Towards e-mobility in London and the East of England

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The UK Government (OLEV 2011) has given its strong commitment, through to 2015, to plug-in vehicles and supporting infrastructure; this includes:

- > £300m for *Plug-in Car Grant* (25% up to £5k)
- Exemption from consumer and company car tax (VED)
- £30m for *Plugged-In Places*: match-funding 8 pilot projects to install and trial re-charging infrastructure
Making the Connection

Source: UK Government (June 2011) Making the Connection, p. 20
As UK Secretary of State for Transport made clear (OLEV June 2011: 5), this public investment and other intervention will be targeted to:

‘maximize the environmental, economic and energy system benefits of plug-in vehicles’.

Further guidance to Local Authorities (July 2011) in Draft National Planning Framework
However, successful adaptation will depend on *social and cultural acceptance* of plug-in vehicles; this is currently the subject of preliminary research in UK.

E.g. Technology Strategy Board’s (2011) study of drivers of ‘demonstrator’ plug-in cars [in the nationwide Ultra Low Carbon Vehicle Demonstrator Programme]

Adaptation will also depend on continuing political commitment by all levels of *government and governance*...
Reluctant individuals, firms and organizations?

- E.g. Drivers are deterred by ‘range anxiety’ (although TSB study suggests this reduces); some by the prospect of leaving vehicle and walking to/from public charging points

- E.g. some reluctant to compromise 24/7 door-to-door availability of their vehicle, while charging in public space

- E.g. some by uncertain running costs-per-km/mile: depreciation, battery replacement, servicing etc.
Reluctant or ‘cautious’ politicians?

• E.g. wary of the *response of wider public* to financial incentives/privileges to plug-in vehicle users: ‘e-envy’?

• E.g. or by the *response of plug-in vehicle users* themselves if and when these inducements are removed

• E.g. *unintended consequences*, e.g. if quieter vehicles endanger visually impaired people, others such as children
London, East of England, and North-East of England (NSR e-mobility) are 3 of our 8 **Plugged-In Places; these were successful in their competitive bids for national funding**

Led by various local **public/private sector consortia**, (OLEV 2011: 26) they are:

‘...creating a geographical focus for the **development of early market**’, and to offer ‘unique **insights** into how the national picture will develop’.
The Mayor of London had already become a champion of e-mobility (GLA 2009), promising an ‘extensive charging infrastructure to facilitate use of electric scooters, motorcycles, cars, vans/light trucks’

_Incentives_ for plug-in vehicle owners include _exemption from central London Congestion Charge_ (worth up to £2,000/Euros 2,300 per annum)
Thus, the Mayor’s support for plug-in vehicles is part of a broader strategy to de-carbonize transport, and address poor air quality in Greater London, especially to:

• Encourage Londoners to walk more, cycle, and use public transport

• Encourage a switch to cleaner, greener vehicles
The provision of *publically-accessible and on-street charging points* will also be critical:

Since only 33% Londoners can park their cars *off-street*, infrastructure ‘will be provided to support EV owners without off-street parking as well as those driving longer distances’...
25,000 charging points by 2015

**Home Charging**
- Most charging is expected to take place at home, overnight
- A high proportion of early-adopters are expected to have off-street parking; where this is not available, workplace and public on-street charging points are alternatives

**Train Station**
- A share of 2,000 off-street, publicly accessible charging points will be in train and Underground station car parks, providing “park and ride” functionality
- Cars are often parked for several hours at a time, allowing plenty of time to recharge

**Retail**
- A share of 2,000 off-street publicly-accessible charging points will be in retail car parks
- Relatively short parking times could make “fast-charging” a cost-effective option

**Town Centre**
- A share of 500 on-street charging points will be located in 47 town centre destinations across London
- Dedicated parking bays will be available for EV charging scheme members

**Workplace**
- 22,500 charging points in employee car parks
- Cars are parked for an average of seven hours at a time, providing plenty of charge-time
Adaptation to e-mobility by firms/organizations with fleets of cars/vans will, of course, be independent of the Mayor, but critical to his implementation strategy

‘Electric 10’: companies that work with Mayor ‘to share experience and encourage adaptation...by other businesses’ (GLA, 2009: 50)

Includes retailers Tesco, Marks and Spencer, Sainsbury’s; express parcels TNT, DHL, UPS; also Royal Mail etc
Adaptation to e-mobility by **households** will also be critical, but presents particular challenges in London.

Whereas nationally ‘norm’ is to charge cars overnight at home, this is **impossible for 2/3 London homes**; furthermore off-street parking is **unevenly distributed geographically**.

**Where** then should charging points be located...?
Households with off-street parking across London (the labels show the percentage of households in each Borough with off-street parking)
Some 90% (22,500) points will be in **workplace car parks**; lower-spec where vehicles are ‘typically parked for seven or more hours in a relatively secure location’

The other 10% (2,500) will be **publicly-accessible** locations, with 8% (2,000) in car parks, especially:

1. Retailers’ customer car parks

2. Station car parks of Underground and Train Operating Companies; however capacity is limited, also with an uneven distribution...
Location of London Underground station car parks
Locations of train station car parks

Train station car parks in London by train operating company:
- c2c
- Chiltern Railways
- First Capital Connect
- First Great Western
- London & Continental
- London Overground
- National Express East Anglia
- Network Rail
- South West Trains
- Southeastern
- Southern
Likely split of EV charging points across London in 2015

25,000 charging points

Homes

22,500 at workplaces

500 on-street

2,000 in public car-parks

Private charging

- Will provide the bulk of recharging
- Cheapest, greenest and most convenient means of charging when off-street parking is available
- Supplemented by the publicly-accessible charging network

Publicly-accessible charging network

- Used to "top-up" charge rather than be the main source of charging
- Vital to extend the utilised battery range and encourage uptake
- More costly to provide, likely to be charged at a premium
The Mayor confirms that **Rapid charging points** (RCPs) (ibid: 21) will be attractive for drivers undertaking *longer trips* and for *taxis, commercial vehicles etc.*

Need to locate these at motorway service to **facilitate** inter-city EV journeys

The remaining 2% (500) of Mayor’s publicly accessible points will be **on-street in dedicated parking bays...**
Current Charging Points in Central London
Equitable coverage?

Aim is that ‘every Londoner will be no more than one mile from the nearest EV charging point by 2015’ (ibid: 24)

Intention is to balance this equitable distribution with targeted provision in the ‘EV hot points’: installing points where uptake and utilization is likely to be highest

Targeted where clusters of ‘early adapters’ in a crescent central/NW/SW London...
Mosaic type analysis of EV and Hybrid owners, and all Londoners

E.g. ‘Global connections’ target group = ‘affluent middle-aged singles living in central London’
Where the 5 Mosaic target types live
There is a band across London, from the north to the south west, where electric vehicles are more popular.

This can in part be explained by current policies. Camden and Westminster, for example, have implemented free or discounted parking schemes and installed a large number of charging points already. However, the attitude of people living in these areas is of equal importance.
Our approach

As in other projects, our research team will work with key ‘stakeholders’ to monitor adaptation to e-mobility in our ‘study areas’ over next three years and beyond.

To track progress from good intentions of public policy to outcomes = what actually happens at street level.

Then review critically: what works well, what is transferable, lessons learned from problems and challenges that will inevitable emerge.
Our approach

In this case, we want to track developments, compare progress with e-mobility partners, reviewing implications for longer distance travel across North Sea Region

We shall also drill down in scale: EU/NSR, national, regional/local down to streets and urban spaces: real-world test-beds

E.g. Street audits to ascertain how accessible, safe and welcoming public charging points will be for local users...
Street Audits address psychological and physical factors that inhibit access to transport, enabling transport users, practitioners and decision-makers to identify potential barriers and develop workable solutions.
Principles to practice

e-mobility NSR

To illustrate some of the challenges for practitioners and decision-makers, I should like to invite our e-mobility partners from the East of England to review progress in Hertfordshire County Council so far...
Hertfordshire
Hertfordshire Local Transport Plan 3 (2011-2031) Policy 3.9:

“The county council will support the provision of infrastructure and facilities to enable and encourage the use of electric and electric hybrid vehicles.”
UK Government Policy

• Making the Connection: the Plug-In Vehicle Infrastructure Strategy (June 2011)

  Aims to support:
  - Decarbonisation of transport system
  - UK technology and manufacturing industries

• Specifies need for 3 types of charging in LA’s:
  - Home charging (preferred approach)
  - Work-place charging
  - Public place charging
UK Government Policy

- Draft National Planning Policy Framework (July 2011):

Location and design of developments, where practical to:

“incorporate facilities for charging electric and other low emission vehicles”

Development standards should take into account:

“an overall need to reduce the use of high-emissions vehicles”
e-mobility Hertfordshire

- £3 million funding from Plugged-in-Places
- 50% match-funding of 600 charging point across the East of England
- 105 proposed charging points allocated across Hertfordshire and Luton
- 4 fully funded posts awarded to HCC
- Further posts installed and intended through various stakeholders and Evalu8
Live Availability can be seen on the website www.sourceeast.net
For further information please visit: www.evalu8-ti.org.uk
Development Opportunities

- “A Low Carbon Economy for Hertfordshire” (2009) recommendations:
  - Explore potential for Hertfordshire low carbon technology cluster and related support package
  - Create sustainable transport and communications infrastructure

  - Over 18% of UK’s market value in East of England
  - Hertfordshire ideally located to capitalise
Key Challenges

• Standardisation of charging points and supporting system for the users

• Rationale for charging point location
  - Lessons to be learned

• Stakeholder and wider public support
Key outcomes

We have one overriding requirement for this project:

To identify the impacts of electric vehicle infrastructure that are of most interest to local authority decision-makers:

- Financial costs and benefits
- Risk levels
- Political acceptability
- Contribution to statutory obligations (e.g. air quality etc)
To summarize

Through collaboration research team/partners, we shall review developments from the **vision** to what actually **materializes**, taking account of national/local context.

Help partners **exchange good practice** within NSR; discuss the **emerging issues**; consider **how problems can be overcome**, and how **synergies can be exploited**.

And invite you warmly to participate in the **e-mobility NSR** event in London 2013.
Showcase Event

1 Day Showcase Event in London 2014:

• Promote EVs and supporting infrastructure
• Disseminate findings to date
• Platform for regional Plug-In consortia
• Keynotes - TfL/GLA (Mayor), Herts CC/East of England
• Showcase for Source London, Vehicle manufacturers
• Case studies: transport Interchanges, e.g. King’s Cross and Regional hubs, e.g. SW London, Hertfordshire
Vielen Dank   Thank you

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