



E-cosse

10th STAKEHOLDER FORUM

COMMUNICATIONS & OUTREACH

5th October | 930am – 2pm | Discovery Point, Dundee

EVs - Communications and Outreach

5th October 2015

10th E-cosse Stakeholder Forum

Discovery Point, Dundee



Zak Tuck

Low Carbon Vehicle Policy Team Leader - Transport Scotland



COMMUNICATION & EDUCATION

Increased awareness
and confidence in plug-in
vehicles encourages
widespread adoption

SUSTAINABLE
TRANSPORT

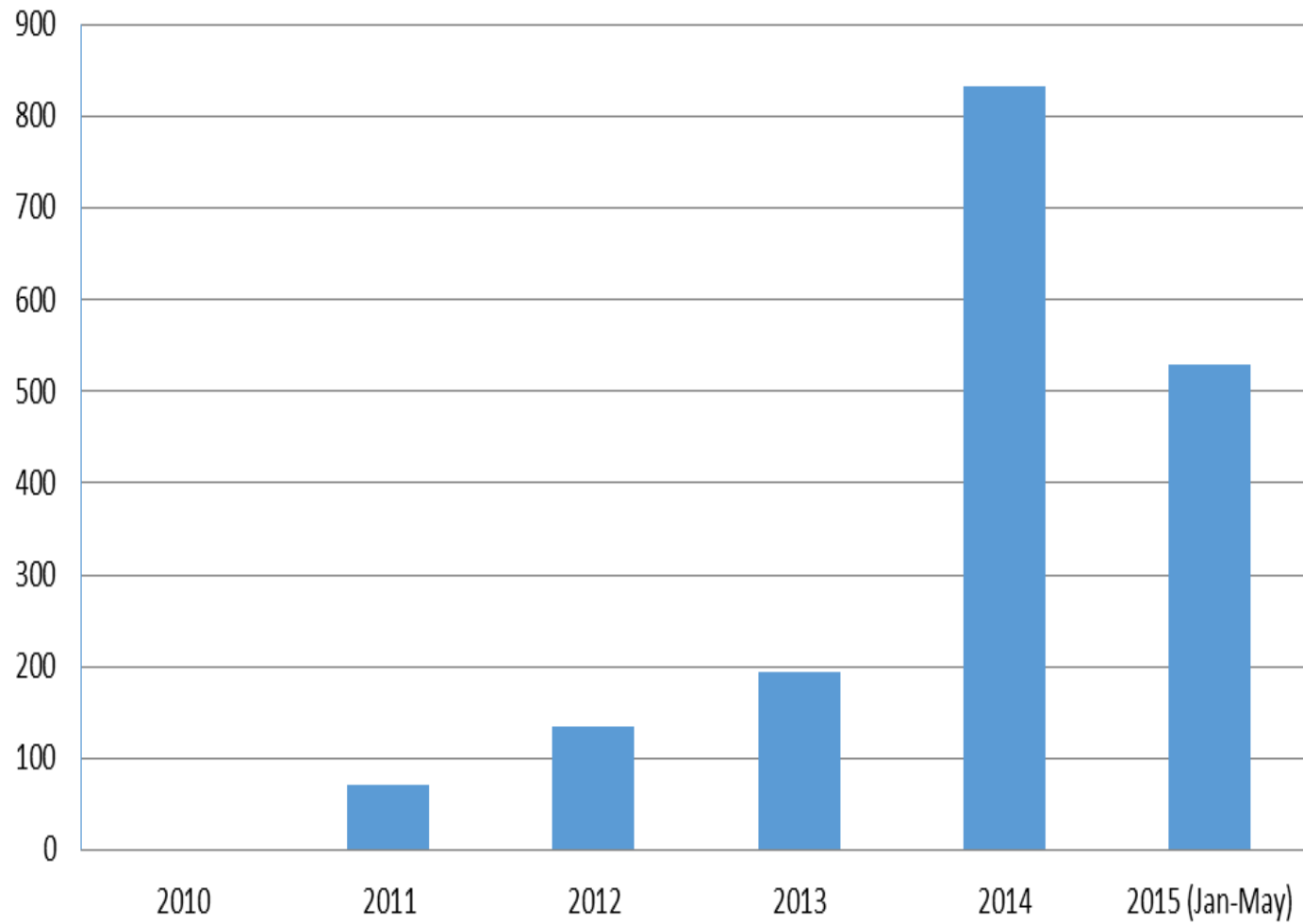
MAP
DEVELOP

RECHARGING

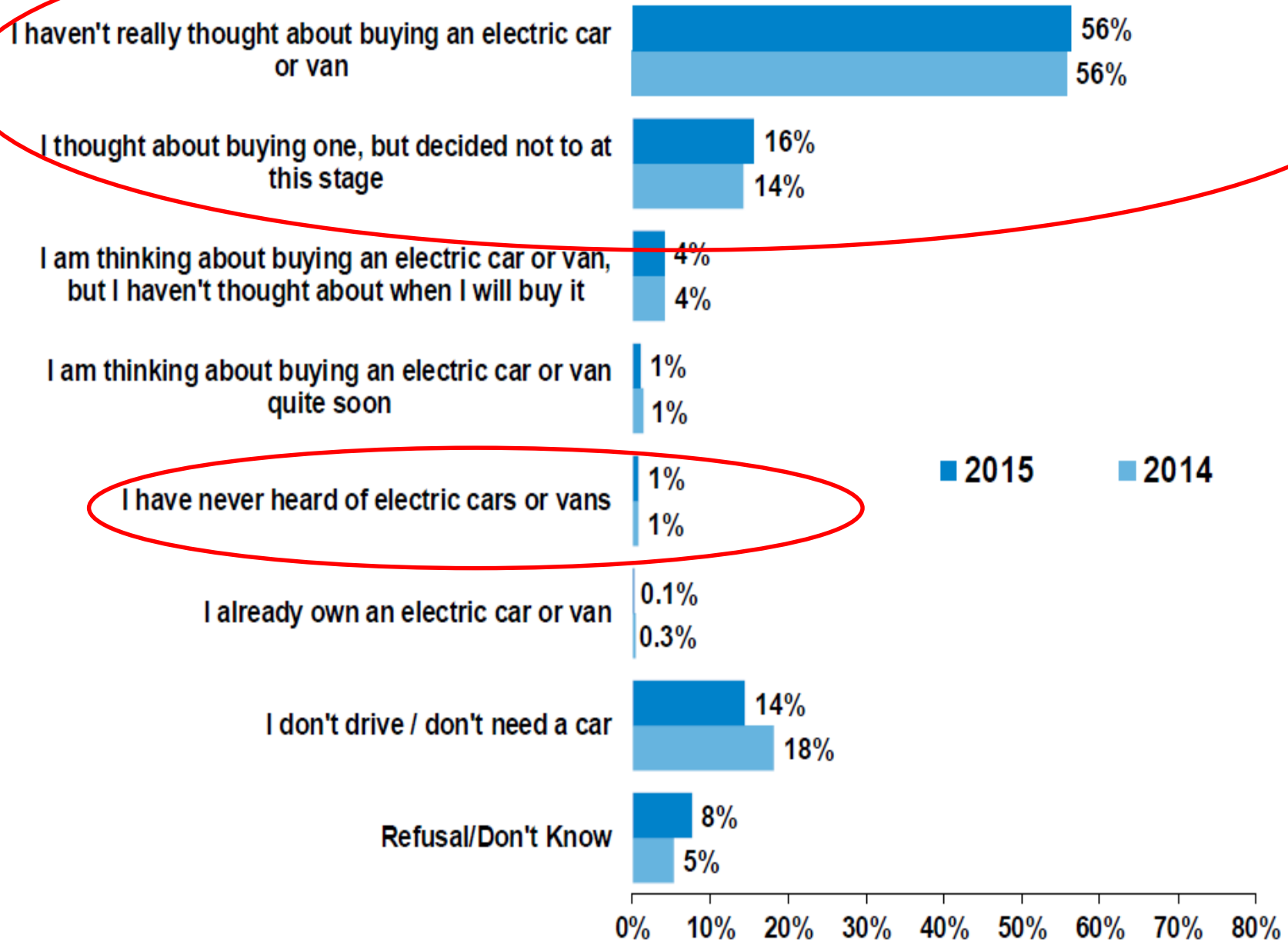
LESS
OPPOR Y

ENERGY
SYSTEMS

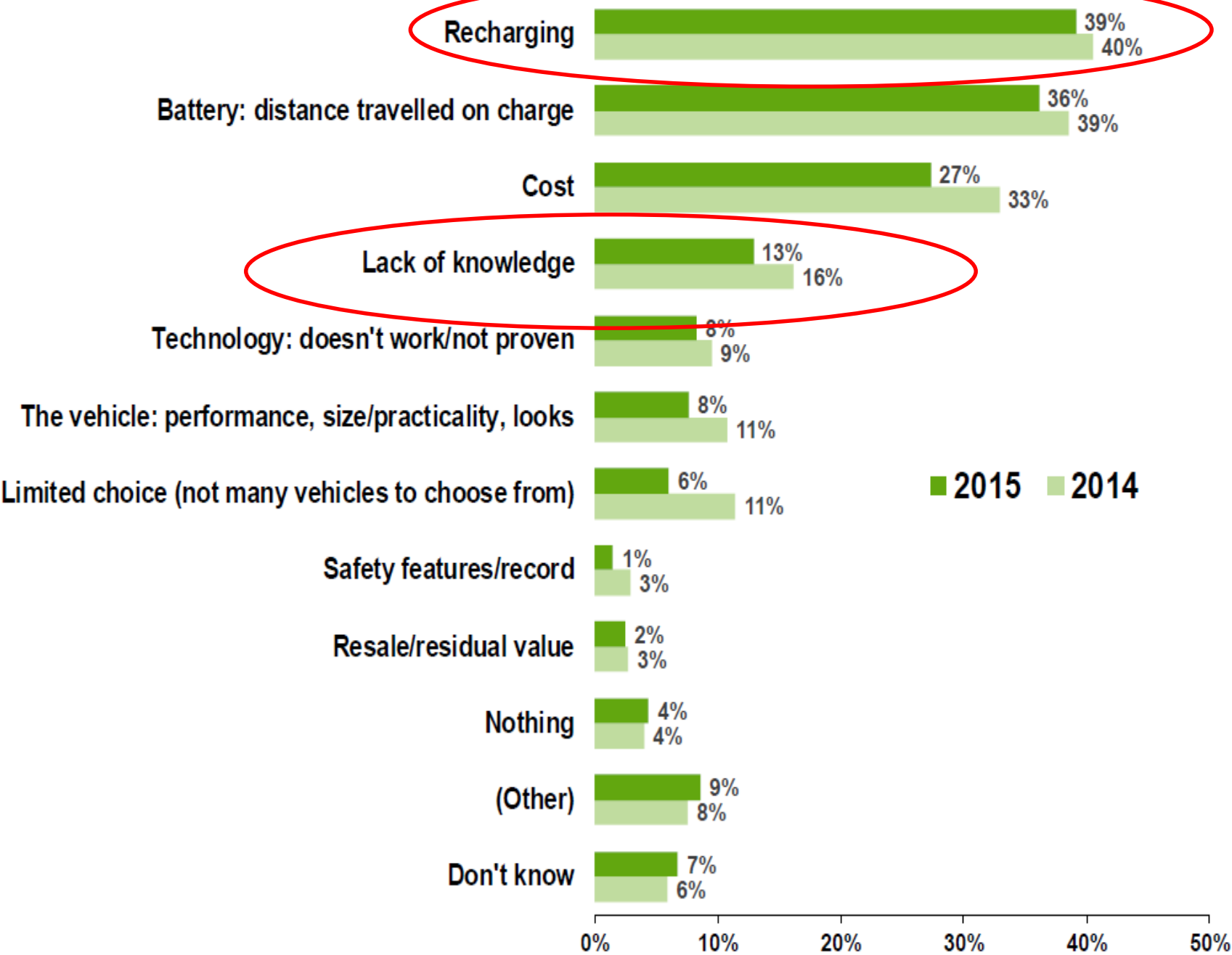
Annual PiG Car Sales, Scotland



Current attitudes towards buying an electric car or van, all respondents: 2014 and 2015 results*



Factors deterring people from buying an electric car or van, driving licence holders, 2014 and 2015 results



“@BritishReaction: Let's all stop and spare a thought for the 2% ” @Tasha_Ivanova

es Cantinetta Branzino

new chef at Bran-
wn neighborhood,
Stewart, who will
d gain more cook-

ly worked at Can-
e has been cook-
out three weeks
anzino co-owner
id Stewart, who
chef when Ashley
at Butter in New
uly 3.

said. "He wants
he's young and

ed at the origi-
's Wallingford
th and Ocean
rained in New
l Boulud and
stianich's Fe-

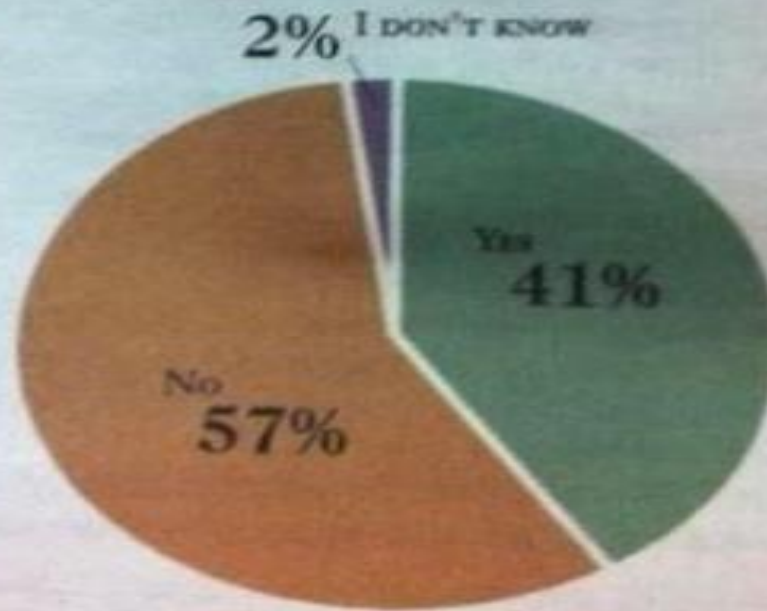
at Branzino
out his new
working the

Business pulse

Results of last week's online poll



Do you own
an Amazon
Kindle?





GIFWAVE.COM

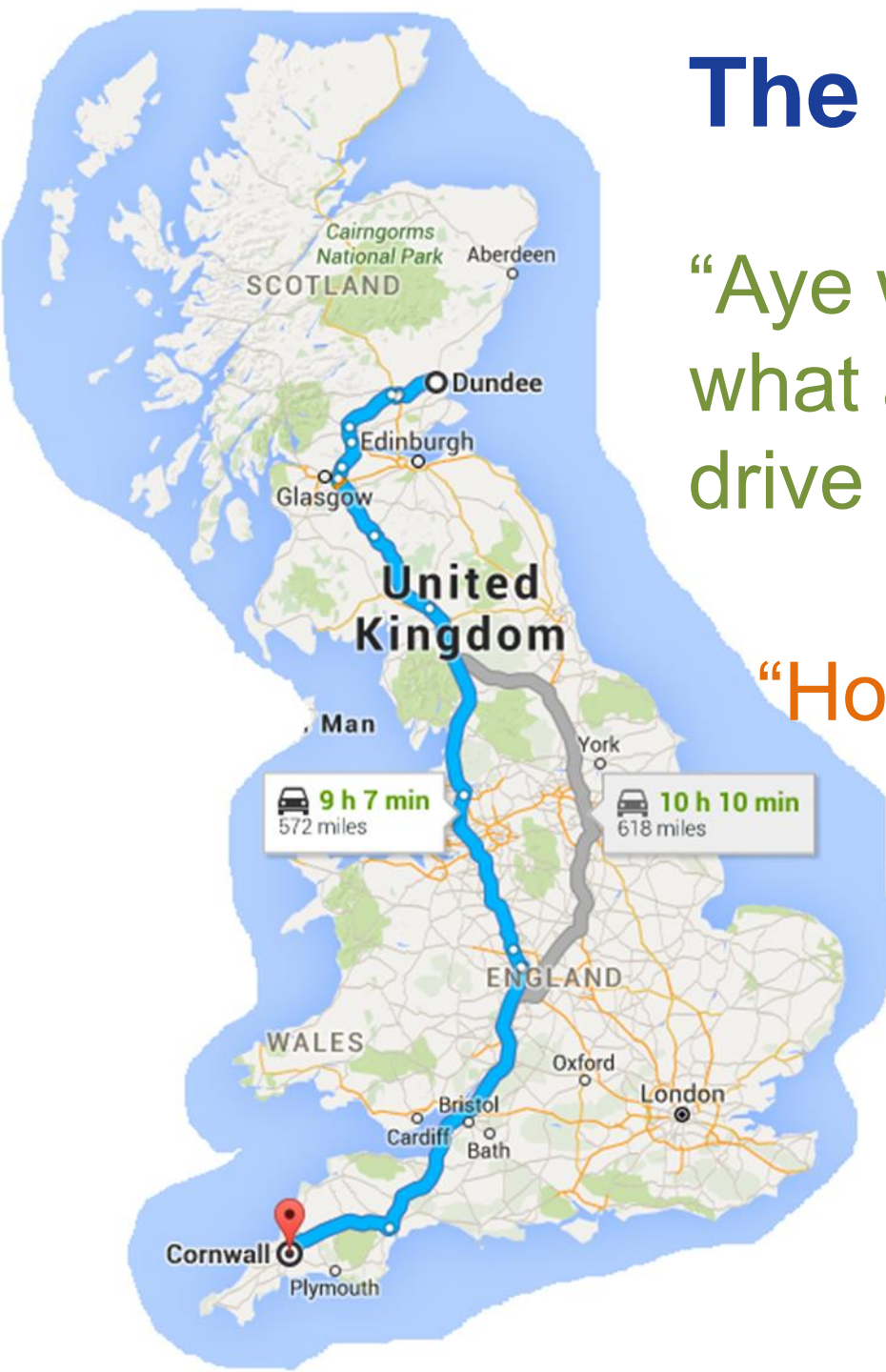


The Cornwall Dilemma

“Aye well, EVs are ok but what about when I want to drive to Cornwall?”

“How often do you do that?”

“Well never, but I might want to one day.”





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Council staff snub electric cars over fears a flat battery will leave them stranded

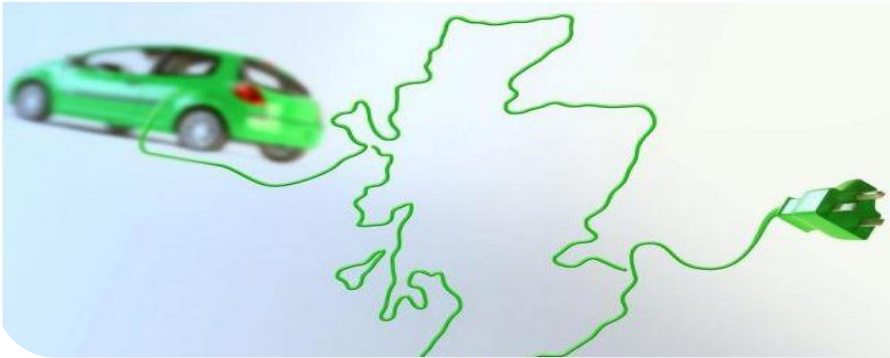
SCOTTISH EXPRESS Now SNP plans to outlaw our cars

THE TIMES Scotland Electric cars for Scottish government 'mad-cap' and 'dictatorial'

heraldscotland
The Herald **sundayherald**

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Business Company News Markets & Economy People Opinion Personal Finance Business Extra & Commercial Property

Whatever happened to our electric dreams?



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Most Popular

Police launch inquiry deals involving SNP I

Corbyn predicts Labo next year's Scottish I elections



All-electric by the year 2050

By KIRSTEEN PATERSON

CAR fumes will be driven from our towns and cities by 2050, the Scottish government has pledged.

The SNP administration yesterday unveiled a 'roadmap' to get drivers filling up by plug instead of pump.

Transport minister Keith Brown said the change was 'vital' to meet climate change commitments.

It pledged to reduce carbon emissions by 80 per cent by 2050 – and wants towns and cities to be free of emissions from petrol and diesel vehicles by then.

The scheme will start with £14million of investment over the next two years.

Charge points will be installed at government buildings and the government's petrol and diesel fleet will be replaced with electric alternatives.

Grants for plug-in cars and vans will be available, with charging kits installed in workplaces and by the roadside.

Drivers who switch will also get free installation of home charge kits and cut-price ferry travel on some routes.

No road tax is payable on electric vehicles and the running costs are



Compact: Transport minister Keith Brown test-drives an electric vehicle in Edinburgh

just 2-3p per mile, compared to the 16p per mile for the average fossil fuel alternative.

Dr Sam Gardner, of WWF Scotland, said:

"Electric vehicles are a win-win for Scotland, helping to tackle climate change, improve air quality and support a renewable rich power system."



GreenFleet



Evolution



EV Rally – 12th September 2015

Scotland on Sunday



Evening Times

Electric cars charge to Stirling



Red Dwarf/Scrapyard Challenge star Robert Llewellyn (and his black Tesla Model S 85) wave off the participants in the Energy Saving Trust electric car rally to Stirling

SCRAPHEAP Challenge presenter Robert Llewellyn led a convoy of 60 electric cars on a rally between Glasgow and Stirling on Saturday.

The Red Dwarf actor, who is also the presenter of online electric car show, Fully Charged, drove his Tesla Model S 85 from George Square into the grounds of Stirling University, accompanied by 60 other electric car drivers.

After a tour of Stirling and a stop at Stirling University, the drivers returned to Glasgow, making the round trip almost 60 miles on a single charge. On average, the journey cost each

electric car around £1.50 – compared to approximately £9 for a petrol vehicle.

The rally took place following the announcement of a £2.5million Electric Vehicle Loan fund from Transport Scotland, which offers Scottish motorists interest-free loans covering 100% of the cost of an electric or plug-in hybrid car of up to £50,000.

Robert said: "Electric cars are here to stay and people are beginning to realise what a great alternative to petrol or diesel they are. They are economical, practical and a pleasure to drive."

Red Dwarf star Kryten swaps ship for an electric car

Pamela Paterson

ROBERT Llewellyn, who plays Kryten in the TV series *Red Dwarf*, yesterday led the charge in a convoy between Glasgow and Stirling – using electric cars.

The actor and presenter of *Scrapheap Challenge* drove his Tesla Model S 85 from the city's George Square to the University of Stirling with 60 other electric car drivers.

The event was to celebrate the announcement that the Scottish Government will offer Scottish motorists interest-free loans covering the total cost of an electric or plug-in hybrid car of up to £50,000.

The £2.5 million Electric Vehicle Loan Fund from Transport Scotland aims to encourage more people to buy the environmentally-friendly vehicles.

After a tour of Stirling, the drivers returned to Glasgow, making the round trip of 60 miles on a single charge.

Llewellyn, who is a big fan of electric cars, said: "Electric cars are here to stay and people are beginning to realise what a great alternative to petrol or diesel they are. They are economical, practical and a pleasure to drive."

The rally included a mixture of pure electric cars and plug-in hybrids, including the BMW i3, BMW i8, Mitsubishi Outlander, Renault Zoe, the Nissan Leaf and the VW Golf GTE.



» Robert Llewellyn in Glasgow



Kevin Smith @tagIMKILLBILL · Sep 12

Really enjoyed today well organised event. Thanks to a lovely talking to you.

Energy Saving Trust @EST_Scotland

@bobbylew and @DerekMackayMSP get Scotland's first #electricrally underway! Stirling here we come!

5:24 PM - 12 Sep 2015 · Details

← ↻ ★ ...



Michael Gill @mgill77 · Sep 12

Great day at the @EST_Scotland #EVrally Thanks for the talk @bobbylew & for taking the time to meet some young fans!



New EV (consumer) loan

The Scotsman

£50k interest free loan? Only if you buy an electric car

JANE BRADLEY
CONSUMER CORRESPONDENT

MOTORISTS will be able to take out an interest-free loan of up to £50,000 to buy a hybrid or electric vehicle under a new fund from the Energy Saving Trust.

The £25 million fund can cover as much as the full cost of a vehicle and can be repaid over a period of up to six years.

Electric cars and vans can be more expensive than their fuel-powered equivalents, predominantly due to the small numbers in which they are produced.

The Scottish Government plans to phase out all petrol and diesel cars within the next 35 years.

The Nissan Leaf, which retails at around £21,500, is currently the UK's most popular electric vehicle, with almost 6,000 cars registered by the third quarter of 2014 – a third of all electric vehicle sales.

It is believed there are around 1,200 electric vehicles currently on Scotland's roads.

The loan will be offered in addition to the UK government's Plug-in Vehicle Grant, which gives electric vehicle owners £5,000 off their purchase.

Transport minister Derek Mackay said: "Encouraging mass changeover to electric vehicles, from more polluting ones running on petrol or diesel, is a key to cleaner road transport in Scotland and a fundamental factor in achieving our ambitious climate change targets while also improving local air quality."

He added: "Electric vehicles already offer large savings to drivers through reduced fuel and taxation costs and this fund will further encourage new buyers by addressing the current cost premium often cited as a barrier to making the switch. I am pleased we are adding this incentive to the growing package of support measures for EVs outlined in the Switched-on Scotland policy roadmap."

Harry Mayers, head of new services at the Energy Saving Trust, said: "We're seeing an increasing amount of interest in electric cars as the technology develops and the charging infrastructure continues to grow across Scotland. This loan fund from Transport Scotland will help people to turn that interest into action and benefit from the long-term cost savings that electric cars offer."

"Electric cars cost around 3p per mile to run, compared with around 15p per mile for the average petrol car, and incur no road tax. They also help to reduce local air and noise pollution, contributing towards a greener, healthier Scotland."

In addition to the Electric Vehicle Loan, full grant funding is currently available through the ChargePlace Scotland programme for electric car drivers to install a charge point in their home. There are also around 500 public charging points located around Scotland under the ChargePlace Scotland network.

However, a report out earlier

this year from monitoring organisation the RAC Foundation revealed that almost half of Scotland's electric vehicle charging points could be lying unused. The study analysed data over a one-month period from Transport Scotland and found 217 of the 482 units in the ChargePlace Scotland network were not plugged into at all.

The Scottish Government's climate change targets include decarbonising Scotland's road network by 2050. It has been introducing green vehicles in the public sector, including 200 electric vehicles introduced for use by Scottish councils.

Plug-in hybrid cars which run partly from electric charge and partly through a combustion engine, are also covered by the loan.

"Electric vehicles already offer large savings to drivers"

Derek Mackay



Electric cars are gaining popularity with 6,000 in the UK by the third quarter of 2014



ChargePlace Scotland
electric vehicle charging

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theguardian

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home > business economics banking retail markets eurozone

Volkswagen (VW)

VW emissions scandal: 1.2m UK cars affected

German carmaker admits scale of problem in Britain for first time with Audis, Seats and Skodas among vehicles fitted with defeat devices

Graham Ruddick

Wednesday 30 September 2015 1.26 BST



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Diesel exhausts do cause cancer, says WHO

By James Gallagher
Health and science reporter, BBC News

Exhaust fumes from diesel engines do cause cancer, a panel of experts working for the World Health Organization says.



Thanks



Zak Tuck

Low Carbon Policy Team Leader, Transport Scotland

zak.tuck@transportscotland.gsi.gov.uk

0131 244 4503



DUNDEE'S BID TO OLEV'S GO ULTRA LOW TAXI AND CITY SCHEMES

October 2015 | Dundee City Council, Scotland

URBAN
F O R E S I G H T



DUNDEE IS LEADING THE WAY



The largest local authority fleet of electric vehicles in the UK
(62 electric vehicles)

The largest fleet of electric taxis in the UK
(1 in 15 of all taxis & private hire vehicles now electric)



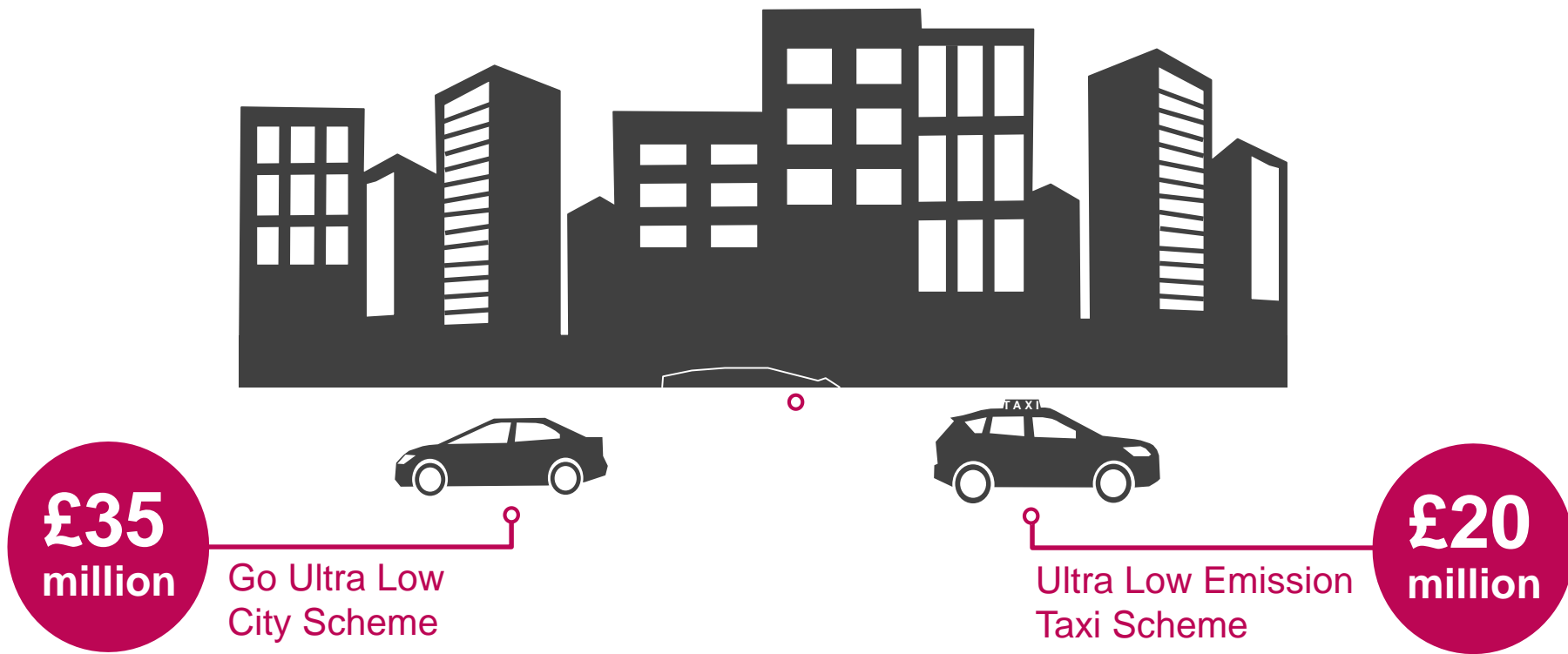
More charging opportunities per head of population than any other city in the UK

The UK's first and most extensive urban rapid charger network (13 rapid chargers)



One of the UK's largest electric car clubs

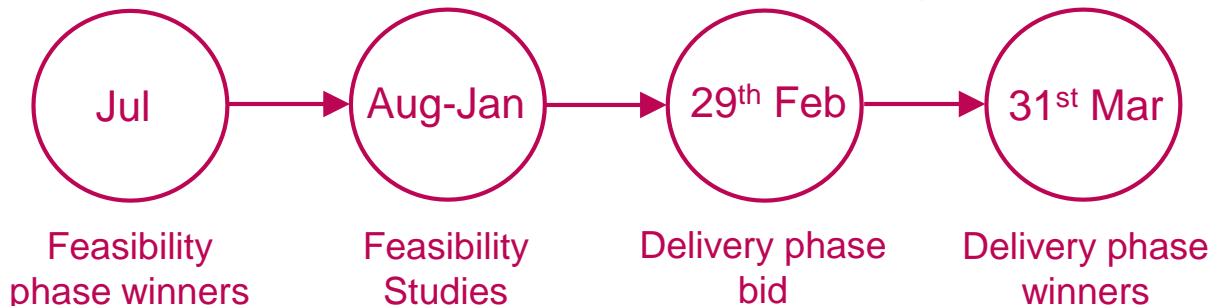
OLEV FUNDING COMPETITIONS



ULTRA LOW EMISSION TAXI SCHEME

VISION: Dundee to become the first city in the UK to have a majority ULEV taxi fleet & by 2020 all taxis in the city centre will be near zero emissions at the tailpipe

- Top-up grants to city's taxi drivers/ operators
- Funding for infrastructure provision at taxi HQs
- Establish 3 charging hubs across the city
- World's first electric taxi school
- New Council transportation contracts (based on NHS Tayside procurement)
- UK-wide and international knowledge exchanges



SHORTLIST

- Birmingham city council
- Cambridge city council
- Coventry city council
- **DUNDEE CITY COUNCIL**
- Nottingham city council
- Oxford city council
- Sheffield city council
- West Yorkshire Combined Authority



OLEV GO ULTRA LOW CITY SCHEME

- Opportunity for cities to cultivate a regional, national and international reputation for their uptake of ULEVs
- The positive consequences of each bid should include:
 - Improved local air quality
 - Reduction in carbon emissions
 - Creation of ULEV related growth opportunities for business both in the local area and beyond
- Up to £35 million for 2 to 4 cities to win through bidding process



**£35
million**

DUNDE EMISSION





Creating frameworks for widespread **fleet adoption** of ULEVs.

Making ULEVs **cost-effective**, **convenient** and part of the **cultural fabric** of the city.



PROJECT EXECUTIVE

DUNDE EMISSION

4j Studios
Austria Tech
British Gas
City of Vancouver
D&A College
EV Association Thailand
Greenway Operator
Michelin
Perth & Kinross Council
Savjetura
Scottish Transport Emissions
Swiss EV Association
The City of Edinburgh
University of Ulsan
Vrije Univeriteit

505050 Taxis
Avere-France
Capital Region of Denmark
Clear Channel UK
Dundee City Council
EST
IBI Group
National Theatre
Peugeot
Scottish Blue
SSE Contracting
Tactrn
Transport Scotland
Urban Foresight

Abertay University
Barcelona Activa
Carnoustie Golf Links
Co-wheels
Dundee Taxis
ESB
Kia
Next Generation Vehicle Promo Centre
Polis Network
Scottish Cities Alliance
Scottish Minister for Climate Change
Scottish Minister for Transport
Tubitak
Urban Software Institute

Angus Council
BIMAB
Carplus
DC Thompson
ECCI
Etrel
Lorraine Kelly
NHS Tayside
R&A
Scottish Enterprise
Stirling Council
Tay Taxi Ltd
Ubitercity
V&A Dundee

APT Controls
Blue Solutions
Certh
Design in Action
Elbil
Fife Council
MAJR Group
Nissan
Rote Monkey
SEPA
Suceava Municiplity
Tele Taxis
University of Dundee
Vision Fleet

71
Partners

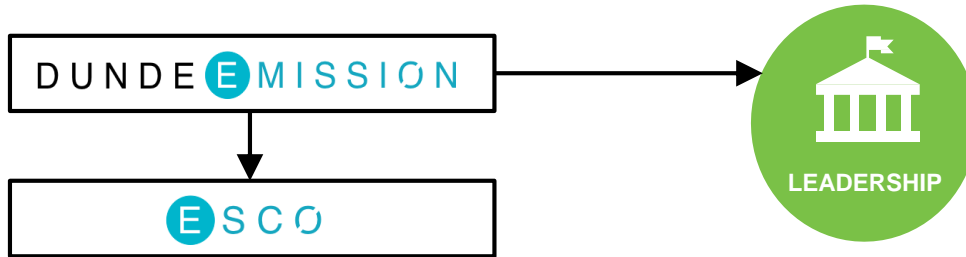
22
countries



- A **comprehensive package of commitments** to promote ULEV adoption by Dundee City Council and supported by key public and private sector partners across the city.
- Dundee City Council to become one of the first local authorities in the world with a **100% ultra low emission fleet** of light duty vehicles.



PROJECT EXECUTIVE



- OLEV capital funding administered by a new special purpose agency affiliated to DCC
- Approach based on an Energy Service Company (ESCO) business model to reduce the barriers to vehicle fleet investment in ULEVs and fueling infrastructure.
- An ESCO is typically a business that develops, arranges finance and installs projects to improve energy efficiency and reduce maintenance costs, usually over a 7 to 20 year time period.

PROJECT EXECUTIVE

DUNDE EMISSION

E S C O

LEADERSHIP

FLEET

- Public Sector Fleets
- Personal leases
- Multi-modal Sharing
- Taxis

450
Vehicles

→ Capital from City Scheme

PROJECT EXECUTIVE

DUNDE EMISSION

E S C O

LEADERSHIP

FLEET

INFRASTR-
UCTURE

- Public Sector Fleets
- Personal leases
- Multi-modal Sharing
- Taxis

- Rapid charger network
- Integrated transport hubs
- Mobile metering pilot
- Home & workplace charging

→ Capital from City Scheme

40+
Rapids

PROJECT EXECUTIVE

DUNDE EMISSION

ESCO

LEADERSHIP

FLEET

INFRASTR-
UCTURE

Public Sector
Fleets

Personal leases

Multi-modal
Sharing

Taxis

Rapid charger
network

Integrated
transport hubs

Mobile metering
pilot

Home & workplace
charging

Capital from City Scheme
Reinvested revenue
generated by ESCO

**£8
million**
generated by
ESCO

PROJECT EXECUTIVE

DUNDE EMISSION

ESCO

LEADERSHIP

FLEET

INFRASTR-
UCTURE

COMMUNITY
FUND

- Public Sector Fleets
- Personal leases
- Multi-modal Sharing
- Taxis

- Rapid charger network
- Integrated transport hubs
- Mobile metering pilot
- Home & workplace charging

- Low emission zones
- Community incentives
- Community energy
- Regeneration

Capital from City Scheme

Reinvested revenue generated by ESCO

PROJECT EXECUTIVE

DUNDE EMISSION

ESCO

LEADERSHIP

FLEET

INFRASTR-
UCTURE

COMMUNITY
FUND

INNOVATION
FUND

- Public Sector Fleets
- Personal leases
- Multi-modal Sharing
- Taxis

- Rapid charger network
- Integrated transport hubs
- Mobile metering pilot
- Home & workplace charging

- Low emission zones
- Community incentives
- Community energy
- Regeneration

- Mobility integration
- Grid integration
- Tourism

Capital from City Scheme

Reinvested revenue generated by ESCO

PROJECT EXECUTIVE

DUNDE EMISSION

ESCO

LEADERSHIP

FLEET

INFRASTR-
UCTURE

COMMUNITY
FUND

INNOVATION
FUND

- Public Sector Fleets
- Personal leases
- Multi-modal Sharing
- Taxis

- Rapid charger network
- Integrated transport hubs
- Mobile metering pilot
- Home & workplace charging

- Low emission zones
- Community incentives
- Community energy
- Regeneration

- Mobility integration
- Grid integration
- Tourism

COMMS

- Creative marketing & communications campaign
- Programme of cultural events
- Expert forums
- Skills and education

Capital from City Scheme

Reinvested revenue generated by ESCO

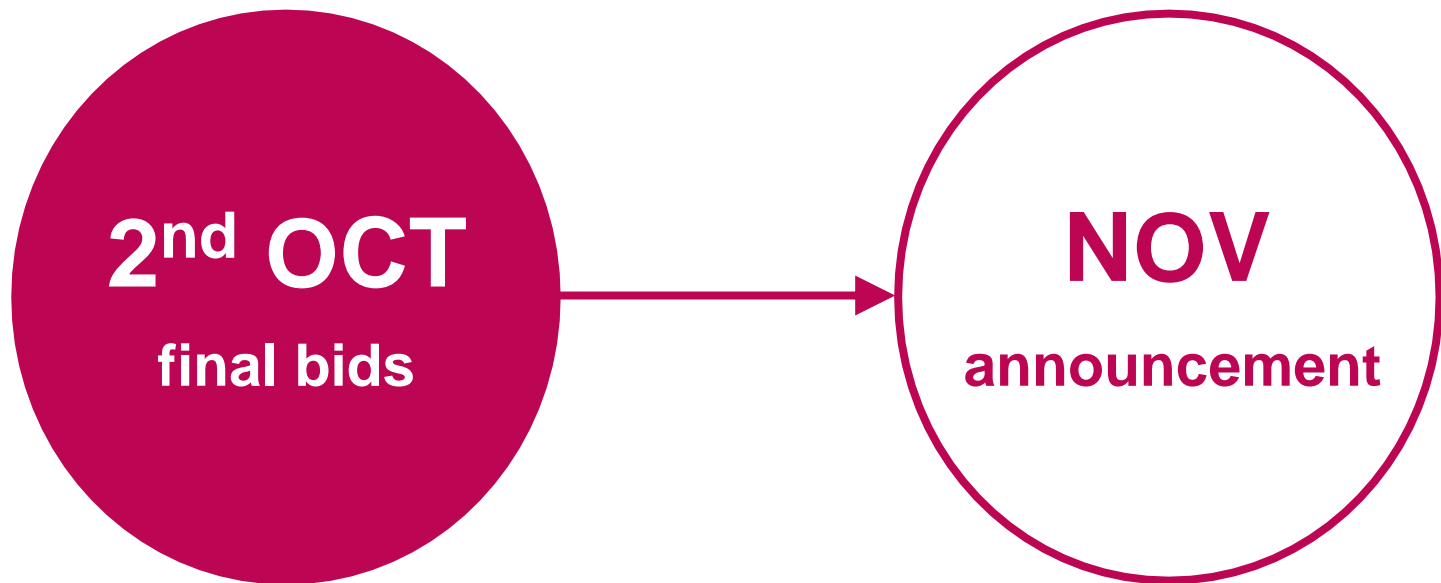
SHORTLIST

- Greater London Authority
- West Yorkshire Combined Authority
- North East Combined Authority
- City of York Council
- West of England
- **DUNDEE CITY COUNCIL**
- Sheffield City Council
- Milton Keynes Council
- Department for Regional Development of Northern Ireland
- Oxford City Council
- Nottingham City Council
- Leicester City Council



12
shortlisted

KEY DATES



Nice Things

Dundee is Leading the Way in ULEVs

“Dundee City Council has put into practice what they preach using alternative fuel technology and encouraging other cities to do the same. Dundee has demonstrated a strategic approach to both fleet and infrastructure and carefully thought about perceptions and users’ experience.”

JUDGING PANELS’ COMMENTS ON AWARDING DUNDEE CITY COUNCIL THE ACCOLADE OF **2015 LOW CARBON VEHICLE OPERATOR OF THE YEAR** AT LOWCVP LOW CARBON CHAMPIONS AWARDS



Dundee Delivers

“Dundee City Council has reliably proven it can deliver to challenging timescales, work as a valuable partner, and offer support to others by sharing learning, solving problems and inspiring progress.”

ZAK TUCK, HEAD OF LOW CARBON VEHICLE
POLICY, TRANSPORT SCOTLAND

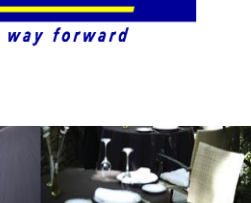
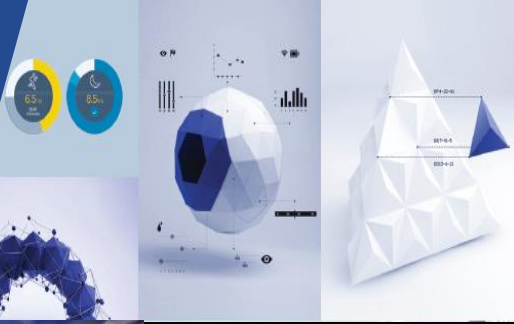
Mike Donald

38  **MICHELIN**
A better way forward

AGENDA

Company Profile
Ambitions

Challenge Bibendum
Dundee LEV Project
Switched on at Work
DCC Go Ultra Low



39

Company Profile



40



112,300
employees

68
production
facilities

No. 1

World leader
in energy-efficient
tires for cars
and vans



Over

3%
of net sales
committed
to innovation



253

vehicles for which
Passenger Car tires
were certified as
original equipment
in 2014 – a record



More than

3,800
dealerships
and service centers



A Leader in sustainability

MEMBER OF
**Dow Jones
Sustainability Indices**
In Collaboration with RobecoSAM 

- The Group has once again been commended for its commitment to sustainable development. The latest Dow Jones Sustainability World Index ranking gives Michelin a score of 87/100, up four points, which takes it to first place in the original equipment sector.
- Michelin ranks first in its sector in 12 of the 18 assessment criteria concerning social, environmental and societal engagements. The Company stands out in particular by its performance in the quality of its relationships with stakeholders, its ethics and compliance policy .
- In the field of the environment, for the second consecutive year, we keep the maximum score of 100 regarding our policy for the reduction of CO₂ emissions.



Ambitions



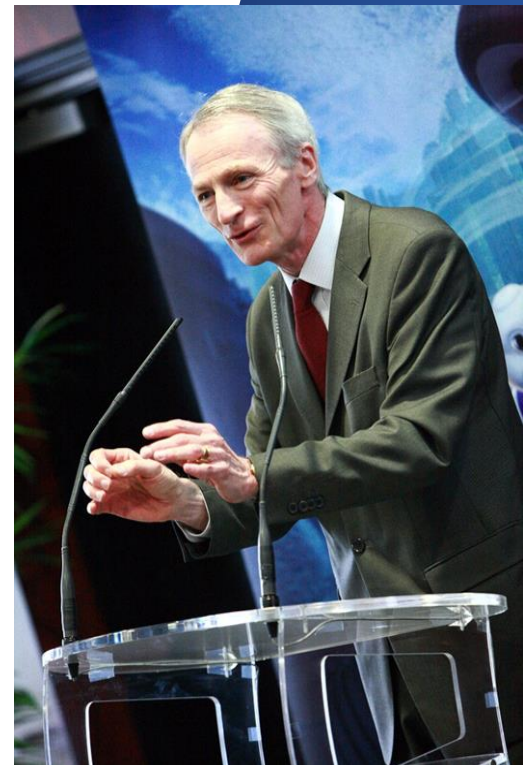


MICHELIN PERFORMANCE AND RESPONSIBILITY

Six Major Ambitions for 2020



1. Product Performance Leadership
2. Leadership in Responsible Operations
3. Sustainable Financial Performance
4. Commitment to the Well-being and Development of our Employees
5. Live in Harmony with our Communities
6. Advocacy: Fostering Better Life through Sustainable Mobility





ENVIRON-
NEMENTAL

ECO-
NOMIC

SOCIAL



ENVIRONNEMENTAL

1. Product Performance Leadership

- **MORE PERFORMANCE WITH LESS MATERIAL:** new products launched in 2020 provide at least a 10% improvement (on a 2010 basis).
- **ENERGY EFFICIENCY:** our product improvements by 2020 enable vehicles to avoid consumption of more than 3 billion liters of fuel, during the lifetime of the tires, thereby reducing CO₂ emissions by over 8 million tons (on a 2010 basis).

2. Leadership in Responsible Operations

- **RESPONSIBLE PRODUCTION:** achieve a 40% reduction in the Michelin Environmental Footprint (MEF) with a strong focus on 25% energy efficiency improvement at the sites (on a 2010 basis).
- **RESPONSIBLE LOGISTICS:** achieve a 10% reduction in CO₂ emissions (on a 2010 basis).
- **RESPONSIBLE PROCUREMENT:** assess our top 400 suppliers on Michelin Corporate Social Responsibility standards; challenge and assist these suppliers so that 70% of them are at our "confirmed" CSR level.

→ A better way forward

OUR CONTRIBUTIONS TO SUSTAINABLE MOBILITY



- Michelin Challenge Bibendum
12th edition in Chengdu in November 2014



- Global Road Safety Partnership (GRSP)



wbcds mobility

- World Business Council for Sustainable Development (WBCSD)
Sustainable Mobility Project



- WBCSD Tire Industry Project



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Challenge Bibendum



47



5 GAME CHANGERS



Adobe Acrobat
Document

- The mission of Michelin Group is to promote sustainable mobility. This is championed through our Challenge Bibendum approach. We have prepared a green paper outlining 5 “Game Changer” ambitions and actively support opportunities which realise these aims.
- 1. Setting ambitious Co2 reduction targets and implementing the relevant economic instruments.
- 2. Implementing ultra-low emissions zones with enhanced road safety measures and appropriate infrastructure and vehicles.”
- 3. Developing door to door transport solutions for people, with corresponding web-based applications.
- 4. Reinventing innovative last-mile logistics systems.
- 5. Mobilizing private investment for suitable transport infrastructure and innovative mobility services.



Dundee LEV Project



50

OUR OPPORTUNITIES

- Dundee Contributes to sustainable manufacturing, through our renewable energy use, and we manufacture Energy Saver Tyres.
- However there is no direct evidence of Sustainable mobility in practice at Dundee Site.
- Scottish Gov.t Roadmap “Switched on Scotland” – Sept 2013 :- -
 - 2030 half of all fossil-fuelled vehicles will be phased-out of urban environments –
 - 2040 almost all new vehicles sold will be near zero-emission at the tailpipe -
 - 2050 Scottish towns, cities and communities will be free from the effects of fossil fuel.
- Electric vehicles have become a viable option for our employees to consider for their personal commute. We have no infrastructure to support this potential change.
- We only have 1 site car a minibus and 2560 miles of Business use which rely on traditional fuels.



Internal Benchmarks



Our Proposal

- We have various current opportunities to become a champion of zero emission mobility within Michelin and Scotland, through the following solutions:
 - Replace Nissan Juke lease with Nissan Leaf lease.
 - Transfer Business miles use to Site Leaf car.
 - Install a publicly available charge point at our site.
 - Carry out Sensitisation communication, eg questionnaires on EV use, by participating in the Switched on @ work Scheme.
 - Work in partnership with DCC to develop further ideas as the Ultra Low Emissions City bid develops.



Switched on at Work & DCC Go Ultra Low



Switched on at Work

HOW TO BECOME A PARTNER

Sign up to Switched On @Work

Undertake workforce survey (with support from programme team)

Develop a plan on how best to implement workplace charging

Install charge points

Share best practices



Office for Low Emission Vehicles,
Great Minster House,
33 Horseferry Road,
London SW1P 4DR

29th September 2015

Dear Sirs,

I would like to confirm the support of Michelin Tyre Public Limited Company ('Michelin') for Dundee City Council's bid to participate in the Office for Low Emission Vehicles' "Go Ultra Low City" Scheme.

Michelin supports the successful delivery of this project and is committed to helping Dundee City Council achieve its ambitions to improve local air quality, lower carbon emissions, stimulate innovation and create new opportunities for business.

Michelin's factory in Dundee is a major local employer with around 850 employees. We manufacture 'MICHELIN Energy' tyres which directly contribute to lowering vehicle emissions. We consider the facility to be a sustainable manufacturing site; we have we have reduced our Michelin Environmental Footprint by 34% in the last 10 years and 25% of our electricity requirement is supplied from on-site wind turbines.

The mission of Michelin Group is to promote sustainable mobility. This is championed through our Challenge Bibendum approach. We have prepared a green paper outlining 5 "Game Changer" ambitions and actively support opportunities which realise these aims.

We consider that the Dundee City Council bid responds strongly to our 5 ambitions, which are:

1. Setting ambitious Co2 reduction targets and implementing the relevant economic instruments.
2. Implementing ultra-low emissions zones with enhanced road safety measures and appropriate infrastructure and vehicles
3. Developing door to door transport solutions for people, with corresponding web-based applications.
4. Reinventing innovative last-mile logistics systems.
5. Mobilizing private investment for suitable transport infrastructure and innovative mobility services.

Locally at our Dundee site we are engaging with the Transport Scotland "Switched on at Work" initiative, to promote the understanding and uptake of electric vehicles within our employees and local community. We will be installing a 'free to use' electric charge-point at our site, alongside our existing free air supply. In addition, we will be following the lead of our Group and Country headquarters by making a Zero Emissions Electric vehicle available for on-site and business related use by our employees.

Dundee is already widely regarded as one of the UK's leading cities for ULEV promotion. The Go Ultra Low City Scheme represents a valuable opportunity to build on the city's strong position to both deliver a step change in the take up of low emission vehicles and become an international exemplar for the deployment and usage of ULEVs.

Yours Sincerely,

John Reid,
Factory Manager

Michelin Tyre
Public Limited Company
Baldovie Road
Dundee
DD4 8UQ

Tel: +44 (0)1382 734734
Fax: +44 (0)1382 734456
Website: www.michelin.co.uk
Registered in England no. 845529
Registered Office: Stoke-on-Trent ST4 4EY

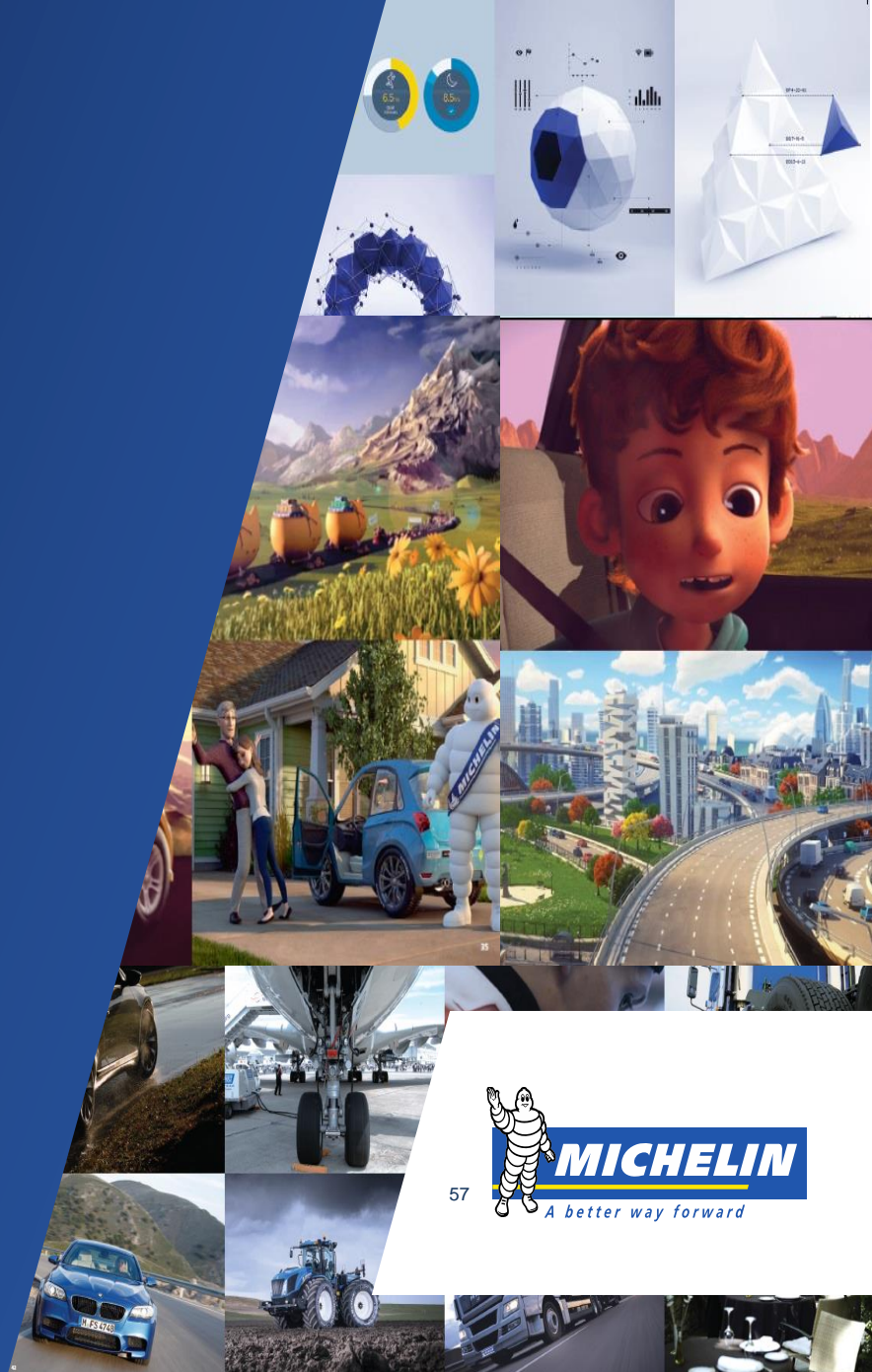


Dundee City Go Ultra Low



Thank You

EUR/DIR/UK/EP



57

Exploring the Formation of Positive and Negative Attitudes Towards Electric Vehicles

E-cosse 10th Stakeholder Forum, 5/10/15, Dundee

Dr Craig Morton and Prof Jillian Anable

The Centre for Transport Research, University of Aberdeen

craig.morton@abdn.ac.uk & j.anable@abdn.ac.uk



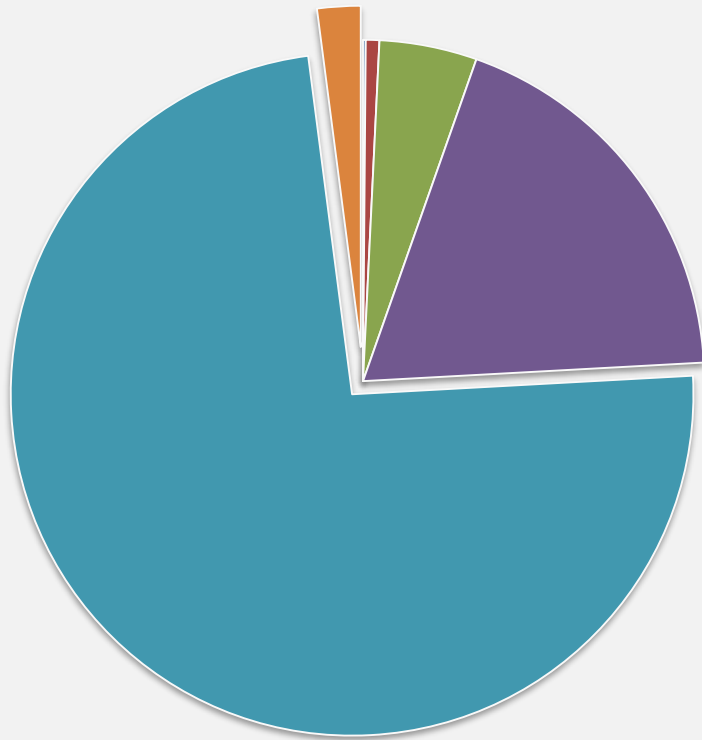
Awareness

Confidence

Positive Attitude

What statement best describes your attitude towards Electric Cars?

ONS – 2015 – Opinions and Lifestyle Survey: Electric Vehicle Module (n = 1010)



- I already own an electric car or van (0.1%)
- I am thinking about buying an electric car or van quite soon (0.6%)
- I am thinking about buying an electric car or van, but I haven't thought about when I will buy it (4.6%)
- I have thought about buying an electric car or van, but I have decided not to at this stage (18.7%)
- I haven't really thought about buying an electric car or van (73.8%)
- I have never heard of electric cars or vans (2.1%)

Awareness

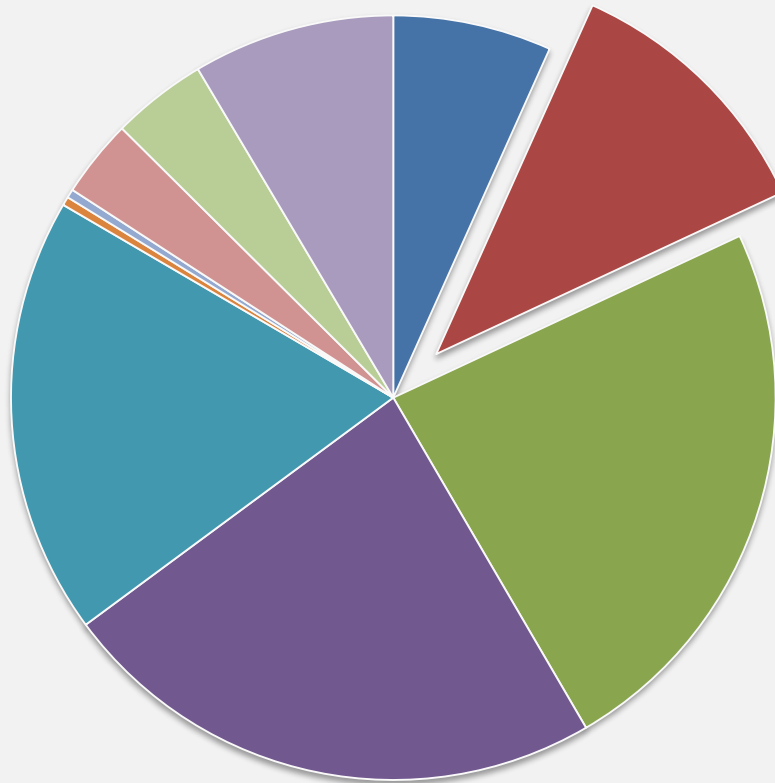
Confidence

Positive Attitude

What would put you off buying an electric car?



ONS – 2015 – Opinions and Lifestyle Survey: Electric Vehicle Module (n = 1010)



- Limited choice (6.7%)
- Lack of knowledge (11.3%)
- Cost (23.5%)
- Battery: distance travelled on charge (23.3%)
- Recharging (18.5%)
- Value:Resale/residual (0.4%)
- Safety features/record (0.4%)
- The vehicle: performance, practicality, looks (3.3%)
- Technology: doesn t work/not proven (4%)
- Nothing (8.5%)

Awareness

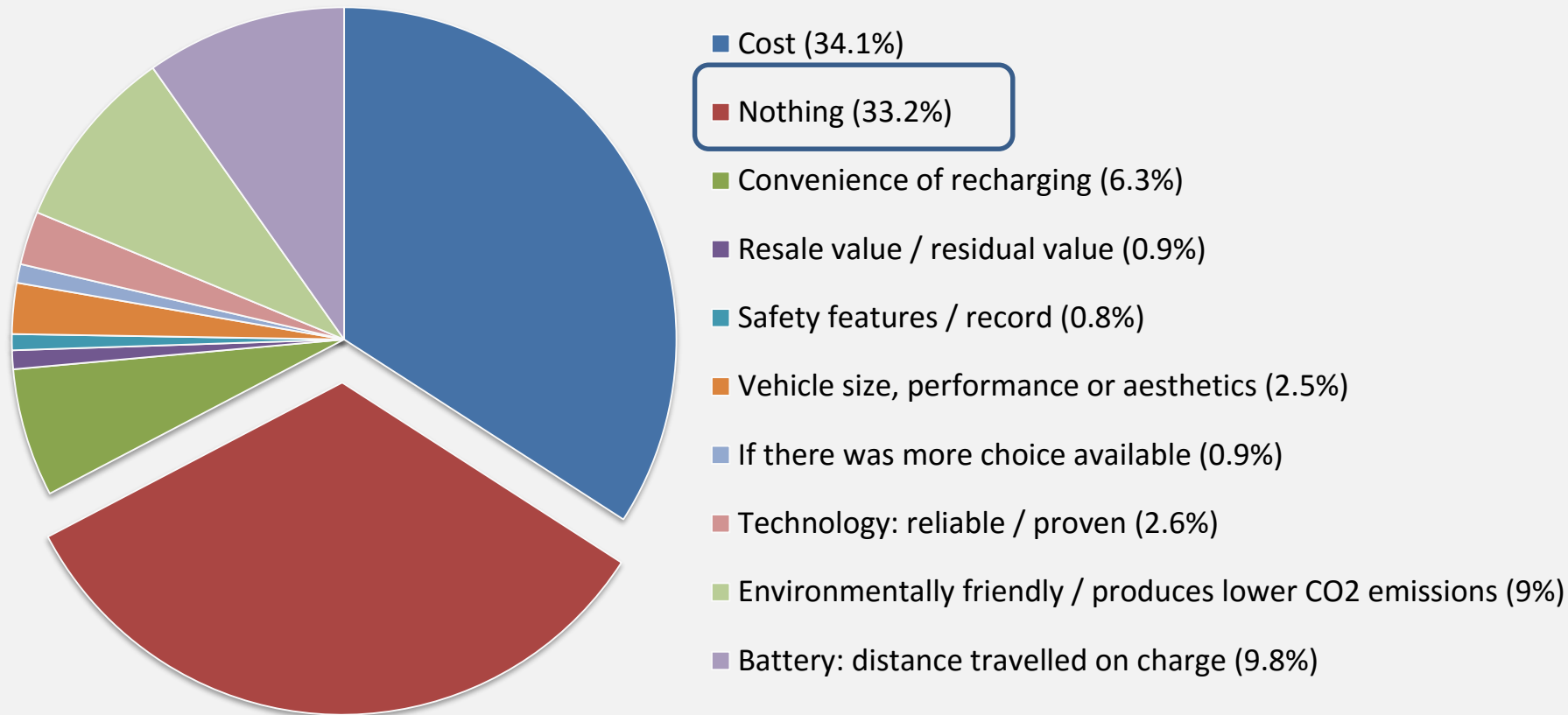
Confidence

Positive Attitude



What would encourage you to buy an Electric Car?

ONS – 2015 – Opinions and Lifestyle Survey: Electric Vehicle Module (n = 1010)



Electric Vehicle Attitudes

Negative

I think electric cars would be complicated to use

Electric cars are less reliable than conventional cars

I would feel relatively less safe in an electric car

Electric cars don't offer enough performance

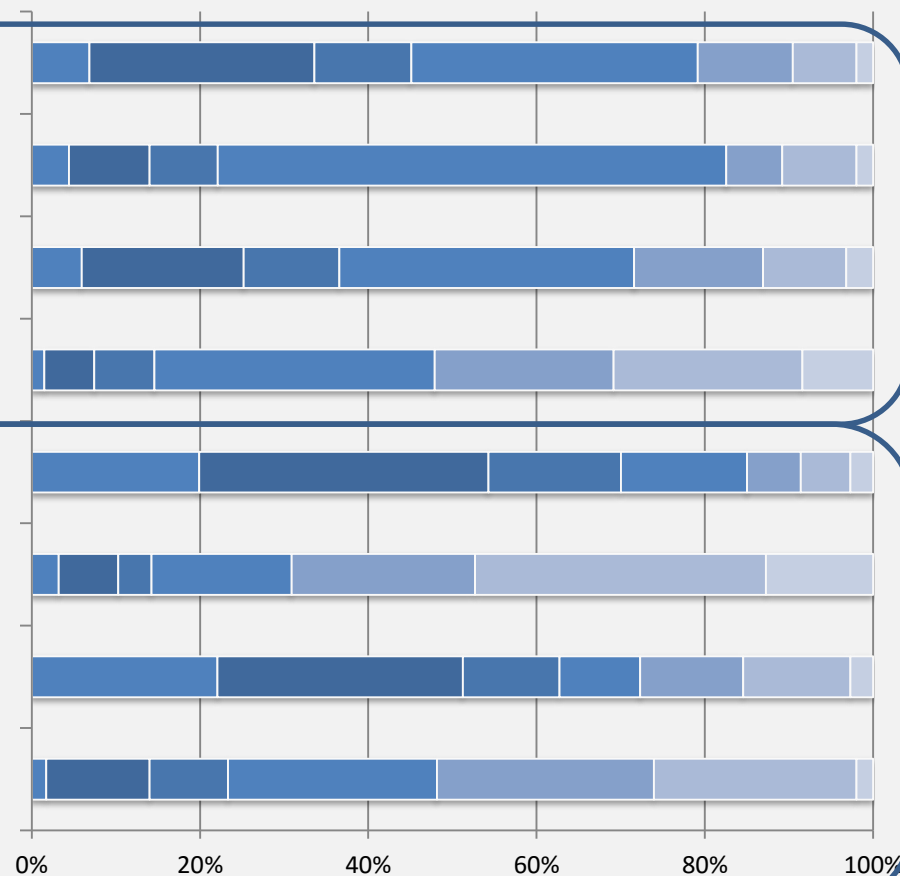
Positive

I think it would be easy for me to find places to plug in an electric car

I would value the ability to refuel my car from home

I think I can fulfil all my transport needs with an electric car that has a range of 100 miles before recharging

Electric cars are relatively more expensive to purchase but can pay for themselves in lower fuel costs



Strongly disagree Disagree Slightly disagree Neutral Slightly agree Agree Strongly agree

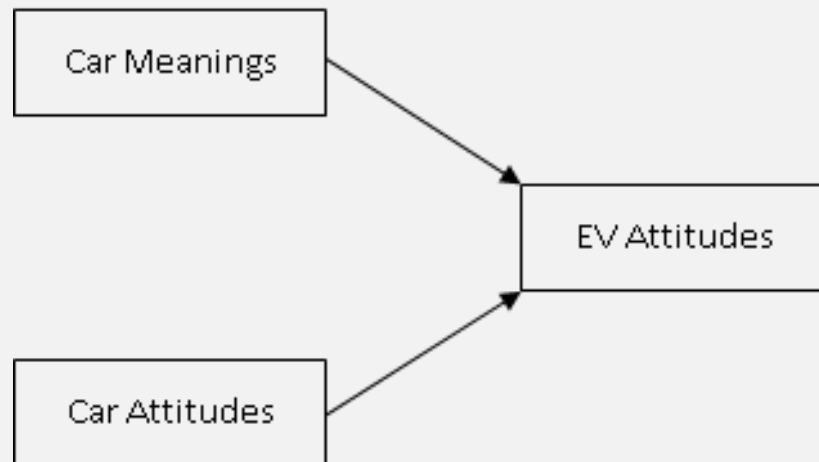
Electric Vehicle Attitudes

Research Question

- How do citizens form attitudes towards Electric Vehicles?

Hypothesis

- Citizens transfer their existing attitudes towards cars and impress them onto Electric Vehicles



Morton et al – 2015 - Assessing the importance of car meanings and attitudes in consumer evaluations of electric vehicles
http://link.springer.com/article/10.1007/s12053-015-9376-9?wt_mc=email.event.1.SEM.ArticleAuthorOnlineFirst

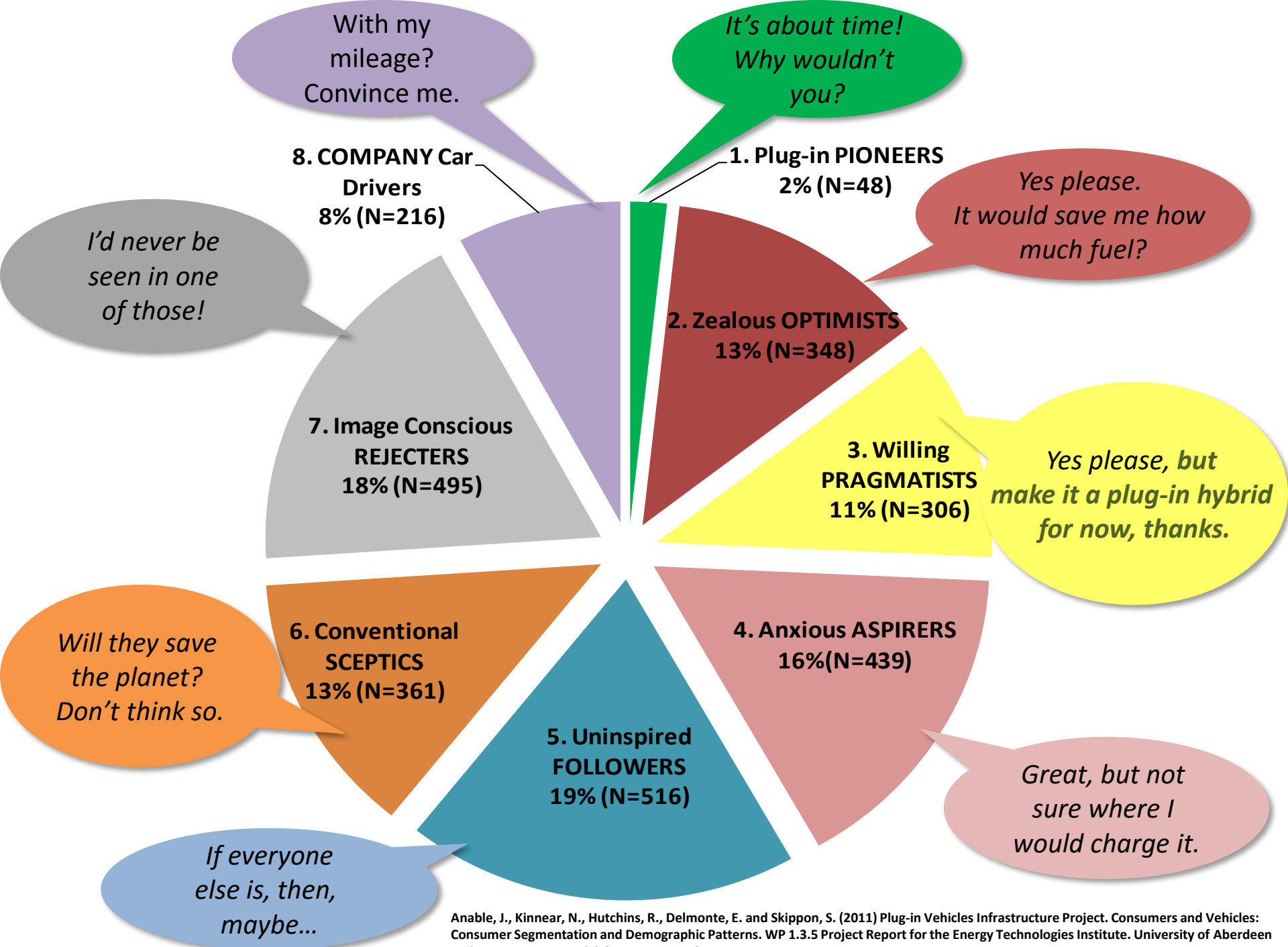
Electric Vehicle Attitudes

Variables	Negative Attitudes	Positive Attitudes
	β	β
(Constant)	-.954	-.262
<i>Socio-Economics</i>		
Gender [female coded 1, male 0]	.265*	.457**
Age [years]	.007	.002
University Educated [yes coded 1, no 0]	-.127	-.041
Household Income [GBP]	.086*	-.134**
<i>Attitudes</i>		
Car Meanings: Symbolism and Emotion [the assignment of symbolic and emotive meanings to cars]	.170**	-.115*
Car Meanings: Instrumental [the assignment of functional meanings to cars]	.086	-.126*
Car Attitudes: Importance [the perceived importance of owning a car]	.195**	.071
Car Attitudes: Environment [concern for and responsibility towards the environmental consequences of car use]	-.174**	.231**
Car Attitudes: Knowledge	-.194**	-.021
R ²	.217	.157

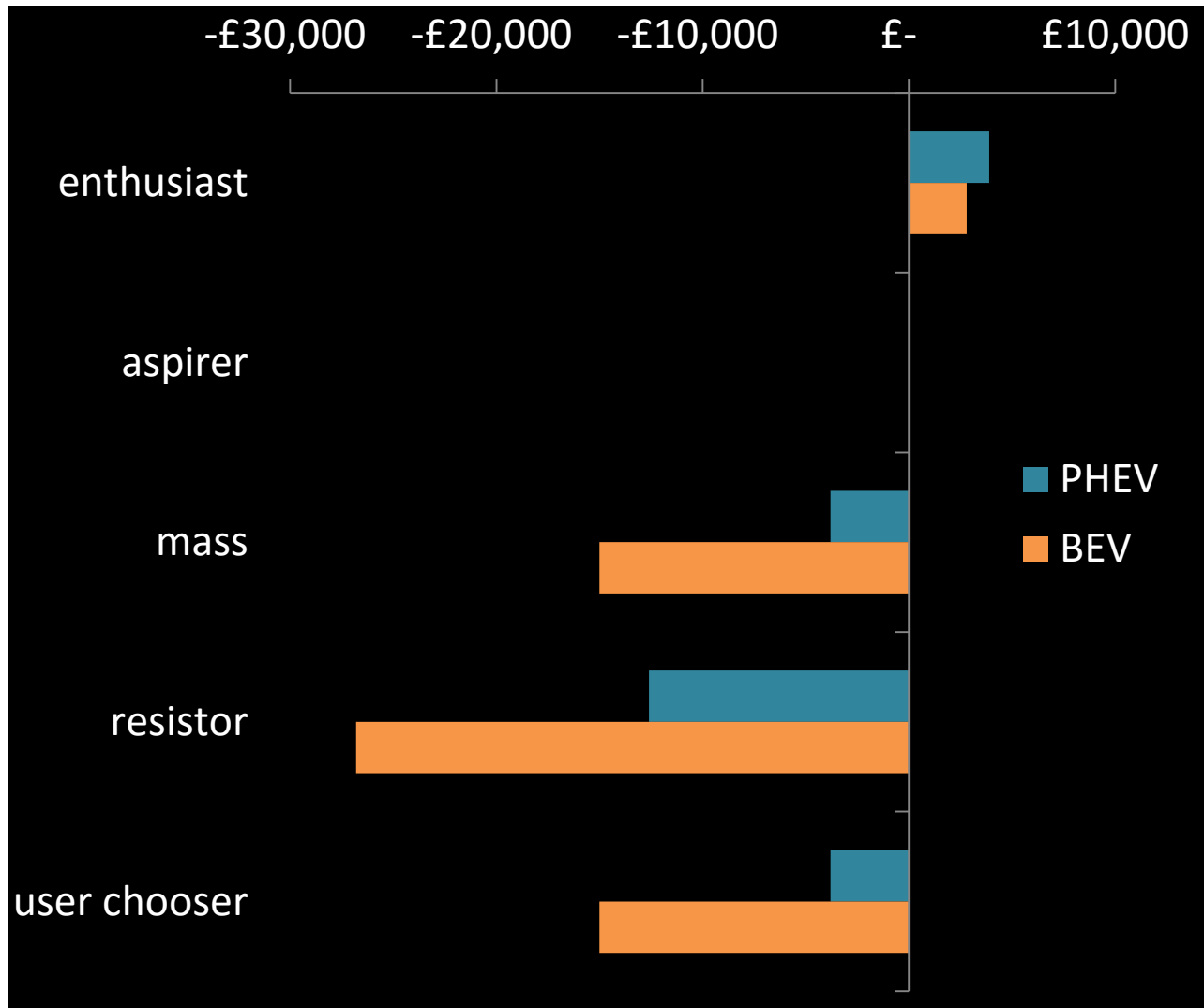
Predicting EV uptake

- Theory suggests it should be primarily young, wealthy innovators...
 - Most UK owners are: *middle aged, male, well educated, affluent, urban*¹
 - BUT these characteristics also predict the *resistor* segments
- Attitudes are as useful as socio-demographics to identify prospective private EV owners:
 - **Enthusiasm for technology (innovation) is key** (more important than the environment)
- **Distinctions must be made between PHEV and BEV owners & between private (including 'user chooser) & commercial/fleet**

¹ Brook Lyndhurst (2015) Uptake of Ultra Low Emission Vehicles in the UK. A rapid evidence assessment for the Department for Transport. DfT/OLEV/GSR, August 2015.



Preferences for/against plug-in vehicles shows substantial variation across consumer segments.



Enthusiasts are willing to pay a premium

All show preference for PHEVs

Mass market buyers strongly reject BEVs but not PHEVs (as much)

Most segments have a strong bias against BEVs

Most important attitudes

Identity	the degree to which people feel they associate with 'typical' EV owners
Anxiety	perceived suitability of these vehicles particularly in relation to range
Parking Difficulty	perceived ease of being able to charge a vehicle at home
Willingness to pay	willingness to pay more for plug-in technology, lower fuel costs and/or environmental benefits
Symbolic motives	capture the perceived status, social acceptability and embarrassment or otherwise of owning an EV.

Prospect of Attitude Change

Segment / Market share	Attitude towards EVs	Prospect of attitude change
Enthusiasts 15%	Positive – driven by attraction to innovative technology	Already positive
Aspirers 15%	Interested but concerned by technical attributes	Attitude will become positive once model of trusted brands become available and attributes improve
Mass market 50%	Not interested and do not share identity or symbolic meaning of EVs	Followers of social norms – attitude will normalise when EVs become a more common sight
Resistors 20%	Strong rejection of identity and symbolism of EVs	Attitude will change once EVs have lost their current connotation, i.e. only once already largely adopted

Requires direct consumer exposure to the vehicles – allow exposure without long-term commitment to ownership (e.g. car clubs, test drives, business procurement (taxis), vehicle leasing)

Long time horizon needed to convince Resistors – will only be persuadable once they become visible part of the fleet

Dr Craig Morton

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Prof Jillian Anable

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Scottish Transport Emissions Partnership

Collaborative Working to Improve Air Quality in Scotland

Nigel Holmes, SHFCA

(On behalf of Eleanor Pratt, STEP Coordinator
Policy Officer SEPA/Transport Scotland)



Air Quality in the News...



STATEMENT FROM A.G. SCHNEIDERMAN ON VOLKSWAGEN INVESTIGATION

NEW YORK – Attorney General Eric T. Schneiderman issued the following statement regarding an investigation into admissions that Volkswagen cars employed software to cheat on pollution tests:

"No company should be allowed to evade our environmental laws or promise consumers a fake bill of goods. That is why my office is investigating troubling reports that millions of Volkswagen cars carried software designed to cheat emissions tests that protect our environment. We will seek to uphold New York's strong tradition of consumer and environmental protections as this investigation proceeds. We look forward to collaborating with Attorneys General across the nation on this matter."

###

Diesel cars: What's all the fuss about?

<http://www.bbc.co.uk/news/business-34257424>

How bad is it?

Above and beyond the safe limit



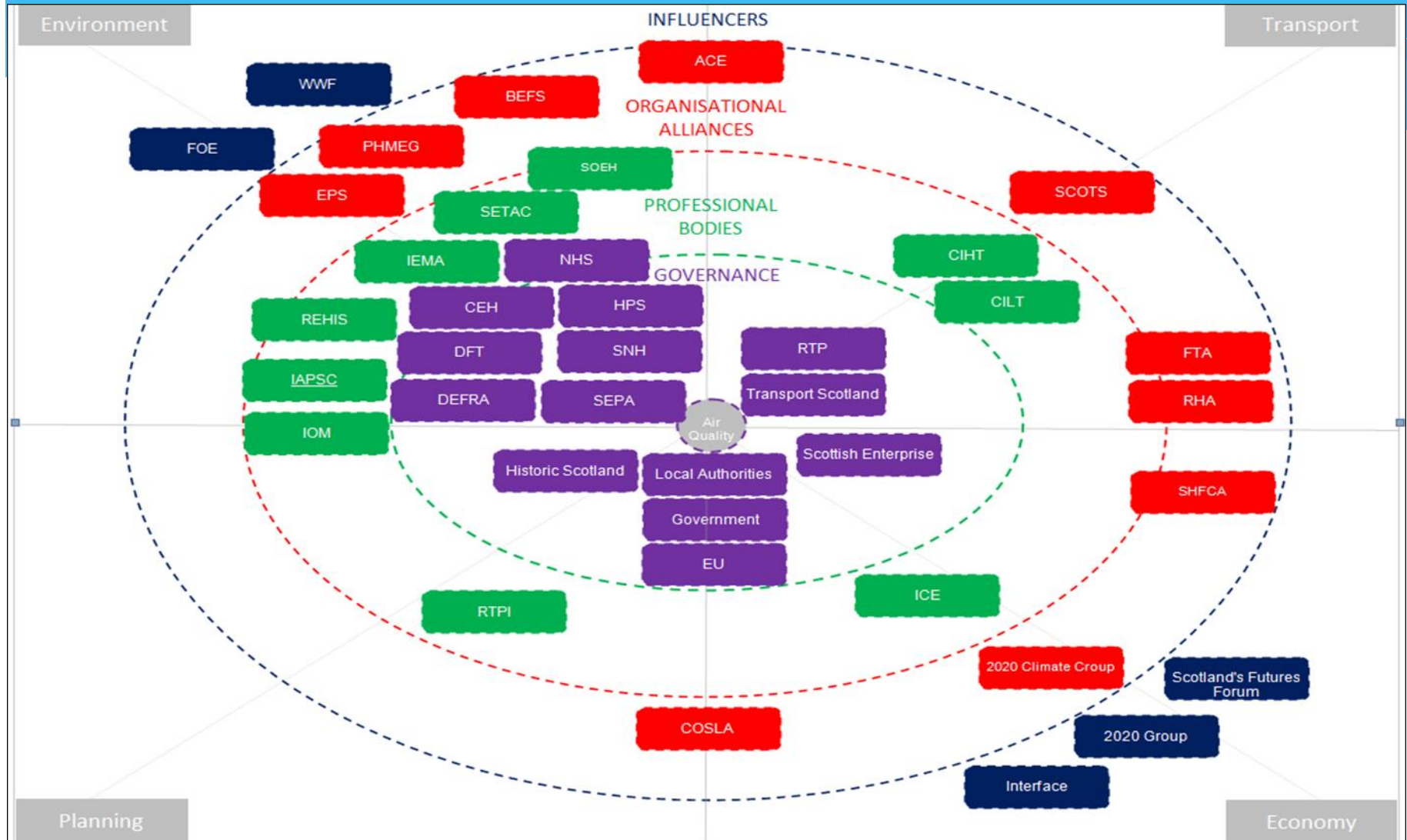
What they should emit
(law limit)



What they actually emit
(on average above the limit)

Transport & Environment

STEP Stakeholders



Scottish Transport Emissions Partnership

Mission Statement:

The Scottish Transport Emissions Partnership (STEP) will work to promote and improve Scotland's urban air quality by:

- * Increasing awareness of air quality and health issues associated with emissions from road transport;
- * Promoting a more strategic approach to delivering and managing air quality, and
- * Identifying and sharing examples of best practice with key stakeholders and other interested parties.

CORE Members of STEP

- Scottish Environment Protection Agency
- Transport Scotland
- Scottish Government
- NHS Scotland
- Road Haulage Association (RHA)
- Confederation of Passenger Transport (CPT)
- Regional Pollution Groups (Local Authorities)
- Royal Town and Planning Institute Scotland
- 2020 Climate Group - Transport Sub Group
- Regional Transport Partnership
- SCOTS
- Environmental Protection Scotland



Ongoing STEP Activities

- * Quarterly meetings of Core Members:

- Guest speakers
- Minutes on STEP website
- Presentations also available

- * Newsletter & Social Media

- Twitter @step_scotland

- * Website www.stepscotland.com



Recent STEP Activities & Events

- * 2014 Annual Conference and Poster Competition
- * LEZ Summit – NOx and the City
- * Bus Technology workshop

SCOTTISH TRANSPORT EMISSION PARTNERSHIP
Cleaner air Healthier Places



LEZ Summit

NOx and the City

Report of the Event

Event Date - 25 July 2013
Creator - Drew Hill Transport Scotland
Compiler - Nick Conroy Transport Scotland
Published 12 September 2013

Examples of Collaborative Working

- * Air Quality training package for planners
- * ECO Stars Fleet Recognition Scheme
- * Low Emission Strategy for Scotland – to be launched on 4th Nov 2015
- * LES launch at STEP conference on 4th Nov 2015

Barriers To Air Quality Improvements

- * Air quality is still relatively low profile...
- * Improving air quality takes money (lots of it), political will and for people to change their habits/lifestyle
- * Lack of integrated approach for monitoring and regulating.
- * Limited integration across policy areas.
- * Complex legal framework

Next STEPs

- * Facilitate knowledge sharing
- * Continuously improve communications
- * Develop tools to aid collaboration
- * Continuous engagement
- * Measure and capture success effectively

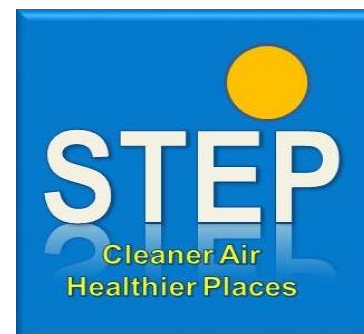


... How can STEP help?

- * Help represent ULEV interests
- * Promote best practice/success stories with ULEV deployments in Scotland
- * Learn from others
- * Support collaborative activities

STEP Annual Conference 2015

- * **Weds 4 November 2015, National Museum of Scotland, Edinburgh**
- * Keynote speech from Minister for Environment, Climate Change and Land Reform
- * Learn about the new Low Emission Strategy for Scotland
- * Examples of best practice from around the UK.
- * Registration – sheri.dick@sepa.org.uk
- * Queries – eleanor.pratt@sepa.org.uk
- * Full agenda at www.stepscotland.com



‘Coming together is a beginning,
keeping together is progress,
working together is success.’

Henry Ford

Eleanor Pratt

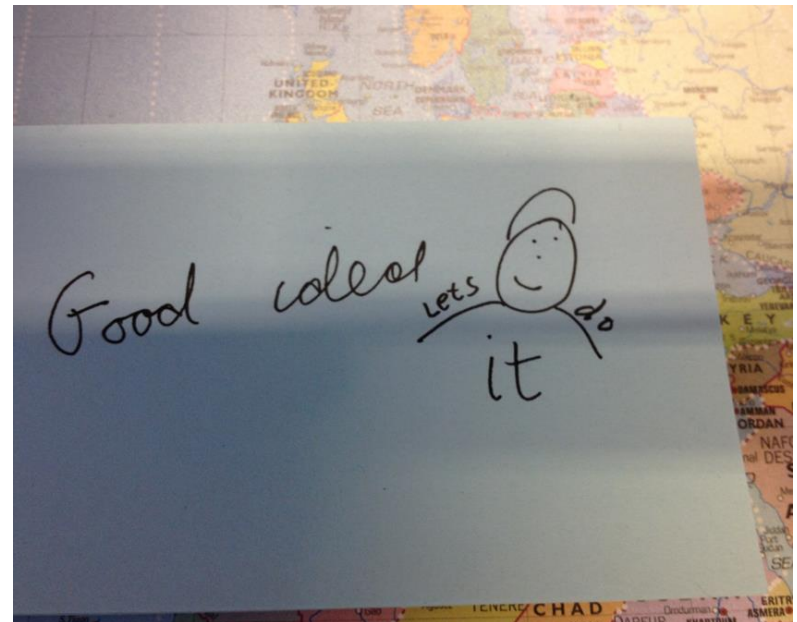
STEP Policy Officer

SEPA/Transport Scotland

eleanor.pratt@sepa.org

www.stepscotland.com

Twitter @step_scotland



Electric Vehicles

Positively Charging Attitudes

5 October 2015

Neil Harrison

LET'S GO GREENER TOGETHER.
GREENERSCOTLAND.ORG



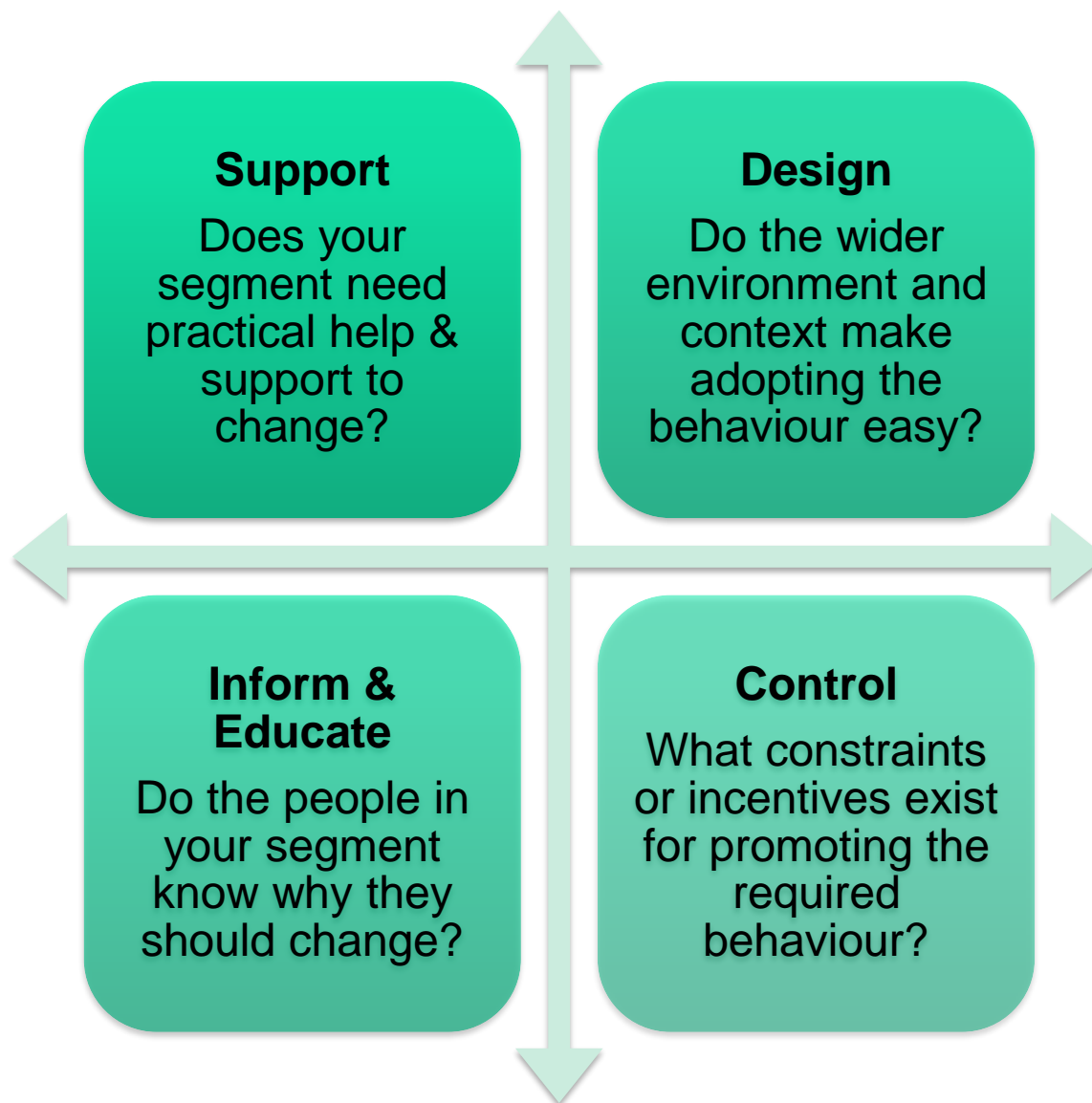
AGENDA

- **What Scottish Government marketing does**
- **Social marketing & behaviour change**
- **EV insight**
- **EV thinking**

Starting point for behaviour change

- **Identify and prioritise target audiences**
- **Understand each audience**
- **Segment**
- **Develop behaviour goals**
- **Develop your intervention mix**

Social Marketing Intervention Mix



WHAT HAVE WE LEARNT FOR ELECTRIC VEHICLES

ZERO
ROAD TAX

BENEFITS.
CO₂ LEVELS LOWER.
CHEAPER TAX PER
MILE.
CLEANER ENVIRONMENT
LESS NOISE POLLUTION
AND AIR POLLUTION.

GREEN!
NO EMISSIONS
0 CO₂

- QUIET
- GREEN
- THE SAME AS
A NORMAL
CAR.
- ZERO EMISSIONS
- NO ROAD TAX

Running Pro
Cost
Benefits

BENEFITS

CLEAN
- NO EMISSIONS
NO ROAD TAX

RUNNING COST
IE (REFUEL)

DRIVABILITY
(USABLE TORQUE)

Quiet

Lower CO₂
pollution

Low running
cost

Acceleration

Lower noise
pollution

No emissions

BETTER FOR
ENVIRONMENT.

ZERO
EMISSIONS
FOR TOWN
USE
(ELECTRIC FROM
LOCAL STATION LK)

Benefits

- **The Environment**
- **Driveability/Fun**

AGAINST
LACK OF
RANGE

LENGTH OF
CHARGING TIME

Charging times
too long at present

Lack of re-charge
points
(at present)

Only use for short
journeys

Slow re-charge
time

TIME TO
CHARGE

- COST -
- WHERE CAN
YOU CHARGE IT
- FIXING IT?
- SPEED?
- NOT PROVEN
TECH

WINTER
CONDITIONS

POSSIBLE
COSTS OF
BATTERY
NECESSARY
MAINTENANCE

Not enough charging
points at present

BATTERY IS
A HAZARDOUS
WASTE ?!

COST

BATTERY RELIABILITY

MAINTENANCE

PURCHASE PRICE

Running out of
charge

RUNNING COSTS.
CHARGING POINTS
DEPRECIATION.
BATTERY LIFE.

Uncertainty over
battery
life-time

(Loading Point
Availability)

PURCHASE COST
MILEAGE LIMITATION
RE-CHARGE POINTS
(LACK OF)

NON BENEFITS
Cost
over 4 to 5 years
you would NOT get
your money BACK.
REPAIRS COST.
LACK OF CHARGING POINTS
TIME TO CHARGE CAR.
DISTANCE

Drawbacks

- Lots

Spontaneous barriers

Practicalities

- **Infrastructure/Charging points**
- **Charging time**
- **Impact of bad weather**



Spontaneous barriers

Perceived Cost

- **Up front**
- **Resale value**
- **Battery**



Spontaneous barriers

More preplanning of journeys



Key purchase criteria when choosing a car

- 1. Price**
- 2. Purpose (suitable for needs)**
- 3. Style / model / brand (brand importance varies by individual)**
- 4. Comfort**
- 5. Performance**
- 6. Economy**

Appetite for information

Discussion reveals an appetite for information about many practical aspects of electric car use:

- Running costs (inc. purchase price, batteries and maintenance).**
- Battery life / replacement cost. Should you carry a spare?**
- Appearance of in-home charging point.**
- Can you charge car at other people's houses from the mains?**
- Do you have to pay to charge your car in public places?**
- Do you get a warning as the battery runs down?**
- What / where do you go for repairs (and how much)?**
- Appearance / feel of interior (many wish to test drive!).**
- What happens if there's a power cut?**
- Does it perform less well in the winter / if it's really cold?**

The challenges with EV product

- **Currently, it is not just a change of fuel source. Drivers need to make wider behaviour change.**
- **The incentive/benefit to make the change is still in 'green arena' rather than financial or quality of life.**
- **An EV is cheaper on running cost but on lifetime value the saving not enough to overcome upfront cost and need to change behaviour.**
- **As an option it is currently going to appeal to a particular niche.**
- **So we need to focus on those individuals who are in a stronger position to overcome the barriers/challenges.**

Who are we talking to

- **Those who are suitably motivated by green-appeal will research an EV themselves.**
- **We are aiming to extend the audience.**
 - **Owners of a property with off-street parking.**
 - **Income at a level where purchasing a car is not as dominated by price tag. Likely to be AB socio-economic group.**
 - **Own another car which can be used to address range issues.**
 - **Individuals who drive within the range of an EV.**

How are we going to talk to them

Proposal is to use field only as this will allow us to:

- **Arrange 24-days visiting locations where our target audience will be for:**
 - **Multrees Walk/St Andrews Square (Edinburgh)**
 - **Union Square (Aberdeen)**
 - **Buchanan Galleries (Glasgow)**
 - **Overgate Centre (Dundee)**
- **Engage in a discussion about the topic and address questions.**
- **Provide them with an opportunity to see an EV, charging points and potentially test drive.**

Electric cars have always been fun

**Using nostalgia from youth as the
trigger in the field to get people to
stop and talk to them**

Plug in Adventures



EV Adventures – Getting closer to the Public.

Presented by Chris Ramsey

Who are Plug in Adventures?

- EV enthusiasts from Aberdeen.
- Setup in 2012.
- Established from a passion for Adventure, Travel & all things electric.
- Working with the local authority to promote Plugin cars to public.

Projects – UK Capitals

Sept 2013, we drove from Aberdeen to all 3 UK mainland capital cities and back in 4 days:

- Test the charging infrastructure at that time.
- Test the Nissan Leaf.
- Engaged directly with the public.
- Increased public awareness of EV's



Projects – UK Capitals

Great public engagement throughout the adventure, and great insight into EV perception:

- “Is there many places to charge?”
- “How long does it take to charge?”
- “It looks like an ordinary car!”
- “You have driven all that way in an electric car!”

Projects – EV Street

20th Sept, EV Street was held for the first time in the City Centre of Aberdeen, in conjunction with the following partners:



StationGarage

Mackie **Motors**



John Clark Motor Group

energy
saving
trust

Projects – EV Street

EV Street took the funding and charging information, but more importantly the Plug-in cars themselves directly to the public.



Projects – EV Record Attempt

Our aim was to beat the current UK record for driving John O’Groats to Lands End in an EV, currently set in 2011 by a Telsa Roadster standing at 36hrs 38mins:

In the process:

- Testing the vastly improved R/C infrastructure.
- Increase EV profile via local media putting the story into the public domain.
- Invite the public to interact with the EV at each R/C.
- Give out advice on EV’s, infrastructure and funding.
- Engagement utilising social media applications.

Projects – EV Record Attempt

We did it.....we successfully broke the record, not once, but twice!

- New record 27hrs 46mins.
- Covered 1,762.4miles in 56hrs 24mins.
- 33 Rapid Charges.
- 10,000 unique hits on EV forum.
- Great public engagement via social media
- Followers in Sweden, Norway, Germany, Ecuador & Croatia



Future Projects

Both 2016 and 2017 will be exciting years for Plug in Adventures, with the introduction of our EV race car in 2016.

Along with competing in the 80 Day Race in 2017, which will see only non-combustion engine vehicles race around the world.



Public Perception

Over the last few years organisations and EV owners alike, have worked hard to change public perceptions towards Plug in vehicles. Has it worked?

In short, No.



Conclusion – Get Closer to the Public

- Engage directly with public through City Centre events.
- Promote direct interaction between EV owners and public.
- Market Plugin cars in ways that the public can relate to.
- Excite and captivate the public.
- Overall, take everything to the public. Do not expect them to come looking.

Contact

- Twitter - @pluginadventure
- Email – info@pluginadventure.com
- Mobile – 07842 756262

We are always willing to meet for a #ChatAndCharge

Thank You for listening