49,999 electric car journeys and counting: The North East England Electric Vehicle and Infrastructure Trials

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UK Incentives for the uptake of EVs

UK Incentives for EVs:
- Plug-in Car/Van Grant
- Favourable tax regime
- Exemptions - Vehicle Excise Duty & Company Car Tax
- Ultra-Low Carbon Vehicle Demonstrator Programme

UK Incentives for charging infrastructure:
- Plugged in Places Programme (PIP) Trials 2010 - 2014
  - Development of common standards
  - Evaluate different technologies
  - Harmonise local incentives
  - Understand user-behaviour
  - Raise public awareness of Electric Vehicles
- National grants 2013 - 2015
  - Local Authorities
  - Home owners
  - Railway stations
- Funded by Office of Low Emission Vehicles (OLEV)
Why in North East England?

Area = 8,600 km²
Population = 2.6 million
80% Population density in area = 32 x 72 km²

NE PIP Trial Charging Infrastructure

- 12 quick chargers
  - 50 kW DC/22 kW AC
- 738 standard chargers
  - 3/7 kW public & workplaces
- 401 home chargers

- For over 90% of the time driving in the North East, the EV is within 5km of a charging point.

£7 Million Over 3 years
Linking EV and Infrastructure trials

From 44 to >400 EVs
From 25 to >1000 CPs
NE Plugged in Places statistics

Data from April 2010 to June 2013

Total charge points = 1164

- Domestic: 35%
- QC: 28%
- PS: 10%
- PP: 5%
- CP: 2%
- WP: 20%

Total Energy Delivered = 307,974 kWh

- Domestic: 52%
- Quick Chargers: 19%
- Public On-Street: 12%
- Public Places: 9%
- Commercial Places: 7%
- Work Places: 1%

Equates to 248 Tonnes CO₂ saved
NE Public charging characteristics

Data from April 2010 to June 2013

Public charging Transactions
Total = 26,315

- Work Place: 40%
- Public Place: 17%
- Commercial Place: 13%
- Public On-Street: 27%
- Quick Charger: 3%

Growth in Public charging Transactions

No of transactions

Time

WP, PP, CP, PS, QC
NE Public charging characteristics

Data from April 2010 to June 2013

Charging by day of the week

No of transactions

Days of week

Over 6 months Jan-June 2013

Hours of charging

SWITCH EV
Total Electric Vehicles: 44
Total journey distance: 591,000 km
Total number of journeys: 65,000
Total number of charges: 17,000
Total energy transferred: 105 MWh
Total CO₂ Saved: 65,000 kg/CO₂

157 answers to the pre-trial questionnaires
103 answers to the post-trial questionnaire
58 participants attended 8 focus groups
23 individual exit interviews
Possible barriers to EV uptake

- High purchase price
- Limited driving range
- Time required to recharge
- Inconvenience of recharging
- Limited availability of charge points
- Lack of power / performance
- Unfamiliarity with the technology
- Lack of choice of makes / models
- Safety concerns about battery or electrical system

Focus group feedback on barriers:
- Participant 1 – Cost
- Participant 2 – Cost and battery life
- Participant 3 – The range.
UK Government statistics:
- 87% of all car journeys in the UK are below 10 km
- 93% of all car journeys in the UK are below 25 km
Importance of public charging infrastructure

How important is it for you to have access to...

- Fast charger
- Public standard charger

- very important
- quite important
- fairly important
- slightly important
- not important at all

0,0% 10,0% 20,0% 30,0% 40,0% 50,0% 60,0%
Switch-EV Drivers’ Charging behaviour

**Q.** Minimum SOC (%) that you felt comfortable driving with before you started to charge the battery?

- 0%: 60 responses
- 10%: 20 responses
- 20%: 10 responses
- 30%: 5 responses
- 40%: 3 responses
- 60%: 2 responses
- 80%: 1 response

**Q.** Over the course of a 24 hour day, how often did you plug in the car to charge?

- Once a day: 60 responses
- Twice a day: 20 responses
- As often as possible: 5 responses
- Other: 3 responses
Would you consider buying an EV?

People need to experience driving an EV in order to make an informed decision about buying one.

This could be through car clubs, trials or electric buses.
Conclusions

• Benefits of LCV and Infrastructure trials working together:
  ✓ Wide choice of infrastructure available
  ✓ Large quantity of data – EV miles and charging transactions
  ✓ Opportunity for data validation – loggers and chargers
  ✓ Valuable qualitative data gathered
  ✓ Infrastructure Standards & Guidance developed
  ✓ LCV Qualifications & training packages produced
Contacts for Further Information

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Switch EV
http://vehicletrial.switchev.co.uk/

TORG
http://www.ceg.ncl.ac.uk/transport/index

Charge your Car
http://chargeyourcar.org.uk/

Zero Carbon Futures
http://www.zerocarbonfutures.co.uk