

Electric Vehicles

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Cenex

Centre of excellence for low carbon and fuel cell technologies

Introduction to Cenex



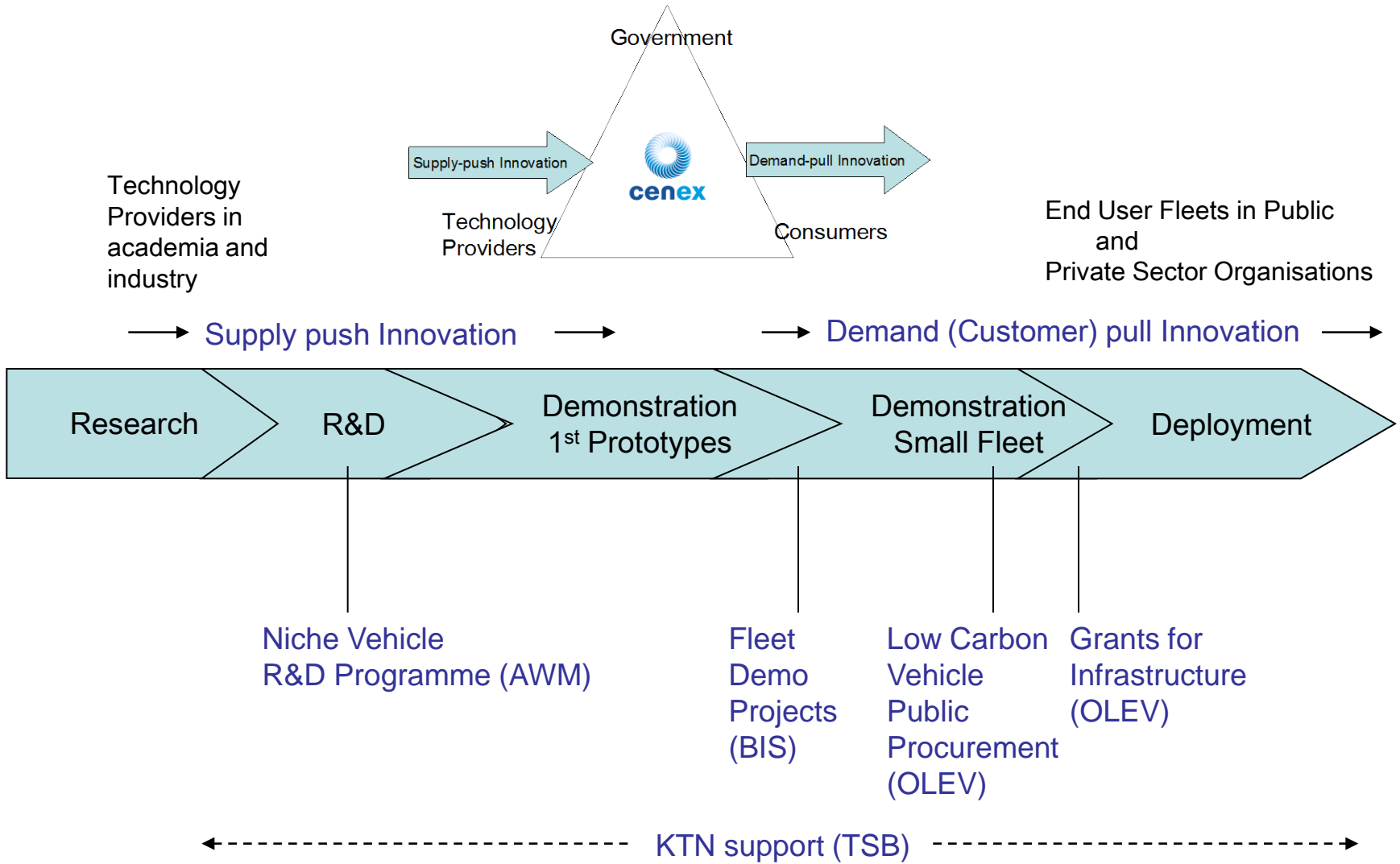
- Running projects and programmes for UK Government focused on accelerating the deployment of low carbon vehicles via:
 - Assisting motor industry development
 - Managing low carbon vehicle procurement
 - Overseeing fleet demonstration activities to trial and test new low carbon vehicles and fuels
 - Providing funding for electric vehicle charging points and refuelling stations for hydrogen and biomethane
 - Disseminating low carbon developments to key stakeholders
- Cenex clients include:



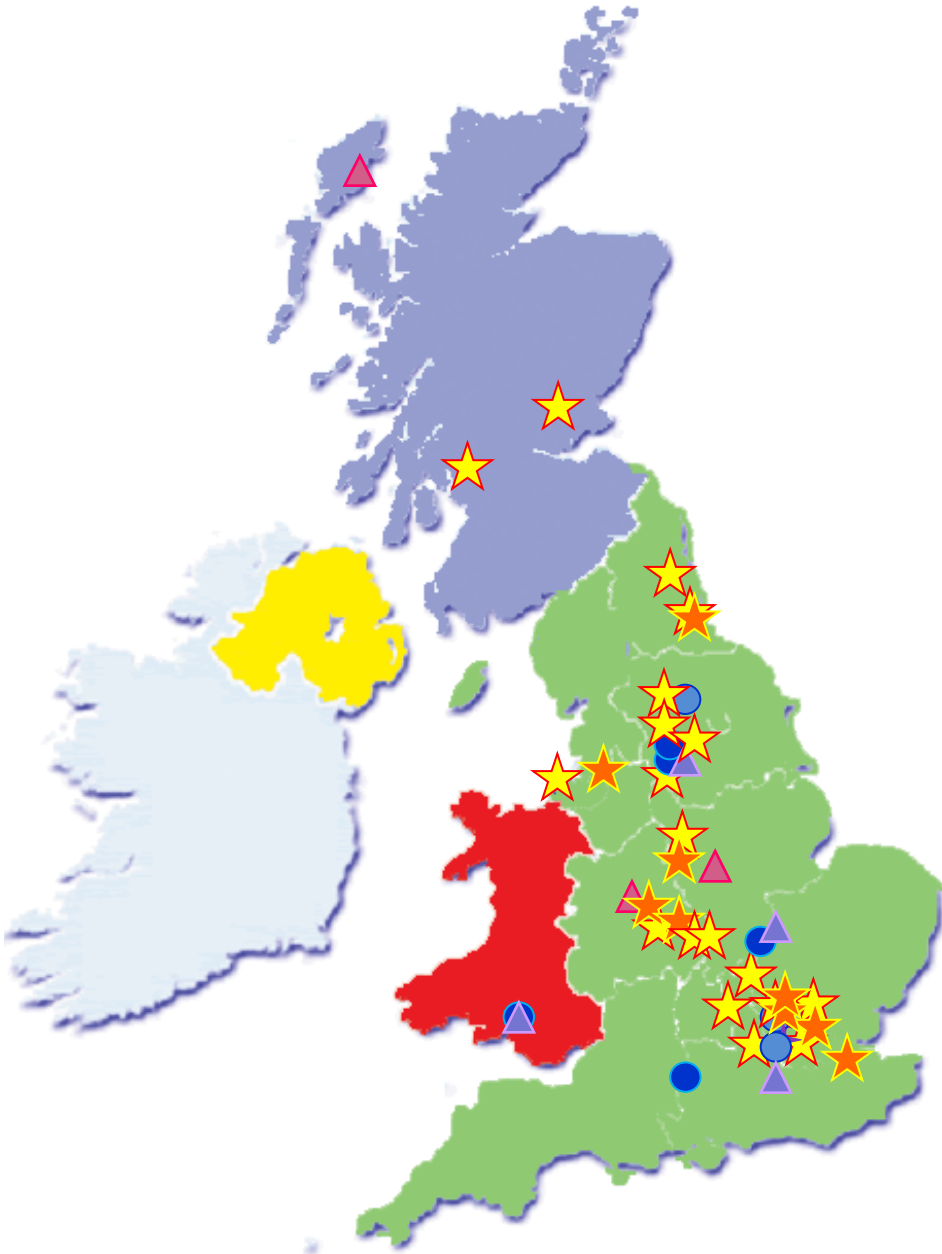
City of Westminster



Overview of Cenex Positioning and Programme Delivery



Cenex Low Carbon Vehicle Projects in the UK



Hydrogen Vehicles

- Vehicles*
▲ Birmingham, Loughborough and Stornoway
- Infrastructure*
▲ Sheffield, Bedford, Glamorgan, Surrey



Electric and Hybrid Vehicles

- Vehicles*
★ Newcastle, Glasgow, Leeds, Gateshead, Perth & Kinross, Liverpool, Nottingham, Birmingham, Wakefield, Doncaster, London, Warwick, Coventry, Hackney, Sheffield, Camden and Islington
- Infrastructure*
★ Birmingham, Westminster, Greenwich, Camden, Hackney, Coventry, Manchester airport, East midlands airport, Barnet, Stockton-on-Tees



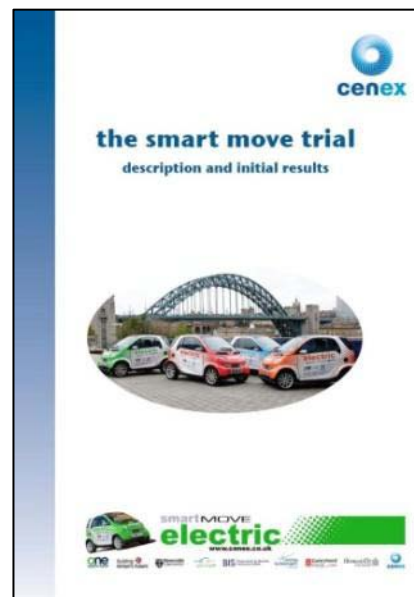
Bio-methane

- Vehicles*
● London, Leeds and Middlesex
- Infrastructure*
● Sheffield, Glamorgan, Milton Keynes, Barnsley, Andover

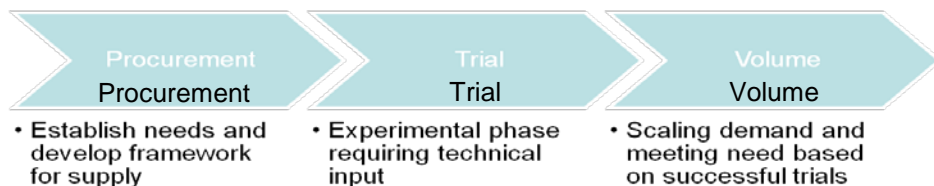


Electric vehicles

- Trials
 - Demonstrate vehicle performance
 - Real world and laboratory performance
 - Examine integration into fleets
 - Reliability
 - Economic and payback analysis
 - Matching customer expectations
 - Examine environmental impact
 - Equivalent CO₂ emissions
 - Noise

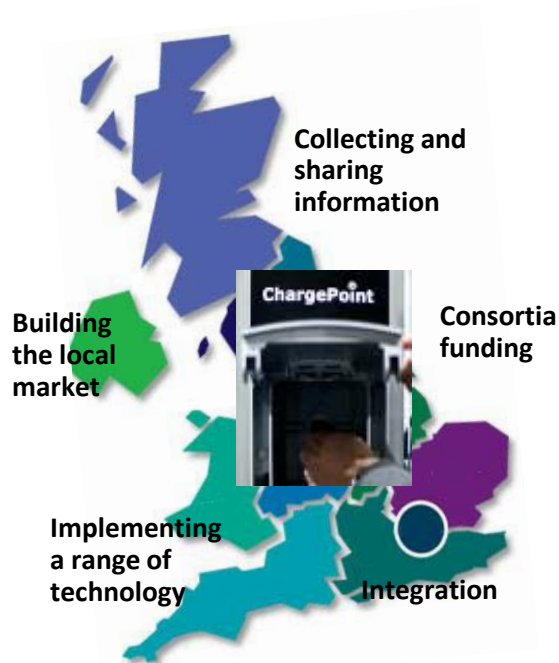


- Low Carbon Vehicle Public Procurement Programme
 - Foster a culture change in public sector procurement toward low carbon vehicles
 - Assist early fleet adopters with risk mitigation (grants, test and validation work)
 - Achieve a cost reduction through volume
 - First Van Procurement, four suppliers selected (1 hybrid, 3 EV), 210 vans into trial across the UK



Infrastructure for electrification

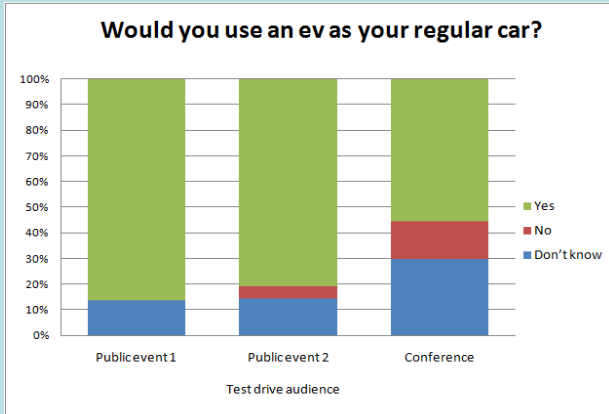
- Infrastructure Grant Programme
 - Funding to support refuelling infrastructure deployment
 - >£1.5 million allocated to projects in last 6 months
 - 3 large scale EV charging point deployments (>50 points for each project)



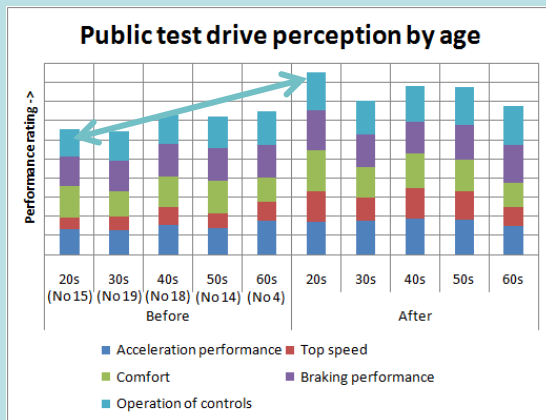
- Plugged-In-Places (Interim management)
 - Funding for roll out of EV recharging infrastructure supporting and learning from early market development
 - 3 Places currently receiving funding
 - North East
 - London
 - Milton Keynes
 - Applications from > 10 more

Electric vehicle attitudes

Public users

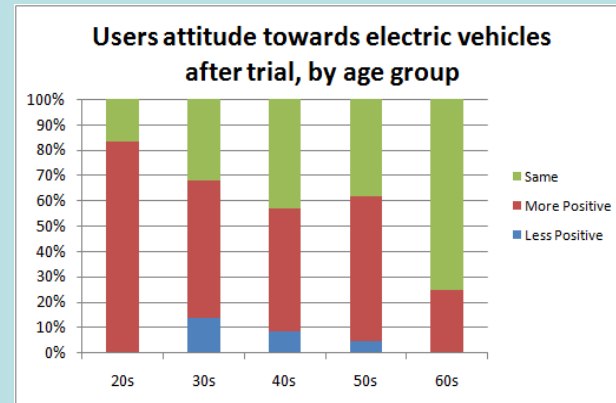


72 % of drivers would use an EV after their test drive compared to 47% before

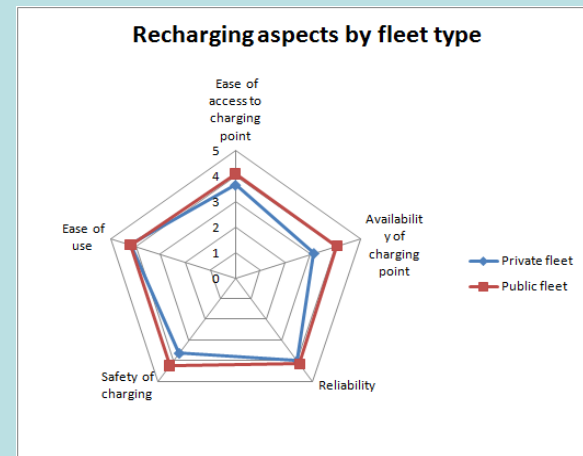


Youngest age groups have lower expectations from vehicles, largest shift in opinion exists for users in their 20s

Fleet users



58 % of fleet users felt more positive about EV's after participating in the trial

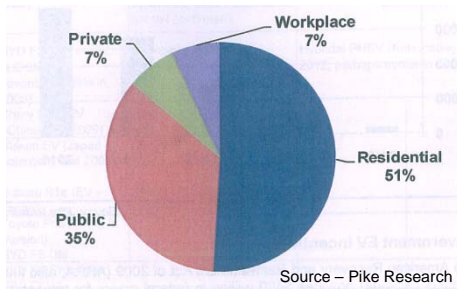


Users rate EV charging experience as good (=4) and charging easy and intuitive

Vehicles and infrastructure

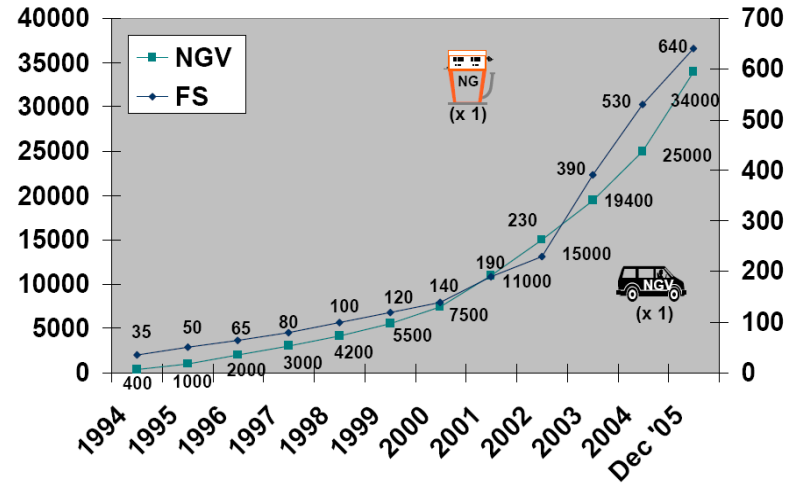
- Growth

- Parallel growth levels, similar to German NGV's unlikely
- Home based charging changes re-energising model

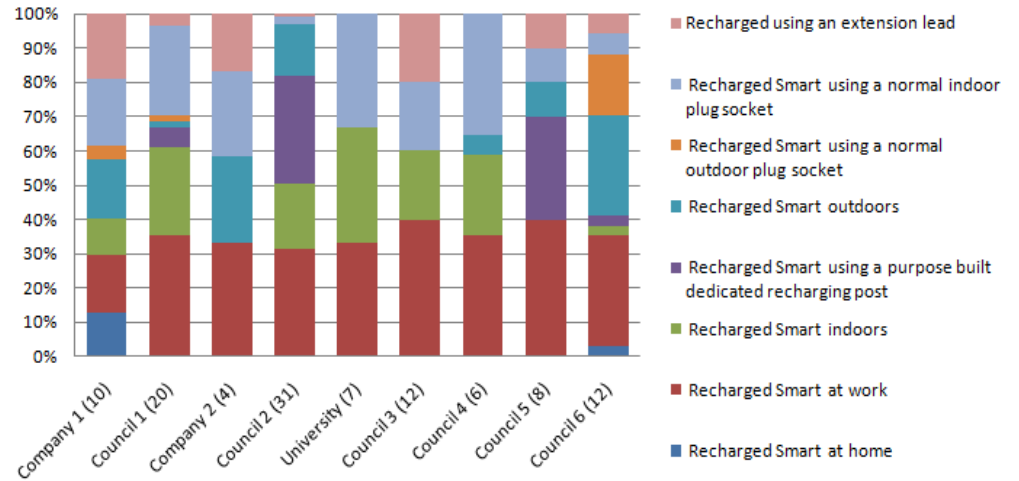


- US research suggests 35% public infrastructure level
- Cenex research suggests UK balanced more towards home and work place linked charging

GERMAN NGV GROWTH



Ev charging regimes by organisation



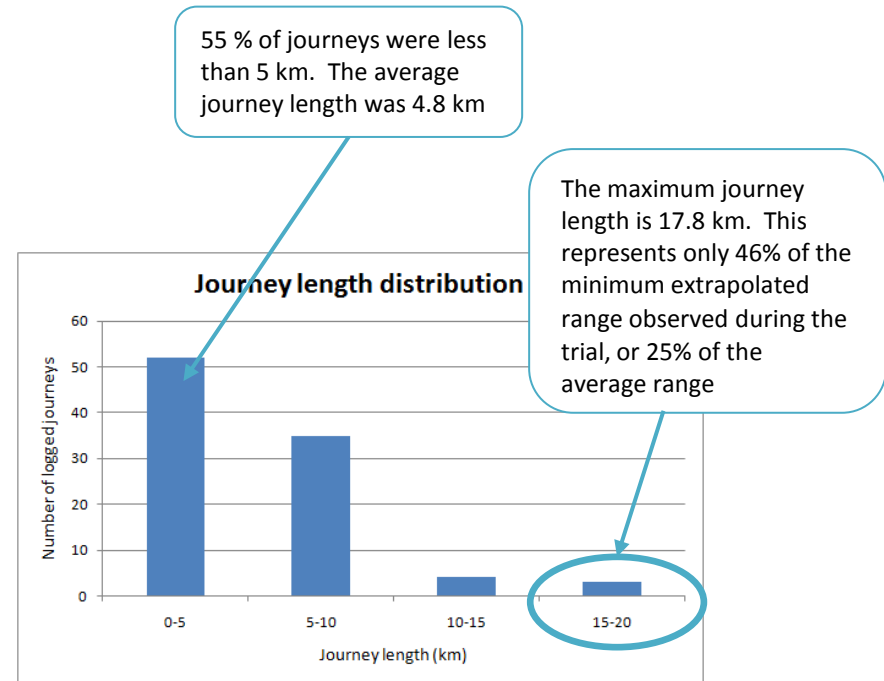
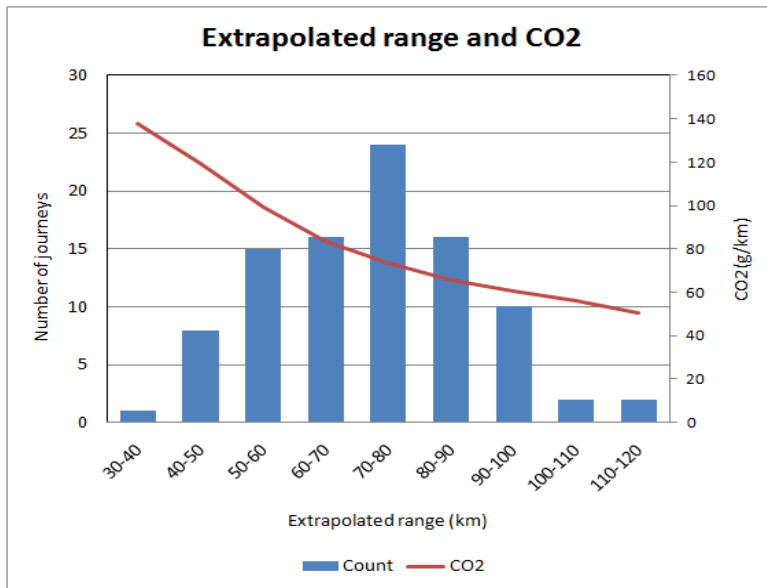
Vehicle behaviour



Data logged over 100 journeys
Jan/Feb 2010



- Average range 72.4 km emitting 82.3 gCO₂/km
- Range varied +/- 40 km depending on operating conditions



- 4.8 km average journey length (UK car average = 8.5 miles)
- 100% of journeys are achievable with a starting charge of 50%
- Users begin to modify their driving style at journey end State of Charge (SoC) reduces to 50%

Next steps

- TSB ULCVDP
 - Cenex role as data collection and analysis partner
 - Currently recording information from 65 vehicles, with >12,000 journeys completed
- Smartmove 2
 - 9 month trial 7 new generation electric vehicles
 - Private sector fleets and University partners
- Technical dissemination event with Millbrook, Oct 2010
 - Detailed laboratory, test track, and real world study
 - 3 models of EV passenger car
- EV and low carbon fleet modelling tool
 - Predictive tool for analysing and simulates EV fleet integration
 - LCV 2010 launch
- LCVPP data collection on stream summer 2010
 - Telemetry collection from 190 EV and Hybrid large panel vans

LCV'10

- Conference, Exhibition, Ride and Drive
- 15-16th September 2010
- 2009 event > 1500 visitors
- www.cenex.co.uk/events



Thank you for your attention

www.cenex.co.uk