

## Second Tier Reward Application

Expert Panel Discussion  
16th July 2018



# MY ELECTRIC AVENUE



DRIVING TOGETHER FOR A CLEANER FUTURE



**Scottish & Southern**  
Electricity Networks



**Stewart Reid**  
Project Director



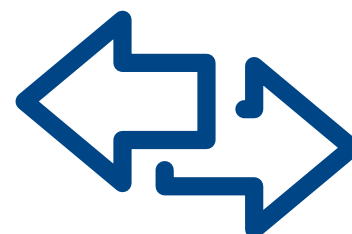
**Richard Hartshorn**  
EV Readiness Manager



**Dave A Roberts**  
Project Director



Innovation #1



Innovation #2

1

## Technical innovation

Trialling a technology (Esprit) to mitigate the impact of Electric Vehicle (EV) charging on the local electricity network

2

## Commercial innovation

A blueprint for commercial contracts and management of projects delivered by a third party on behalf of a Distribution Network Operator (DNO)

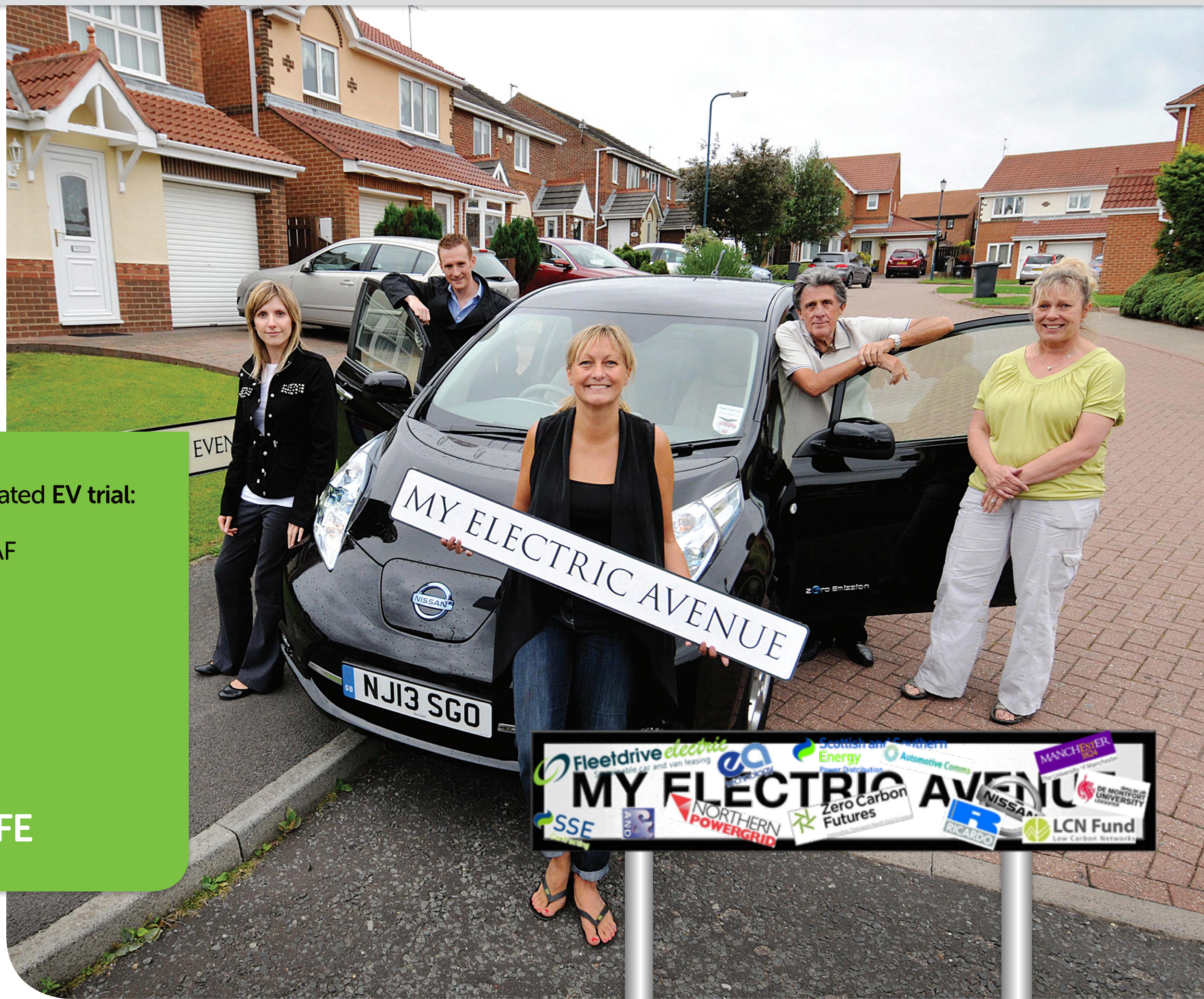


- From Jan 2013 – to Mar 2016
- £10m project to understand the issue and trial a mitigation solution (Esprit)
- Led by EA Technology, working with SSEN, Nissan, Northern Powergrid, Zero Carbon Futures, plus others
- £4.6m funded via Ofgem's Low Carbon Networks Fund

At the time, the largest network related EV trial:

- 220 x 3.5kW charging Nissan LEAF
- 18 month lease deals
- Locally clustered
- Controlled at peak times
- Analysed datasets

Real people, real cars,  
real networks. REAL LIFE

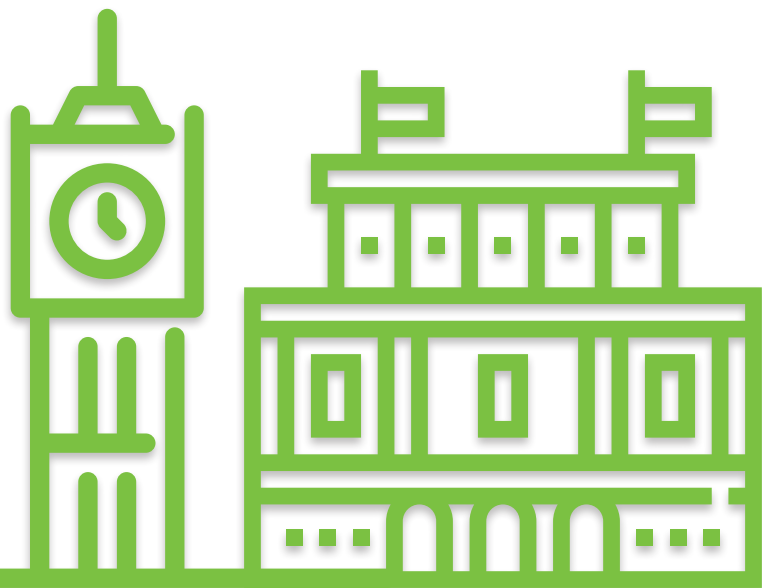


## 1. The top three exceptional outcomes from this project



1.

Becoming the 'go to' project to evidence the impact of EVs on Britain's power networks – even three years after completion, and kick-starting EV network innovation in GB.



2.

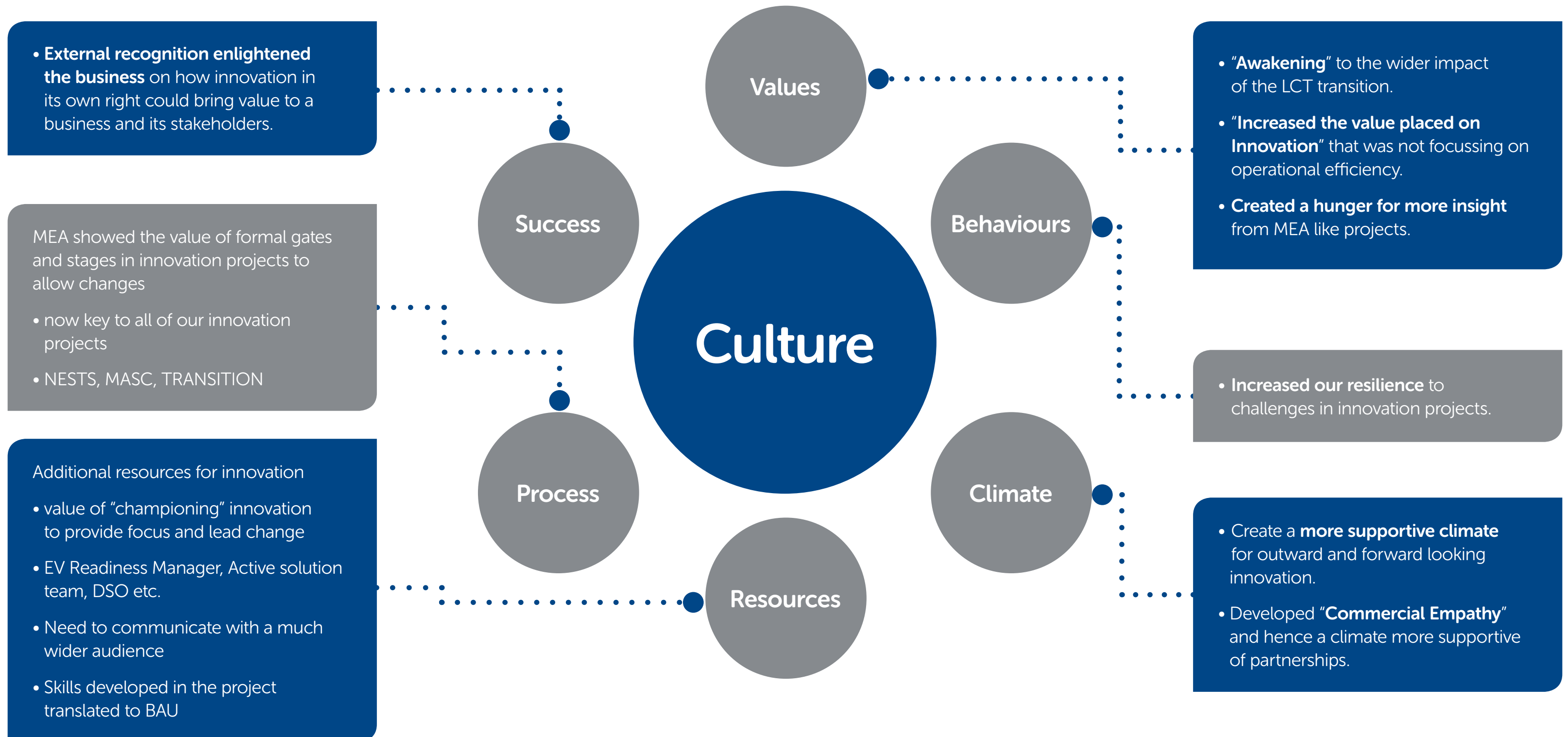
Influencing / informing legislation with the Automated and Electric Vehicles Bill.



3.

First project to demonstrate additional value from being non-DNO led.

## 2. How the project has informed /changed the culture within SSEN



## 2. How the project has informed /changed the culture within EA Technology

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1.

The need to communicate/engage with a MUCH wider audience than we have previously been involved



2.

A clear drive beyond the 'project' to ensure the outputs get as close to BAU as possible



3.

Tighter PM / risk processes



4.

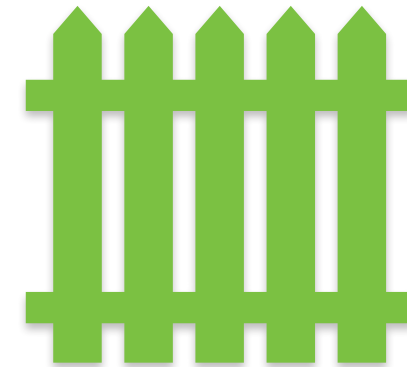
Improved commercialisation routes for our products



### 3. How the Second Tier Reward incentive influenced our project management and operational practices during the project (SSEN)



Delivering additional  
outputs – learning  
team and dissemination  
events



Use of Stage Gates in  
innovation projects

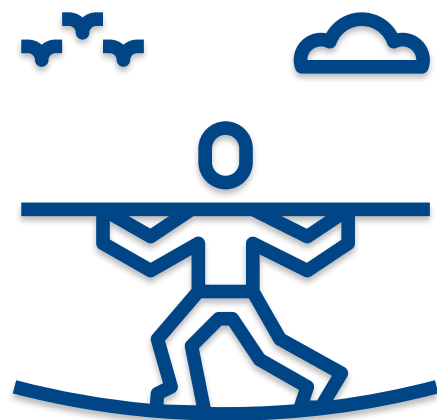


Reward encouraged us  
to take greater risk



Crystallised differences  
in risk perception with  
partners who have a  
different risk appetite  
than DNO

### 3. How the Second Tier Reward incentive influenced our project management and operational practices during the project (EA Technology)



1.

#### Acceptance of risks that we would not have otherwise undertaken

- E.g. Roll out of vehicles with 'at risk' funding held by EA Technology



2.

#### Delivery of milestones at all cost

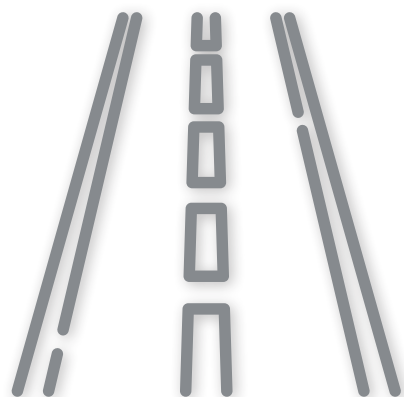
- Every SDRC delivered on or before time
- Additional contribution made to ensure the project delivered



3.

#### Partner working

- Recognition that we cannot and should not do everything - a focus on areas where we add most value
- Bringing in others where they have the right expertise
- Ensuring partners / subcontractors are well managed



4.

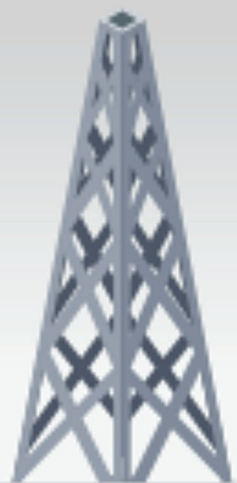
#### Going the extra mile

- Additional outputs in the project (e.g. learning from PLC)
- Post project dissemination
- A focus on implementable solutions

#### 4. The datasets/other IP, generated as part of the project, that has been shared with other stakeholders



##### PROJECT DOCUMENT MAP



##### My Electric Avenue charging dataset

- Accessed at least 548 times
- National Grid FES
- OLEV

##### Dedicated dissemination sessions with other DNOs

- Targeted visits to all GB DNOs to share learning

##### USEFUL INFORMATION ABOUT EVs

EVs



##### Dialogue beyond the DNO sector

- OLEV / BEIS
- OEMs (via SMMT)
- Housing developers

##### General EV-DSR learning

- Summary Reports
- Project reports
- Top 10 tips

##### DOWNLOAD THE PROJECT DATA



##### Project data sets 220 EVs across 18 months

Participant  
data

Cluster data

Network data

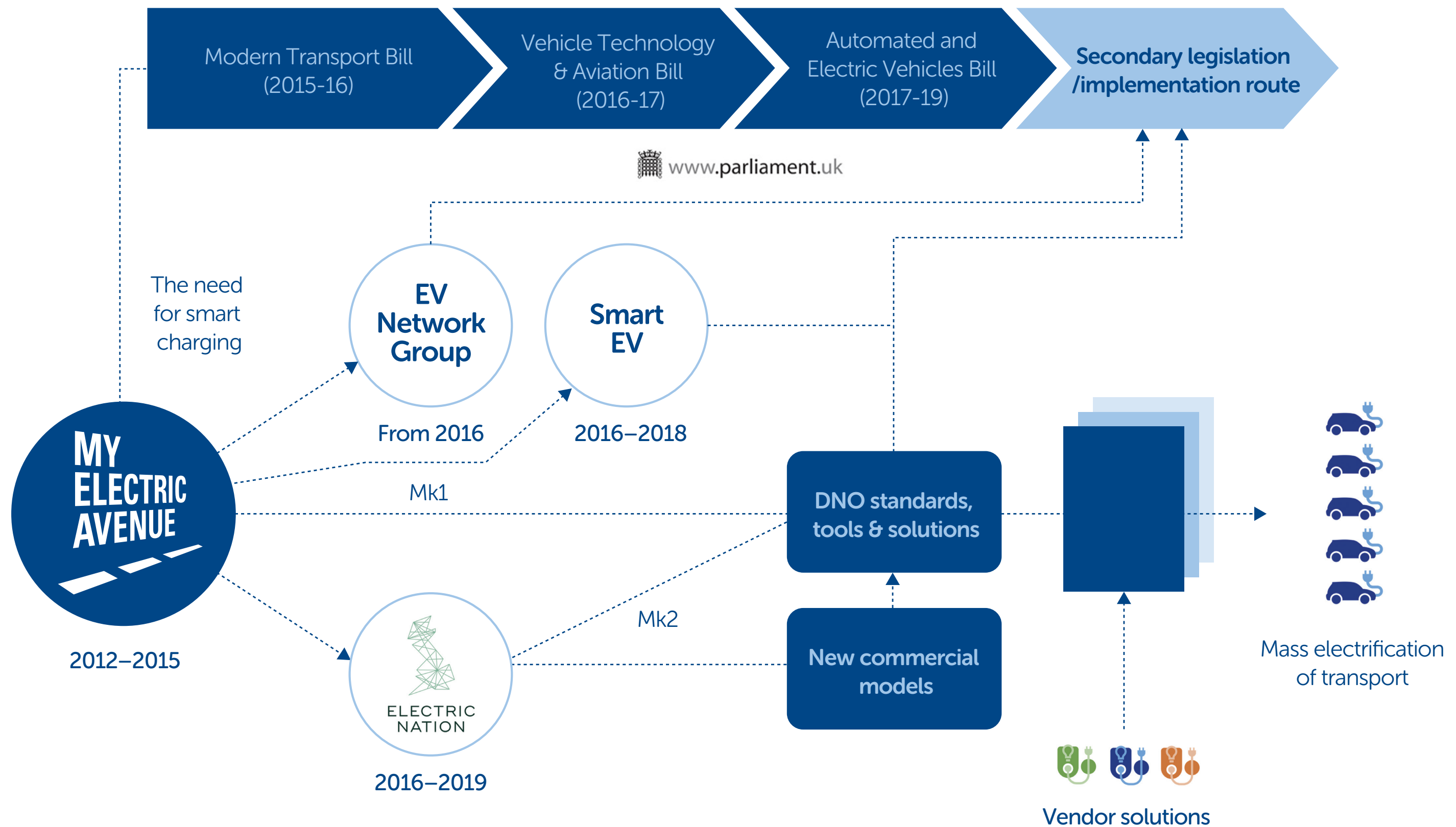
Charge  
control data

EV data

## 5. Evidence to support that the project influenced legislative change (1)



### OLEV / DfT drive for Primary powers for smart charging to support EV uptake



Mk1: Simple on/off control; Mk2: 'Smart' (modulated) control

## 5. Evidence to support that the project influenced legislative change (2)

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**Automated and Electric Vehicles Bill 2017-19**

**Type of Bill:** Government Bill  
**Sponsors:** Chris Grayling  
Transport  
Baroness Sugg  
Transport

**Progress of the Bill**

Bill started in the House of Commons

House of Commons: 1 (First reading), 2 (Second reading), C (Committee stage), R (Report stage), 3 (Third reading)

House of Lords: 1 (First reading), 2 (Second reading), C (Committee stage), R (Report stage), 3 (Third reading), A (Consideration of amendments)

Royal Assent

**Last events**

Ping Pong | 26.06.2018

Programme motion: House of Commons | 26.06.2018

[Read debates on all stages of the Automated and Electric Vehicles Bill 2017-19](#)

**Latest Bill**

House	Bill	Date
©	Bill 227 2017-19 - Lords Amendments to the Bill   PDF version, 103KB	14.06.2018

[All Bill documents](#)

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**Latest news on the Automated and Electric Vehicles Bill 2017-19**

The House of Commons has accepted all the amendments proposed by the House of Lords so the Bill will now proceed to Royal Assent.

**Summary of the Automated and Electric Vehicles Bill 2017-19**

A Bill to make provision about automated vehicles and electric vehicles.

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## Automated & Electric Vehicle Bill (2017-19)

- Provides Government the powers to mandate smart charging
  - To: require that charge points are 'smart' and can interact with the electricity grid
  - Will be delivered through secondary legislation
- Royal Assent imminent



My Electric Avenue datasets and output reports have been instrumental to our understanding and have helped inform our policy on grid issues. The evidence on customer charging behaviours and smart charging acceptance has helped give Government the confidence to push ahead with widescale electrification of cars and vans.

The project has informed our thinking on legislation [with] the Automated and Electric Vehicle Bill.

**Nick Brooks**, Head of Energy  
Office for Low Emission Vehicles



## 6. The project leveraged significant additional funding from other sources, which changed from the time of original funding

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Funding Partner	In-kind or Cash	Original Funding	Additional funding during the project	Reason
EA Technology	In-kind	£600k	c£400k	<ul style="list-style-type: none"> <li>• Reductions in staff rates; more resource in the Project for the same cost</li> <li>• Increased subsidy on Esprit equipment &amp; additional support to deliver the project within budget</li> </ul>
Drive Electric	In-kind	£98k	c£60k	<ul style="list-style-type: none"> <li>• Significant additional costs to successfully recruit trial participants</li> </ul>
Nissan	Cash	£500k+ lease discounts* £170k data access & technical support	£50k	<ul style="list-style-type: none"> <li>• Nissan elected not to invoice for staff time at the end of the project – both Nissan International SA and Nissan Motor GB</li> </ul>
Trial participants	Cash	£180k – Tech trial £580k – Social trial	£0k	<ul style="list-style-type: none"> <li>• Leasing of vehicles, provision of data</li> <li>• No additional contribution</li> </ul>
Total		£2,128k+	£510k	

\* At the time of project commencement, the Residual Value of electric vehicles was volatile – Nissan agreed to underwrite the list price of each LEAF in the trial (a gross of £5m+), this allowed the project to secure an attractive lease deal



Years 1-2 (2013-2014)

Years 2-3 (2014-2016)

Beyond the project  
(2016+)

## Recruitment

- Cluster champions
- Engagement via automotive press
- BBC, YouTube, Social Media



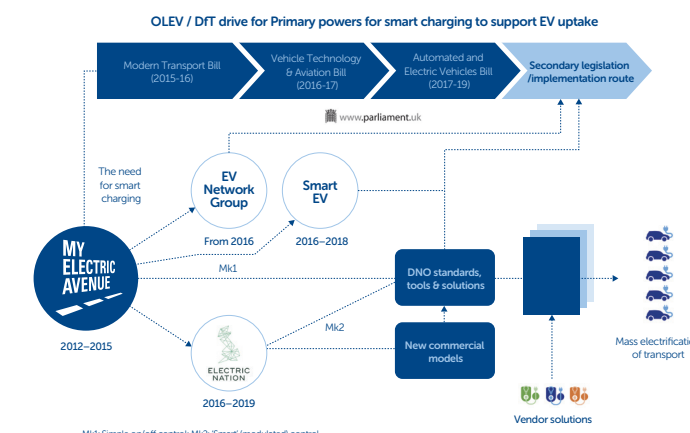
## Dissemination

- With automotive community (i.e. LCV events, SMMT)
- Governmental dialogue
- Housing developers
- DNO workshops



## Implementation

- OLEV / BEIS and further Government support
- EV-Network Group (now EV-Energy Taskforce under OLEV Road to Zero strategy)
- Follow on projects to exploit the opportunities presented





## Supporting the Carbon Plan

Influencing EV-related  
legislation

Over 3million km  
driven by participants  
in the project creating  
significant data set

Creating informed  
stakeholders and  
customers

Demonstrated up  
to 6GW of Network  
Capacity can be  
released\* by 2050

A minimum net  
benefit of £500m  
to consumers\* by  
2050

Influenced  
changes within  
SSEN, and learning  
used by all DNOs



# [www.myelectricavenue.info](http://www.myelectricavenue.info)

Project leads



Project partners



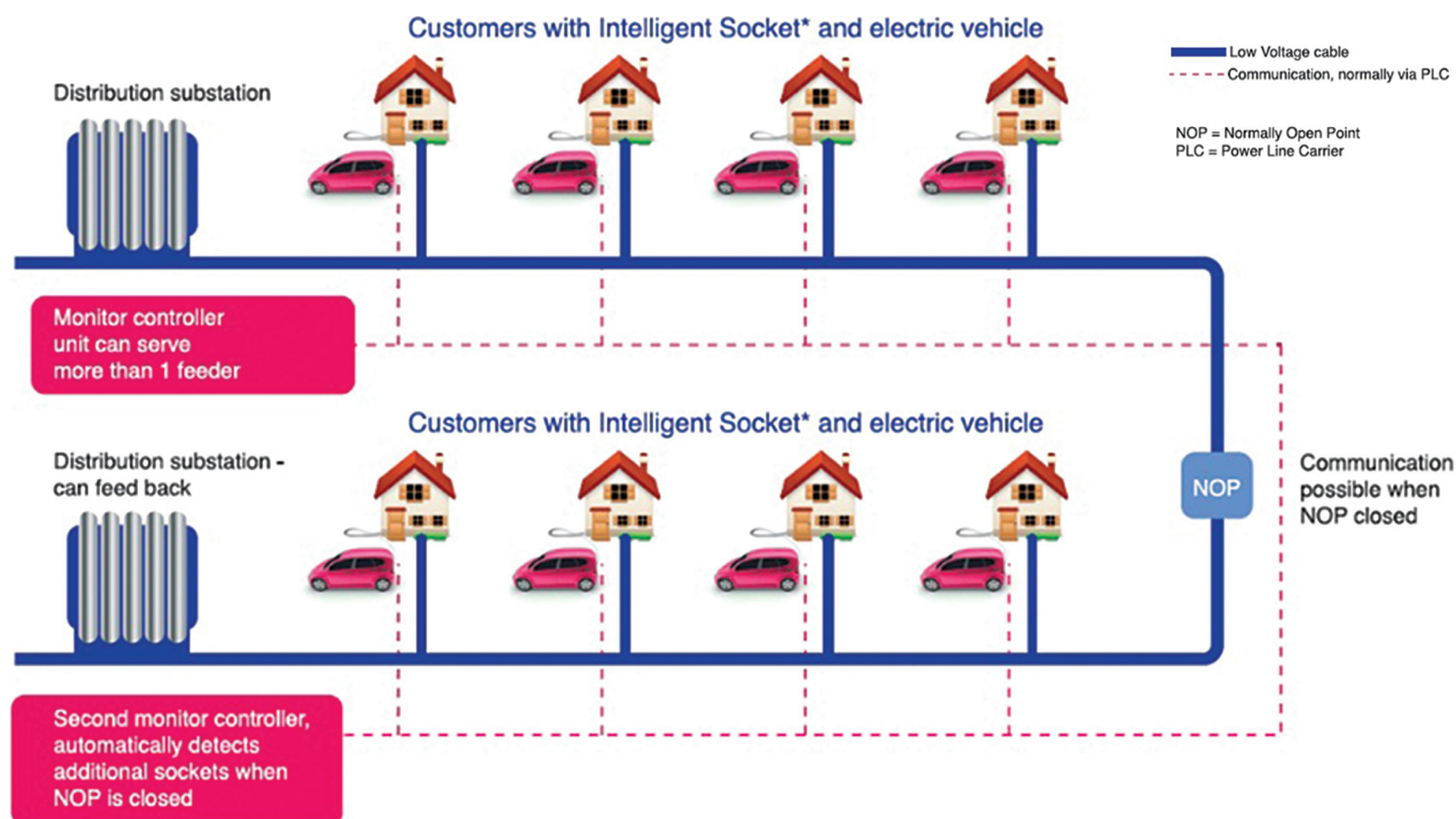
My Electric Avenue has received support from Ofgem through the Low Carbon Networks (LCN) Fund.

# Appendix

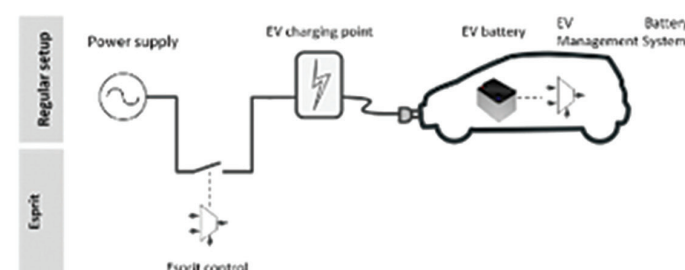
## Supporting Information



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\*the Esprit technology



## Technical trial

Minimum of 100  
customers in (very)  
local 'clusters'

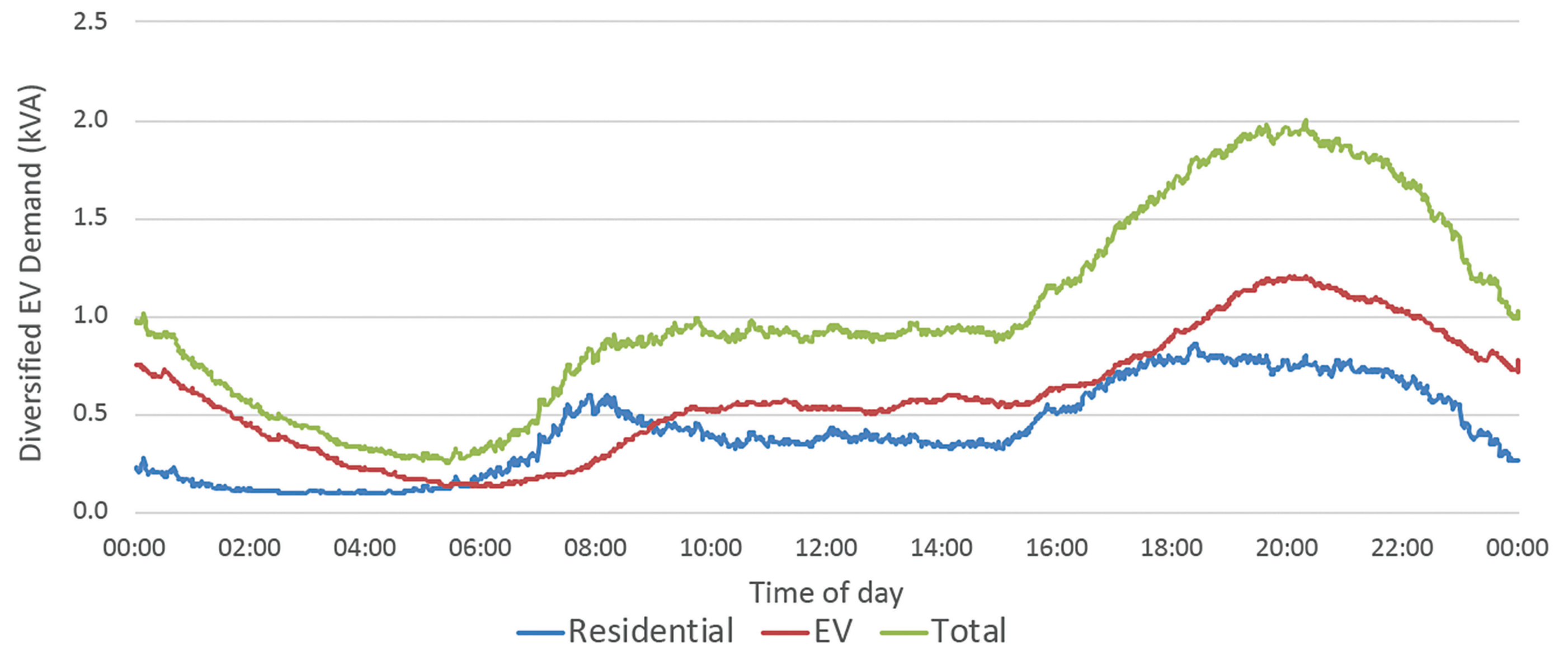


## Social trial

Minimum of 100  
customers across GB  
to provide comparison



All project outputs  
delivered on-time  
and to budget





My Electric Avenue was, and continues to be, a key project of its time. The datasets and output reports have been instrumental to our understanding and have helped inform our policy on grid issues.

The evidence on customer charging behaviours and smart charging acceptance has helped give Government the confidence to push ahead with widescale electrification of cars and vans.

The project has informed our thinking on legislation currently making its way through Parliament as the Automated and Electric Vehicle Bill. The project also led to the establishment of the EV Network Group, a much needed and relevant forum, which is now being directly supported by OLEV.

**Nick Brooks**  
Head of Energy



My Electric Avenue is the project that established the impact of EVs on the local grid. It has given UK plc the evidence base it needs to innovate further in this space, from smart charging technologies to vehicle to grid.

I regularly cite My Electric Avenue learning in presentations to Government and industry, along with the fact that EV drivers became confident and relaxed with charging deferral into the night. It is great to see that the project has directly led to other initiatives such as the EV Network Group and Smart EV project.

**Mark Thompson**  
Head of Energy

**Innovate UK**



The My Electric Avenue project was a timely addition to the sector's understanding of the grid impact of EVs, and how non-network solutions like demand response could be used as an alternative to conventional reinforcement. The learning has informed work undertaken in the Energy Systems Catapult and continues to be a valuable source of information and insight.

The Catapult's strategy identifies EVs as a key factor in energy system transformation and has used this project as a source of information to shape and confirm its thinking. The Catapult has drawn on this work in its Future Power System Architecture project, in the development of a number of collaborative bids, in cross-Catapult EV initiatives and in the ongoing development of its capability to support achieving its innovation objectives.

**Eric Brown**  
Director of Innovation

**cATAPULT**  
Energy Systems

Through the 'My Electric Avenue' Project a significant 'bridge' between the Energy and Automotive industries has been created via EA Technology and LowCVP.

The vital importance of these two industries collaborating over the challenges and opportunities presented by large scale adoption of Electric Vehicles has now been grasped by UK central Government initially under the EV Network Group banner (led by LowCVP with significant support from EA Technology) and will be taken forward as a key initiative within the DfT's imminent 'zero emission vehicle strategy'

One of the first tasks of this group will be to identify secondary legislation under the Automated and Electric Vehicles Bill, to establish standards for Smarter Charging methods clearly reflecting the original My Electric Avenue project and its impact in stimulating this sector.

**Andy Eastlake**  
Managing Director

**LowC<sup>VP</sup>**  
Low Carbon Vehicle Partnership



The My Electric Avenue project has helped improve the Scottish Government's awareness of the potential impact of electric vehicles on our distribution networks.

The underlying data set has given us greater insights into charging behaviour in a domestic context, with the project as a whole improving our understanding of the potential network costs associated with electrification of transport.

**David Richie**  
Dept Director of Energy Industries



The insight gained from My Electric Avenue has been invaluable in helping us develop our view on the impact of EVs and smart charging.

The project outputs have been used, and continue to be used by National Grid System Operator to help determine the national impact of domestic EV charging at peak times as part of our Future Energy System (FES) analysis.

**Marcus Stewart**  
Head of Energy Insight SO Strategy  
System Operator, National Grid

**nationalgrid**

I was excited to be involved in My Electric Avenue in its early days, to support its trial recruitment. The Fully Charged episode we did on the project was brilliantly received and reached a wide audience.

My Electric Avenue stood out as being pioneering in its day, and I can easily believe that it has paved the way for further development of smart charging and innovation in the electric vehicle space and wider energy industry.

**Robert Llewellyn**  
Actor, Broadcaster

