Submission because of:

- Correction of a transcription error in the Full Submission spreadsheet, which reduced the overall project budget by £220k and changed the proportional distribution of funding between budget categories. This introduced a requirement to flex the budgets in order to ensure all tasks have sufficient funding availability;
- Increased customer engagement resulting from the additional terms in the agreed Project Direction.

### 2.1 Change request

A Change Request was submitted and subsequently withdrawn pending completion of technical trial participant recruitment. We are now drafting up a revised change request for submission.

When the Project Direction (PD) was accepted in December 2012, it was agreed with Ofgem that a Change Request to update the budget would be submitted to rectify the above issues.

The Change Request will not seek a change to the total project budget nor the project scope as accepted in the original Project Direction (v1.10). Hence the full original scope is being met, and being delivered for £220k less money than was originally intended<sup>2</sup>. The Change Request will seek to change Category amounts with sum for the changes of zero.

The changes are needed purely to comply with governance requirements to keep spend against budget categories within specified limits. The changes will also improve clarity of reporting, as the project is required to report against the original Task / Category allocations (which are now inaccurate) unless the changes are accepted.

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<sup>2</sup> As EA Technology had already agreed to several fixed price contracts, they have had to make sacrifices to accommodate the reduced budget, changing rates to accommodate the project.

### 3 Risk & Issue Management

A risk register was developed for the project at the bid stage. This document has since been adopted by the delivery team as a key management tool for the project, and expanded to reflect changes in risks or mitigation as they occur.

In this section of the progress report, we purposely do not discuss all risks in the risk register, instead focusing on those of key significance to the project. This includes both open and significant closed risks identified within this reporting period, listed below.

Table 3-1: Snapshot Risk Summary and status

	Risk summary	Status
<b>3.1</b>	<b>Technical trial recruitment attrition</b>	<b>Closed</b>
<b>3.2</b>	<b>Social trial Recruitment Risks</b>	<b>Open</b>
<b>3.3</b>	<b>Procurement risks</b>	<b>Open</b>
<b>3.3.1</b>	Trial equipment – charging points	Open
<b>3.3.2</b>	Trial equipment – ICBs	Open
<b>3.3.3</b>	Electric Vehicles	Open
<b>3.4</b>	<b>Equipment issues</b>	<b>Open</b>
<b>3.4.1</b>	Incorrect installation of ICBs	Open
<b>3.4.2</b>	ICB faults	Open
<b>3.4.3</b>	Installation of cabinets for repeaters	Open
<b>3.5</b>	<b>Communications</b>	<b>Open</b>
<b>3.5.1</b>	iHost data collection – monitor controller	Closed
<b>3.5.2</b>	Data collection – ICBs	Open

#### 3.1 Technical trial Recruitment Attrition

As part of the latest Independent Review (SDRC 9.4.1 Month 12, 31<sup>st</sup> January 2014) Ricardo noted:

*“[ ] one significant area of concern, which is the high financial risk imposed on EA Technology by Ofgem via the restrictions outlined in the Project Direction. Given the early recruitment success of trial participants, EA Technology have wisely decided to accelerate the establishment of the initial clusters for the Technical Trial, beginning the roll-out of electric vehicles to Technical and Social Trial participants ahead of schedule. Whilst this demonstrates the commitment of the Third Party Lead Supplier to the continuing success of the project, it has placed EA Technology at increased financial risk, especially considering their company size and annual turnover, since Ofgem may demand a return of funds if the targets for cluster establishment are not achieved by 12 March 2014. There also appears to be some debate regarding interpretation of cluster establishment. [ ]”– Ricardo.*

There was a genuine, significant risk to the success of the project that established clusters would ‘fall apart’ due to the funding restriction, preventing the rollout of vehicles and equipment in the period of December 2013 to March 2014. The risk was closed on March 7<sup>th</sup> 2014 upon submission of the final permutation of clusters to Ofgem.

As the Principal Contract holder for this project, EA Technology is responsible for ensuring the success of this project and therefore recognised its duty to do everything within its power to ensure the successful delivery of the project. As such, EA Technology’s group board approved a decision to ‘hold-the-line’ on the clusters through funding the installation of equipment and provision of vehicles at the company’s risk until recruitment of the final ‘cluster of ten’ removed the funding restrictions imposed through the Project Direction. The value of this risk was a total of c£1.1million<sup>3</sup>; far greater than that envisaged at the project submission.

EA Technology was grateful to SSEPD for making available £220k of temporary, repayable funds, which fortunately were not required, but were envisaged for cash flow purposes.

### 3.2 Social trial Recruitment Risks

Since the project has achieved the necessary recruitment targets for the technical trials, the focus for customer engagement is now on achieving and exceeding recruitment targets of 100 participants for the social trials by August 2014 (SDRC 9.5.3).

**Table 3-2: Recruitment Risk**

<b>Risk</b>	Social Trial recruitment does not meet the required minimum threshold to meet the Project Direction conditions of 100 participants by August 2014.
<b>Likelihood</b>	Unlikely.
<b>Consequence</b>	Severe. Project gathers insufficient data from social trial participants to provide an adequate baseline for comparison by the technical trial participants.
<b>Mitigation</b>	Media events have been held, including the publicising of the first established technical cluster in Marlow to boost interest in the social trials. Interviews with participating celebrities and project partners have also been broadcast online to boost interest. These have both proven to be successful and the likelihood of this risk occurring is now deemed to be low.

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<sup>3</sup> Against FY13 income £21.9m, £417k EBIT and 225 employees.

### 3.3 Procurement Risks

#### 3.3.1 Trial Equipment – Charging Points

Table 3-3: Procurement Risk- Charging Points

<b>Risk</b>	Delay to cluster installations through lack of available equipment.
<b>Likelihood</b>	Certain.  There has been a slight delay in the installation of charging points for our work place clusters. One of our work place cluster host company's has applied for a separate supply meter, which has also led to a delay.
<b>Consequence</b>	Minor.  Original charging points have now been sourced, however there is likely to be a delay in installation due to lead times. Arranging the separate supply (third party – not within project control) may also lead to a delay.
<b>Mitigation</b>	Charging points will be installed in advance of vehicle delivery for this cluster with the ICBs being installed once they are manufactured. This will allow the charging points to be ready, and connected as soon as possible following meter installation organised by the cluster.

#### 3.3.2 Trial Equipment – ICBs

All equipment relating to the ICBs required for the original 10 clusters was procured successfully and installed in parallel with the charging points in advance of the delivery of vehicles. The final cluster, (Slough Borough Council), required the procurement of additional ICBs. These will be issued as part of the redeployment detailed in section 3.4.

Table 3-4: Procurement Risk- ICBs

<b>Risk</b>	Delay to cluster installations through lack of available equipment.
<b>Likelihood</b>	Certain.  There has been a delay in sourcing the ICBs required for the additional cluster due to manufacturer and component lead times.  For the additional cluster, it has been necessary to manufacture additional ICBs. The key components required are on-order and will be assembled for issue as part of the re-deployment of ICBs
<b>Consequence</b>	Minor.
<b>Mitigation</b>	Charging points will be installed in advance of vehicle delivery for this cluster with the ICBs being installed once they are manufactured.

### 3.3.3 Electric Vehicles

**Table 3-5: Procurement Risk - Electric Vehicles**

<b>Risk</b>	Delay to cluster installations through lack of electric vehicles.
<b>Likelihood</b>	Certain.  In the six weeks leading up to Financial Year End (March 2014), the project has experienced delays to car deliveries due to the high volume of orders in a short period. The regular year end processes (new number plate) encountered by automobile dealerships have exacerbated this.
<b>Consequence</b>	Medium.  The project has delivered 90% of the minimum required EVs for the technical trials and therefore the impact of this risk is now greatly reduced. Outstanding deliveries for the technical trials are anticipated to be complete by the end of June 2014.  The peak in demand has caused considerable resource issues within Nissan dealerships assisting with the project, and consequently a breakdown in weekly delivery updates. The overall impact of this has meant that customers have been provided with anticipated delivery dates, which have been altered several times in line with the delivery demand. Waiting times vary between 1-10 weeks for delivery.  Delivery delays across both Technical and Social trial participants are posing a risk to further attrition.
<b>Mitigation</b>	The status of deliveries is being monitored by project partners on a weekly basis, and actions taken to mitigate related risks. For example, Fleetdrive Electric has arranged for temporary hire cars where appropriate in exceptional circumstances and Nissan have made additional resource available to support the demand experienced.

## 3.4 Equipment Issues

### 3.4.1 Incorrect installation of ICBs

**Table 3-6: Equipment issues- Incorrect Installation of ICBs**

<b>Risk</b>	Incorrect installation of ICBs in clusters
<b>Likelihood</b>	Certain.  Investigation into unforeseen communication problems identified that some ICBs had not been wired in accordance with the installation instructions. Training and installation instructions had previously been provided to representatives of the installing organisation and further information / clarification was supplied in advance of the work being corrected.
<b>Consequence</b>	Medium.  This incorrect wiring was not a safety concern but would have prevented the correct operation of the affected ICB units.
<b>Mitigation</b>	On identification of the problem, the installer investigated every potentially affected unit and corrected the wiring where necessary.  Further training will be provided to electricians responsible for installing the units when they are redeployed. New commissioning documents have been drafted for use in re-installation. EA Technology will also attend site to conduct audits.

### 3.4.2 ICB Faults

Table 3-7: Equipment issues - ICB faults

<b>Risk</b>	Fault identified in one ICB.
<b>Likelihood</b>	High. One ICB developed a fault and was disconnected and removed for failure analysis purposes.
<b>Consequence</b>	Medium. This fault was not a safety concern but would have prevented the correct operation of the affected ICB units. The installed ICBs have been bypassed whilst a minor redesign is implemented. There will be no impact on the learning because of this product recall as the MCs are continuing to gather data regarding the usage of the LV feeder and charging data of the individual EVs is available from the Nissan CARWINGS system. ICBs will be re-installed before network loading increases (by end September/October).
<b>Mitigation</b>	On identification of the problem, Zero Carbon Futures organised for each installed ICB to be revisited, reviewed and bypassed whilst a minor redesign is implemented. ICBs remain in participants' homes, but they are not connected to their electricity supply.

### 3.4.3 Installation of cabinets for repeaters

Table 3-8: Equipment Issues - Installation of repeater cabinets

<b>Risk</b>	Neighbours objection to repeater cabinet installation
<b>Likelihood</b>	Certain. During the planned installation of a repeater cabinet in South Shields 1, two residents who are not participating in the trials approached Northern Powergrid personnel. These residents objected strongly to the installation of a cabinet to house repeaters above ground in front of their neighbour's property. This objection was aggressive and as a result, Northern Powergrid personnel were unable to complete the installation. In particular, these residents objected to the installation of a cabinet above ground (visible).
<b>Consequence</b>	Low. As a result of the halted installation, there will be a delay in the installation of this repeater whilst an underground solution is sourced. As the ICBs have been bypassed, this delay will have little wider impact on learning. However, the objection to this installation has resulted in additional cost. The cabinet originally purchased is now redundant, another cabinet is being purchased and further DNO time will need to be funded for a return visit to complete the installation. It is noted that the project team had received the necessary authorisation from the local council and contacted the resident whose garden was directly next to the proposed site for the cabinet; the resident in question is a participant in the project technical trials.
<b>Mitigation</b>	As the repeater units are required, but the safety of the equipment cannot be guaranteed in the original planned method of installation, an underground link box will be used instead. As the objection raised was on the basis of having a visible cabinet installed, the project is confident that this solution will be successfully installed.

### 3.5 Communications

#### 3.5.1 iHost Data Collection – Monitor Controller

Table 3-9: Communications - iHost data collection – monitor controller

<b>Risk</b>	Loss of data (interface between iHost and monitor controller).
<b>Likelihood</b>	Certain. The project has experienced minor issues with the interface between the monitor controller and the central database (iHost). The issues were caused by intermittent GPRS links and teething problems with the interface.
<b>Consequence</b>	Low. Minor data loss has occurred for the network monitoring (feeder loads) for periods of no more than 3 days for some clusters.
<b>Mitigation</b>	The interface between the monitor controller and the local RTU has been simplified to improve resilience and in clusters with weak GPRS coverage, remote antennae have been installed. We continue to diligently review the data we are recording under the project for issues.

#### 3.5.2 Data Collection – ICBs

Table 3-10: Communications - Data collection - ICBs

<b>Risk</b>	Limitations in available data due to bypassing ICBs
<b>Likelihood</b>	Certain. ICBs are currently by-passed and scheduled for re-installation across the summer months. We are therefore not receiving data in this period.
<b>Consequence</b>	Low. As the mitigation for risk 3.4.2 has been carried out in the summer months, this risk to the project is deemed to be low. It is unlikely that the monitor controller would have inhibited charging within the summer months when energy demand is low. The data collected by ICBs will be used to build a picture of charging habits; we will back-fill the data loss with data from the CARWINGS system.
<b>Mitigation</b>	This risk places a greater emphasis on the CARWINGS data source, we therefore have ensured CARWINGS is, or is being, activated for all EVs and we have worked with Nissan to ensure the data fields are sufficient for the project to draw learning related to charging patterns.

## 4 Successful delivery reward criteria (SDRC)

### 4.1 SDRC Overview

The below table details the status of each SDRC outlined in the Project Direction document; additional information regarding completed and in-progress SDRCs is given below.

Please note that all SDRCs that are currently flagged as 'Not Started' were not planned on being underway at this point in the project and so should be considered as on-schedule.

Table 4-1: SDRC Overview

SDRC		Due	Description	Status
9.1	9.1.1	28/02/2013	The provision of a report outlining key areas of learning in the identified areas, with recommendations. The reports will be written such that they can be published in the public domain for an audience of: DNOs, Ofgem or other interested third parties who may wish to lead a LCN Fund project in collaboration with a DNO.	Complete
9.2	9.2.1	30/04/2013	Make available the initial contract template used between SEPD and EA Technology together with supporting guidance of the thinking behind key clauses. This will be made available to Ofgem and other DNOs as a starting point for use in future projects.	Complete
	9.2.2	31/10/2015	Review of the contract put in place between SEPD and EA Technology. A review of the initial contract developed in 9.2.1 focussing on what worked well, what didn't work well, and what should be done differently in the future.	Not started
	9.2.3	31/12/2015	An updated contract template taking into account learning from SDRC 9.2.2.	Not started
9.3	9.3.1	31/10/2015	Report detailing processes established and utilised throughout the project including templates of any forms (e.g. work orders for SSEC staff) and records of meetings/regular communications created as part of the process. This will include an evaluation of the collaboration between SSEPD and Northern Powergrid with a 3rd party interface.	Not started
	9.3.2	31/10/2015	A framework to enable update suggestions to SSEPD policies and/or procedures, identified during the course of the project will be provided, (e.g. A procedure detailing the necessary steps when considering a customer's request for an EV charging point).	Not started
	9.3.3	31/10/2015	An assessment from the participating DNO of the level of effort expended on Project Management of the I <sup>2</sup> EV task by the staff involved in comparison to previous innovation projects.	Not started
9.4	9.4.1	31/07/2013	The provision of 6 monthly independent reviews of the project and technology with specific inclusion of improvements and adaptations to working practices incorporated by the project team following the previous independent review.	Complete
		31/01/2014		Complete
		31/07/2014		In progress
		31/01/2015	a) Produce six monthly reports (highlighting strengths and improvement areas) to be tabled at steering group meetings.	Not started
		31/07/2015	b) Produce response to six monthly report, detailing improvements planned by Project Steering Group, because of the review.	Not started
		31/12/2015		Not started
9.5	9.5.0	28/02/2013	Customer engagement: Submission of customer engagement plan and data protection strategy for Authority approval (1 Feb 2013).	Complete

SDRC	Due	Description	Status	
9.5.1	30/09/2013	Sign up of 3 cluster groups.	Complete	
	31/12/2013	Sign up of 5 cluster groups.	Complete	
	31/03/2014	Sign up of 100 customers in at least 7 cluster groups.	Complete	
	31/08/2014	Sign up of 10 cluster groups.	Complete	
9.5.2	31/08/2014	All cluster funding allocated due to successful establishment of clusters.	Complete	
9.5.3	31/08/2014	<p>Social trials: Minimum of 100 EV drivers signed up to have their driving habits recorded (month 18 following CEP, August 2014).</p> <ul style="list-style-type: none"> <li>a) Reports presented to the monthly project meetings to capture and log progress in signing up customers to the EV trials.</li> <li>b) Six monthly reports to steering group on trial engagement progress.</li> </ul>	In Progress	
9.6	9.6.1	31/10/2015	A report documenting the finding from the socio-economic analysis on public reaction to the technology.	Not started
9.7	9.7.1	30/06/2015	<p>Documentation describing:</p> <ul style="list-style-type: none"> <li>a) Views of the OEM community of the impact (if any) that cycling of EVs (or HPs) may have on their product(s) and end of life</li> <li>b) Recommendations of suitable cycle times for EVs (and possibly Heat Pumps) for demand-side response</li> <li>c) Evidence of whether this solution would be feasible or not combining learning from SDRC 9.5 and SDRC 9.6.</li> </ul>	Not started
9.8	9.8.1	31/11/2015	<p>Modelling to understand additional headroom available / other network benefits from using the Technology.</p> <ul style="list-style-type: none"> <li>a) The models will assess the percentage of thermal and voltage headroom estimates produced.</li> <li>b) The project will deliver an updated Solution template(s) specific to the Technology, and any updated EV charging profiles for use in the GB Smart Grid Forum modelling.</li> </ul>	Not started
	9.8.2	31/11/2015	Potential cost savings and carbon emission savings using DECC published carbon intensity figures. If technology is unsuccessful, reasons why will be stated.	Not started

## 5 Learning Outcomes

### 5.1 Summary of key learning outcomes delivered in the period

#### 5.1.1 Commercial

At the point of project setup, detailed agreements are required between the Funding (Lead) DNO and the Managing SME with respect to the level at which costs and expenditure shall be tracked and reported. This was complicated by the high level of granularity of reporting required by the Project Direction. Multiple iterations were required to formulate the reporting mechanisms between EA Technology and SSEPD.

It is recommended that regarding costs, future projects should only report against Ofgem Categories.

#### 5.1.2 Technical

The issues experienced regarding incorrect installation of some ICBs identified the need to ensure absolute clarity in guidance documentation. Despite a training session being provided to representatives of the installing companies, it was apparent that not all the installers on-site had received a subsequent briefing suggesting that further sessions would have been beneficial. Likewise, care should be taken to ensure that installation guides must be as clear as possible and be presented in a format that is straightforward to be referred to by an installer on-site.

In future projects, where equipment is to be installed on customer premises, it is recommended that it is located, so far as possible, outside the property where it can be readily accessed. This will provide multiple benefits, including:

- Project staff able to access the equipment for inspection / maintenance purposes without requiring access to the property.
- Minimises disruption to the customer during installation and decommissioning works.

#### 5.1.3 Customer Engagement

The key learning points regarding customer engagement for this period relate to Task 4 activities, in particular the installation of equipment (charging points and ICBs), and timely delivery of cars with customers.

- Frequent communication required between project partners
  - Necessary to avoid duplicated work
  - Ensure all partners are aware of changing situations
  - Ensures consistent communications to customers
- When a project requires skills that are not part of a DNO's BAU activities, (e.g. selling cars), partners who specialise in this area should be recruited.
  - Fleetdrive Electric and Zero Carbon Futures are highly experienced in communicating directly with customers on a daily basis.
- Projects must take into account that customers recruited to participate in a project of this nature have a low tolerance for delays that, in their opinion, are needless. Following the experiences of the I<sup>2</sup>EV project, these delays include the period between cluster recruitment and the funding restrictions being lifted. The clusters recruited early in the process experienced delays of several months.

- Open, timely and transparent communication with customers has proved essential to mitigating further attrition from clusters; this has been supported by weekly order updates regarding car delivery dates.
- Despite the project team defining and communicating a clear fault reporting process, customers may use other means (different telephone numbers, email addresses etc.) to contact the project team.
- Continued regular monitoring and managing of social media, namely the My Electric Avenue twitter account has proven efficient in capturing customer feedback and responding quickly.
  - The use of Twitter has exceeded all expectations in customer recruitment with a significant number of social trial participants first hearing about the project through this method.

## 5.2 An overview of the Project's approach to capturing the learning and disseminating

Learning continues to be captured in a learning log that is kept updated on an ongoing basis. The project has ensured dissemination of documentation, reports and key deliverables through a variety of mediums in addition to the requisite process for submitting documents to Ofgem. EA Technology strategically manages dissemination with support from Automotive Comms, an EV communications specialist. A contacts list has been developed and maintained to capture stakeholders from Ofgem, all GB DNOs, project partners, energy sector, Government bodies plus other relevant organisations.

Dissemination routes for the SDRCs have been and will continue to be through press release to media contacts, branded email with link to press release on [www.myelectricavenue.info](http://www.myelectricavenue.info) to all contacts, together with links through the project's social media outlets (LinkedIn and Twitter). Four project newsletters have been disseminated to over 500 project contacts (each issue); this acts as another tool for dissemination of documentation, reports and key deliverables.

These routes will also be utilised where applicable to disseminate wider project learning to those interested parties.

## 5.3 The main activities towards third parties which have been undertaken in order to disseminate externally the learning mentioned in 5.1

### 5.3.1 SSEPD – External Dissemination

SSEPD worked with EA Technology and Automotive Comms to create articles suitable for hosting on SSE's website on the News & Views section, notably on the successful recruitment of customers to the Technical trials and the media launch event in Marlow.

SSEPD also presented on project progress and learning at a session organised by SmartGrid GB, the independent cross-industry stakeholder group acting as the national champion for smart grid development in Britain.

### 5.3.2 EA Technology – External Dissemination

#### Learning Dissemination Activities

As this project has shown the success of a unique approach to customer recruitment, other projects are looking to My Electric Avenue for advice on how best to engage with the public.

EA Technology has represented My Electric Avenue at the SAVE: Customer engagement ‘Lessons learnt’ workshop, hosted by DNV-GL. My Electric Avenue was one of the main projects discussed at this event as one of the few current projects engaging and using dissemination to recruit the public. EA Technology shared advice and ‘top tips’ on how to best engage with customers and maximise PR and dissemination of the project to boost recruitment and project profile.

Following this workshop, DNV-GL invited EA Technology to a project interview, to provide further detail and information on the learning gained from dissemination and engagement and how this could be best used within the SAVE project.

#### Marketing Activities

My Electric Avenue dissemination to date has utilised various communication channels to boost awareness and publicity around the project, ultimately to engage customers and other interested parties. External dissemination follows a planned schedule of newsletters and press releases, appropriately timed to produce maximum impact following key events in the course of the project. A record of the planned dissemination, which has been carried out to date, is shown below.

Table 5-1: External Dissemination

Date	Method	Number
Newsletters		
21 March 2014	Newsletter issue 4	573 recipients, and mailing list via <a href="http://myelectricavenue.info">myelectricavenue.info</a> (174)
Press releases		
28 May 2014	Zero Carbon Futures interview on BBC Newcastle	BBC Newcastle radio Breakfast show
	Twitter	@MyElectricAve @bbcnewcastle
22 May 2014	North East is streets ahead in recruiting for EV trial	<a href="http://www.zerocarbonfutures.co.uk/news/north-east-is-streets-ahead-in-recruiting-for-ev-trial/">http://www.zerocarbonfutures.co.uk/news/north-east-is-streets-ahead-in-recruiting-for-ev-trial/</a>
23 May	Twitter	@ZCFutures
21 May 2014	Video clip for IET.tv	
3 <sup>rd</sup> April 2014	Press release: My Electric Avenue creates the UK’s first electric car ‘street of the future’	Project partner contacts News press (over 1,000 media titles)
	Twitter	@MyElectricAve
	News on websites	Uploaded to <a href="http://www.myelectricavenue.info">www.myelectricavenue.info</a> and here: <a href="http://www.eatechnology.com/news-and-resources/news/my-electric-avenue-creates-street-of-the-future">http://www.eatechnology.com/news-and-resources/news/my-electric-avenue-creates-street-of-the-future</a>
12 March 2014	Press release: My Electric Avenue exceeds targets for electric car trials!	498 project contacts – including Ofgem, all GB DNOs, DECC, OLEV, TSB, National Grid, consultants Energy contacts list

	Twitter	@MyElectricAve
	News on websites	Uploaded to myelectricavenue.info and here: <a href="http://www.eatechnology.com/news-and-resources/news/my-electric-ave-exceeds-targets-for-electric-car">http://www.eatechnology.com/news-and-resources/news/my-electric-ave-exceeds-targets-for-electric-car</a>

To date (22<sup>nd</sup> April 2014) over 102 news items covering the My Electric Avenue project have also been published via industry titles. The following titles represent coverage from April alone:

Autocar	Electrive	Hybrid Cars
Green Car Guide	Elettricity	North West Automotive Alliance
Diesel Car	Energy Live News	The Auto Channel
Car Buzzard	EV FleetWorld	Utility Week
Electric Cars report	Fleet news	Transport Evolved
Electric Motor News	Fully Charged (Robert Llewellyn)	

Publicity for the project and trials has been further supported by the production of videos. high profile videos include another episode of ‘Fully Charged’ presented by Robert Llewellyn aired on 16<sup>th</sup> April 2014<sup>4</sup>, Energy Live News report dedicated to My Electric Avenue<sup>5</sup> and coverage from SSEPD<sup>6</sup>. Other archived videos, are available to view via the project website<sup>7</sup>.

Further to planned press releases and newsletters, My Electric Avenue has also shared project news through a combination of emails, LinkedIn, and Twitter. The My Electric Avenue group on LinkedIn has 112 members; Twitter activity is building on the last reporting period with 193 tweets, 466 followers and 623 following. The project has been represented via live interviews with Zero Carbon Futures on BBC Newcastle’s breakfast radio show (28 May 2014), and promoted via twitter.

My Electric Avenue has also been presented and represented at several industry events. A record of these is provided below.

- Industry & Parliament Discussion Dinner at the House of Lords ‘Future of Mobility’ – April 2014 - My Electric Avenue featured in discussions – Dave A Roberts, Chris Lowsley
- IET Electric Vehicles Event – April 2014 – Tim Butler
- All Energy 2014 – IET PNJV session, the changing customer with electrification of heat and transport (Aberdeen, May 2014) – Dave A Roberts

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<sup>4</sup> <http://www.youtube.com/watch?v=jaWruGLgLIIE>

<sup>5</sup> <http://www.youtube.com/watch?v=o4Y6xDSRd2w>

<sup>6</sup> <http://news.ssepd.co.uk/listing/2014/04/the-cars-are-on-the-grid%e2%80%a63-2-1-charge/>

<sup>7</sup> [www.myelectricavenue.info](http://www.myelectricavenue.info)

My Electric Avenue has taken a new spin on the former test drive events, and provided a test drive for Baroness Prosser in a Nissan LEAF, during her visit to EA Technology in February, and promoted in the Industry and Parliament Newsletter<sup>8</sup>.

The project has been shared with the Technology Strategy Board (TSB's) emerging Energy Systems CATAPULT, and was shortlisted as a finalist for an Energy Innovation Centre (EIC) Innovation Award, April 2014.

Planned attendance at upcoming events includes:

- The rebranded LCNI conference (formerly LCNF conference) 20-22-October 2014
- Cenex-Low Carbon Vehicle (LCV) event 10-11<sup>th</sup> September 2014.
- Clean Tech Conference, International Festival for Business 17 July 2014
- Automotive Battery Management Systems, 23-24 September 2014<sup>9</sup>.

My Electric Avenue has worked to promote the project in the wider industry by submitting an EV City Casebook, and an application for the Low CVP Awards.

## 5.4 Internal dissemination activities

### 5.4.1 SSEPD

SSEPD's dissemination focus during this period has been focussed on internal stakeholder groups such as network planning design engineers and network operations. This approach has served two purposes: firstly, it has aimed to raise awareness amongst staff that work in and serve these communities; secondly, it is helping the project team to understand better the immediate areas of focus in advance of wider dissemination activities once substantive findings have been generated.

SSEPD has also worked to ensure project learning from one project is built into other projects as relevant. For example, much of the customer engagement knowledge from this project has been directly relevant and embedded in the SAVE project; likewise the New Thames Valley Vision project has opportunities to reuse EV operational information gathered in this project whilst developing long-term scenario models for LV networks.

### 5.4.2 EA Technology

In the latest reporting period, EA Technology has disseminated progress and key learning internally through: Progress update meetings with EA Technology project steering group members and company board members, Company internal social network and Future Networks Departmental Meetings.

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<sup>8</sup> <http://link.ipt.org.uk/v/306/40deaaa66ee42285856f37755f353af44753c746454d96ee>

<sup>9</sup> NB. Not all of these events are funded from the LCN Fund project (as many are funded directly by EA Technology or other project partners, but all will refer to My Electric Avenue and the positive stories of the LCN Fund.

## 6 Business case update

The project team remain confident that the project learning will be achieved and there is no anticipated change to the overall cost.

There has been an increase in in-kind support provided by partners to the project, notably by Nissan providing a high specification car that includes the CARWINGS system by default. We also note that EA Technology are now delivering the project for £220k less and have reduced rates to manage the impact.

## 7 Progress against budget

It should be noted that the below expenditure progress is still compared against the budget detailed in version 1.10 of the Project Direction, issued in December 2012. The Change Request (see section 2.1) seeks to update the budget, changing the distribution of funding across budget categories and tasks to mitigate:

1. the impact of transcription errors in the budget as originally submitted; and
2. the need to re-plan project activities to meet additional conditions imposed through the Project Direction.

As the Change Request is not yet accepted, the original budget remains valid for the current purposes and consequently this report shows considerable variation from that budget.

### 7.1 Current project expenditure

The project expenditure to date, (data extracted to end of May 2014), is detailed in Table 7-1 and Table 7-2 **Error! Reference source not found.** and, end of the financial year. It can be seen that to date, expenditure is below that forecast in the project bid submission; this is driven primarily by the funding restrictions enforced through the Project Direction preventing full implementation of technical trials.

Table 7-3 shows the current Forecast Cost At Completion for the project.

**Table 7-1: Current expenditure against project category**

	Total Planned Expenditure	Current Expenditure (June 2014) (£k)	Utilised % of Planned Expenditure at June 2014
Labour	222.25	90.48	41%
Equipment	484.71	142.65	29%
Contractors	3,120.44	1,561.42	50%
IT	3.27	2.16	66%
Travel & Expenses	107.43	0	0%
Payments to users	311.76	274.09	88%
Contingency	400.4	155	39%
Decommissioning	26.29	0	0%
Other	72.88	2.69	4%
<b>Total</b>	<b>4,749.43</b>	<b>2,228.51</b>	<b>47%</b>

Table 7-2: Cumulative Project Expenditure

Task ID	Ofgem Categories / Project Tasks	Original PD	Cumulative Expenditure	% Expenditure of Budget
	<b>Labour</b>	<b>£ 222.25</b>	<b>£ 86.60</b>	<b>39%</b>
00	Novel Commercial Arrangement	£ 19.92	£ 3.48	17%
01	Initial background - evaluation of initial trial	£ -	£ -	0%
02	Customer engagement	£ 1.27	£ -	0%
03	Integration of the Technology with charging points	£ -	£ -	0%
04_2	Install technology and charging points	£ 37.44	£ 8.14	22%
04_1	Establishment of Customer / Cluster trials	£ -	£ -	0%
05	Monitoring the trials	£ 16.06	£ 1.03	6%
06	Trial participant interviews	£ 1.28	£ -	0%
07	Network Modelling	£ -	£ -	0%
08	Consultation with EV manufacturers - cycle times	£ -	£ -	0%
09	Project recommendations and implementation	£ 6.73	£ -	0%
10	Dissemination	£ 30.48	£ 2.25	7%
11	Programme Management	£ 109.07	£ 71.70	66%
	<b>Equipment</b>	<b>£ 484.71</b>	<b>£ 146.11</b>	<b>30%</b>
04_2	Install technology and charging points	£ 484.71	£ 146.11	30%
	<b>Contractors</b>	<b>£ 3,120.44</b>	<b>£ 1,597.46</b>	<b>51%</b>
00	Novel Commercial Arrangement	£ 194.05	£ 162.24	84%
01	Initial background - evaluation of initial trial	£ 14.48	£ 8.63	60%
02	Customer engagement	£ 209.08	£ 260.23	124%
03	Integration of the Technology with charging points	£ 42.99	£ 4.99	12%
04_2	Install technology and charging points	£ 659.71	£ 303.14	46%
04_1	Establishment of Customer / Cluster trials	£ 346.42	£ 382.62	110%
05	Monitoring the trials	£ 103.77	£ 20.31	20%
06	Trial participant interviews	£ 202.36	£ 51.43	25%
07	Network Modelling	£ 214.84	£ 7.07	3%
08	Consultation with EV manufacturers - cycle times	£ 33.16	£ -	0%
09	Project recommendations and implementation	£ 273.23	£ 48.46	18%
10	Dissemination	£ 230.73	£ 121.07	52%
11	Programme Management	£ 595.62	£ 227.27	38%
	<b>IT</b>	<b>£ 3.27</b>	<b>£ 2.16</b>	<b>66%</b>
05	Monitoring the trials	£ 3.27	£ -	0%
10	Dissemination	£ -	£ 2.16	N/A
	<b>Travel &amp; Expenses</b>	<b>£ 107.43</b>	<b>£ -</b>	<b>0%</b>
00	Novel Commercial Arrangement	£ -	£ -	0%
01	Initial background - evaluation of initial trial	£ -	£ -	0%
02	Customer engagement	£ -	£ -	0%
03	Integration of the Technology with charging points	£ -	£ -	0%
04_2	Install technology and charging points	£ -	£ -	0%
04_1	Establishment of Customer / Cluster trials	£ 105.15	£ -	0%
05	Monitoring the trials	£ 2.28	£ -	0%
06	Trial participant interviews	£ -	£ -	0%
07	Network Modelling	£ -	£ -	0%
08	Consultation with EV manufacturers - cycle times	£ -	£ -	0%
09	Project recommendations and implementation	£ -	£ -	0%
10	Dissemination	£ -	£ -	0%
11	Programme Management	£ -	£ -	0%
	<b>Payments to users</b>	<b>£ 311.76</b>	<b>£ 274.09</b>	<b>88%</b>
04_1	Establishment of Customer / Cluster trials	£ 199.18	£ 274.09	138%
12	Project Contingency	£ 112.58	£ -	0%
	<b>Contingency</b>	<b>£ 400.39</b>	<b>£ 155.00</b>	<b>39%</b>
04_1	Establishment of Customer / Cluster trials	£ 82.07	£ -	0%
12	Project Contingency	£ 318.32	£ 155.00	49%
	<b>Decommissioning</b>	<b>£ 26.29</b>	<b>£ -</b>	<b>0%</b>
04_1	Establishment of Customer / Cluster trials	£ 26.29	£ -	0%
	<b>Other</b>	<b>£ 72.88</b>	<b>£ 2.69</b>	<b>4%</b>
04_1	Establishment of Customer / Cluster trials	£ 72.88	£ 2.69	4%
	<b>Total</b>	<b>£ 4,749.42</b>	<b>£ 2,264.11</b>	<b>48%</b>

Table 7-3: Forecast Cost At Completion

Task ID	Ofgem Categories / Project Tasks	Original PD	FCAC	% Expenditure of Budget	% Variance to Budget	Note
	<b>Labour</b>	<b>£ 222.25</b>	<b>£ 219.25</b>	<b>99%</b>		
00	Novel Commercial Arrangement	£ 19.92	£ 19.92	100%	0%	
01	Initial background - evaluation of initial trial	£ -	£ -	0%	0%	
02	Customer engagement	£ 1.27	£ 1.27	100%	0%	
03	Integration of the Technology with charging points	£ -	£ -	0%	0%	
04_2	Install technology and charging points	£ 37.44	£ 37.04	99%	1%	
04_1	Establishment of Customer / Cluster trials	£ -	£ -	0%	0%	
05	Monitoring the trials	£ 16.06	£ 16.06	100%	0%	
06	Trial participant interviews	£ 1.28	£ 1.28	100%	0%	
07	Network Modelling	£ -	£ -	0%	0%	
08	Consultation with EV manufacturers - cycle times	£ -	£ -	0%	0%	
09	Project recommendations and implementation	£ 6.73	£ 6.53	97%	3%	
10	Dissemination	£ 30.48	£ 30.28	99%	1%	
11	Programme Management	£ 109.07	£ 106.87	98%	2%	
	<b>Equipment</b>	<b>£ 484.71</b>	<b>£ 197.62</b>	<b>41%</b>		
04_2	Install technology and charging points	£ 484.71	£ 197.62	41%	59%	1
	<b>Contractors</b>	<b>£ 3,120.44</b>	<b>£ 3,592.64</b>	<b>115%</b>		
00	Novel Commercial Arrangement	£ 194.05	£ 178.53	92%	8%	2
01	Initial background - evaluation of initial trial	£ 14.48	£ 8.63	60%	40%	2
02	Customer engagement	£ 209.08	£ 321.83	154%	54%	3
03	Integration of the Technology with charging points	£ 42.99	£ 10.13	24%	76%	2
04_2	Install technology and charging points	£ 659.71	£ 790.88	120%	20%	2, 3
04_1	Establishment of Customer / Cluster trials	£ 346.42	£ 457.51	132%	32%	2, 3
05	Monitoring the trials	£ 103.77	£ 154.26	149%	49%	2
06	Trial participant interviews	£ 202.36	£ 263.55	130%	30%	2
07	Network Modelling	£ 214.84	£ 256.33	119%	19%	2
08	Consultation with EV manufacturers - cycle times	£ 33.16	£ 11.13	34%	66%	2
09	Project recommendations and implementation	£ 273.23	£ 151.88	56%	44%	2
10	Dissemination	£ 230.73	£ 216.83	94%	6%	3
11	Programme Management	£ 595.62	£ 771.14	129%	29%	2
	<b>IT</b>	<b>£ 3.27</b>	<b>£ 3.16</b>	<b>97%</b>		
05	Monitoring the trials	£ 3.27	£ 3.16	97%	3%	
	<b>Travel &amp; Expenses</b>	<b>£ 107.43</b>	<b>£ 3.00</b>	<b>3%</b>		
00	Novel Commercial Arrangement	£ -	£ -	0%	0%	
01	Initial background - evaluation of initial trial	£ -	£ -	0%	0%	
02	Customer engagement	£ -	£ -	0%	0%	
03	Integration of the Technology with charging points	£ -	£ -	0%	0%	
04_2	Install technology and charging points	£ -	£ 0.40	N/A		
04_1	Establishment of Customer / Cluster trials	£ 105.15	£ -	0%	100%	4
05	Monitoring the trials	£ 2.28	£ -	0%	100%	
06	Trial participant interviews	£ -	£ -	0%	0%	
07	Network Modelling	£ -	£ -	0%	0%	
08	Consultation with EV manufacturers - cycle times	£ -	£ -	0%	0%	
09	Project recommendations and implementation	£ -	£ 0.20	N/A		
10	Dissemination	£ -	£ 0.20	N/A		
11	Programme Management	£ -	£ 2.20	N/A		
	<b>Payments to users</b>	<b>£ 311.76</b>	<b>£ 274.09</b>	<b>88%</b>		
04_1	Establishment of Customer / Cluster trials	£ 199.18	£ 274.09	138%	38%	
12	Project Contingency	£ 112.58	£ -	0%	100%	4
	<b>Contingency</b>	<b>£ 400.39</b>	<b>£ 400.40</b>	<b>100%</b>		
04_1	Establishment of Customer / Cluster trials	£ 82.07	£ -	0%	100%	4
12	Project Contingency	£ 318.32	£ 400.40	126%	26%	4
	<b>Decommissioning</b>	<b>£ 26.29</b>	<b>£ 30.00</b>	<b>114%</b>		
04_1	Establishment of Customer / Cluster trials	£ 26.29	£ 30.00	114%	14%	2
	<b>Other</b>	<b>£ 72.88</b>	<b>£ 29.27</b>	<b>40%</b>		
04_1	Establishment of Customer / Cluster trials	£ 72.88	£ 29.27	40%	60%	4
	<b>Total</b>	<b>£ 4,749.42</b>	<b>£ 4,749.43</b>	<b>100%</b>		

## Notes:

1. Cost of trial equipment reduced by EA Technology to further subsidise the project and mitigate the transcription error.
2. Movement of budget to reflect better the anticipated effort requirements.
3. Movement of budget to accommodate additional requirements introduced as part of the Project Direction v1.10.
4. Movement of budget to correct transcription error.

## 7.2 Project funding allocations by task and category

The overall project expenditure to date and projected forward remains within the overall project budgetary restriction outlined in the Project Direction. The project is continuing in line with the plan outlined as part of the ongoing discussions relating to the Change Request to the Project Direction.

The available contingency for the previous financial year has been released to fund additional customer recruitment activities necessitated by the additional requirements introduced through the Project Direction.

## 8 Bank account

The I2EV Project Bank Account statement for this period is attached in Appendix A.

A summary of the transactions to date is shown in the table below:

Description	Totals (project inception to end of May 2014)
Electricity North West Limited	£0.00
Northern Electric Distribution Limited	£226,000.00
Yorkshire Electricity Distribution Plc	£324,000.00
Scottish Hydro Electric Power Distribution Plc	£107,000.00
Southern Electric Power Distribution	£1,541,000.08
Southern Electric Power Distribution (10% contrib)	£474,942.13
SP Distribution Limited	£0.00
SP Manweb Plc	£213,000.00
Eastern Power Networks Plc	£0.00
London Power Networks Plc	£687,000.00
South Eastern Power Networks Plc	£322,000.00
Western Power Distribution (Midlands East) Plc	£375,000.00
Western Power Distribution (South Wales) Plc	£158,000.00
Western Power Distribution (South West) Plc	£222,000.00
Western Power Distribution (Midlands West) Plc	£0.00
Interest	£6,118.06
Payments out of account -	-£1,927,911.77
<b>Balance</b>	<b>£2,728,148.50</b>

## 9 Intellectual Property Rights (IPR)

### 9.1 Current Reporting Period

The project has not generated any material that could be subject to IPR restrictions.

### 9.2 Next Reporting Period

The project is not expected to generate any material that could be subject to IPR restrictions in the next reporting period.

## 10 Other

The project is considered to be operating in line with the original submission aims and requirements, but is moving at a faster pace than was originally intended because of the additional terms introduced

to project targets through the Project Direction v1.10. Despite this, My Electric Avenue (I<sup>2</sup>EV) is delivering wholly in line with the overall budget, spirit and intention of the project bid, whilst protecting the cost to, and interest of the customer. This is despite a shortfall of c£220k from the intended budget due to our transcription error, which has resulted in EA Technology committing additional in-kind contributions to the project.

Unforeseen issues have been experienced, either as a consequence, or exacerbated by the requirement to deliver all technical clusters in a simultaneous delivery fashion rather than a staged roll-out.

It should not be forgotten that a key element of the project is to understand how a non-DNO can manage the delivery of such a project, and whether this model could accelerate the deployment and adoption of new interventions. It is a test case, and not everything experienced to date was, or could have been, foreseen at bid stage. Ultimately, this journey is producing some solid learning, which will benefit future projects, DNOs and supply chain participants who may look to adopt this approach.

## 11 Accuracy assurance statement

The individual sections of this Project Progress Report have been prepared by the Task Leads managing the distinct areas of the project within EA Technology and collated into a single document by the Programme Manager. The document has subsequently been reviewed by the Project Director, who also holds the position of Future Networks Director for the business before sign-off for issue.

Within SSEPD, the Project Delivery Manager and Regulation Team have reviewed this document prior to final review and authorisation by the Director of Distribution.

Financial details are drawn from the SSE group-wide financial management systems and project bank account.

Prepared by:

Tim Butler	Programme and Task Manager	EA Technology
Becky Lees	Task Manager	EA Technology
Dan Hollingworth	Head of Smart Grid Delivery	EA Technology

Reviewed by:

Dave A Roberts	Project Director / Future Networks Director	EA Technology
Nigel Bessant	Project Delivery Manager	SSEPD
Beverley Grubb	Regulation	SSEPD

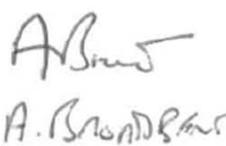
Authorised by:

Dave A Roberts	Future Networks Director	EA Technology
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20 June 2014

Stuart Hogarth	Director of Distribution	SSEPD
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WITH DELEGATED  
AUTHORITY OF  
DIRECTOR OF  
DISTRIBUTION

18 June 2014

## Appendix A. Project Bank Account Statement

### Bankline



Statement for account \*\*-\*-\*\* \*\*\*\*\* from 01/12/2013 to 31/05/2014

Short name:	SOUTHERN ELECTRIC PO	Currency:	GBP
Alias:	SOUTHERN ELECTRIC PO	Account type:	SPECIAL INT BEARING
BIC:	*****	Bank name:	NATIONAL WESTMINSTER BANK
IBAN:	*****	Bank branch:	READING MKT PLACE

Date	Narrative	Type	Debit	Credit	Ledger balance
	<b>CLOSING BALANCE</b>				<b>2,728,148.50Cr</b>
27/05/2014	SOUTHERN ELECTRI I2EV COSTS	EBP	110,685.45		2,728,148.50Cr
30/04/2014	SOUTHERN ELECTRI I2EV COSTS	EBP	4,214.58		2,838,833.95Cr
31/03/2014	31MAR-GRS 90790375	INT		1,672.01	2,843,048.53Cr
28/03/2014	NORTHERN ELECTRIC LCNF	BAC		27,000.00	2,841,376.52Cr
28/03/2014	NORTHERN ELECTRIC LCNF	BAC		18,833.33	2,814,376.52Cr
26/03/2014	SOUTHERN ELECTRI I2EV COSTS	EBP	407,837.93		2,795,543.19Cr
26/03/2014	WESTPOWSWEST LCNF 2013-14 FROM FP 26/03/14 1700 2542528074325204SO	BAC		62,916.67	3,203,381.12Cr
17/03/2014	SCOTTISH HYDRO-E SCOTTISH HYDRO-E	EBP		8,916.67	3,140,464.45Cr
17/03/2014	SOUTHERN ELECTRI SOUTHERN ELECTRI	EBP		29,683.93	3,131,547.78Cr
17/03/2014	SOUTHERN ELECTRI I2EV FUNDING	EBP		128,416.67	3,101,863.85Cr
13/03/2014	R B S-SP MANWEB	BAC		17,750.00	2,973,447.18Cr
11/03/2014	UK PN OPERATIONS 1000 2000051712 K	BAC		26,833.33	2,955,697.18Cr
11/03/2014	UK PN OPERATIONS 1000 2000051705 K	BAC		57,250.00	2,928,863.85Cr
11/03/2014	FEBRUARY AND MAR EBANKGO55430287 EA TECHNOLOGY LI MITED CHAPS TFR	CHP		19,789.16	2,871,613.85Cr
28/02/2014	NORTHERN ELECTRIC LCNF	BAC		27,000.00	2,851,824.69Cr
28/02/2014	NORTHERN ELECTRIC LCNF	BAC		18,833.33	2,824,824.69Cr
28/02/2014	R B S-SP MANWEB	BAC		17,750.00	2,805,991.36Cr
26/02/2014	SOUTHERN ELECTRI I2EV FUNDING	EBP	266,174.69		2,788,241.36Cr
26/02/2014	SCOTTISH HYDRO-E SCOTTISH HYDRO-E	EBP		8,916.67	3,054,416.05Cr
26/02/2014	SOUTHERN ELECTRI I2EV FUNDING	EBP		128,416.67	3,045,499.38Cr
26/02/2014	SOUTHERN ELECTRI I2EV FUNDING	EBP		29,683.93	2,917,082.71Cr
26/02/2014	WESTPOWSWEST LCNF 2013-14 FROM FP 26/02/14 1700 8676672174325204SO	BAC		62,916.67	2,887,398.78Cr

I<sup>2</sup>EV 3<sup>rd</sup> Project Progress Report: Jan - June 2014

Date	Narrative	Type	Debit	Credit	Ledger balance
	<b>BALANCE CARRIED FORWARD</b>				<b>2,824,482.11Cr</b>
21/02/2014	UK PN OPERATIONS 1000 2000043650 K	BAC		26,833.33	2,824,482.11Cr
21/02/2014	UK PN OPERATIONS 1000 2000043643 K	BAC		57,250.00	2,797,648.78Cr
30/01/2014	DNO CONTRIBUTION EBANKG054849254 EA TECHNOLOGY LI MITED CHAPS TFR	CHP		9,894.58	2,740,398.78Cr
28/01/2014	NORTHERN ELECTRIC LCNF	BAC		27,000.00	2,730,504.20Cr
28/01/2014	NORTHERN ELECTRIC LCNF	BAC		18,833.33	2,703,504.20Cr
28/01/2014	SOUTHERN ELECTRI I2EV FUNDING	EBP		29,683.93	2,684,670.87Cr
28/01/2014	SCOTTISH HYDRO-E I2EV FUNDING	EBP		8,916.67	2,654,986.94Cr
28/01/2014	SOUTHERN ELECTRI I2EV FUNDING	EBP		128,416.67	2,646,070.27Cr
28/01/2014	R B S-SP MANWEB	BAC		17,750.00	2,517,653.60Cr
27/01/2014	WESTPOWSWEST LCNF 2013-14 FROM FP 27/01/14 0209 5901390084326204SO	BAC		62,916.67	2,499,903.60Cr
15/01/2014	UK PN OPERATIONS 1000 2000006109 K	BAC		26,833.33	2,436,986.93Cr
15/01/2014	UK PN OPERATIONS 1000 2000006102 K	BAC		57,250.00	2,410,153.60Cr
03/01/2014	SOUTHERN ELECTRI I2EV COSTS	EBP	191,323.11		2,352,903.60Cr
03/01/2014	SCOTTISH HYDRO-E I2EV FUNDING	EBP		8,916.67	2,544,226.71Cr
03/01/2014	SOUTHERN ELECTRI I2EV FUNDING	EBP		29,683.93	2,535,310.04Cr
03/01/2014	SOUTHERN ELECTRI I2EV FUNDING	EBP		128,416.67	2,505,626.11Cr
31/12/2013	31DEC-GRS 90790375	INT		1,227.26	2,377,209.44Cr
27/12/2013	NORTHERN ELECTRIC LCNF	BAC		27,000.00	2,375,982.18Cr
27/12/2013	NORTHERN ELECTRIC LCNF	BAC		18,833.33	2,348,982.18Cr
27/12/2013	WESTPOWSWEST LCNF 2013-14 FROM FP 27/12/13 0213 1230935084326204SO	BAC		62,916.67	2,330,148.85Cr
20/12/2013	R B S-SP MANWEB	BAC		17,750.00	2,267,232.18Cr
17/12/2013	UK PN OPERATIONS 1000 2000142070 K	BAC		26,833.33	2,249,482.18Cr
17/12/2013	UK PN OPERATIONS 1000 2000142063 K	BAC		57,250.00	2,222,648.85Cr
16/12/2013	EA TECHNOLOGY LTD DNO CONTRIBUTION FP 16/12/13 1433 23143353379391000N DNO CONTRIBUTION	BAC		9,894.58	2,165,398.85Cr
	<b>OPENING BALANCE</b>				<b>2,155,504.27Cr</b>
<b>Totals</b>			<b>980,235.76</b>	<b>1,552,879.99</b>	