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European knowledge transfer network on urban Electric Vehicle strategies

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Abstract

EVUE is a European funded exchange of experience project for 10 cities developing Electric Vehicle strategies. The initiative demonstrates the benefits of collaboration and shared learning for urban professional and policy makers learning how to integrate EVs at early market stages. It promotes fresh approaches to integrated planning and to delivering the potential of electric mobility in sustainable cities of tomorrow.

Keywords: urban, strategy knowledge transfer, policy

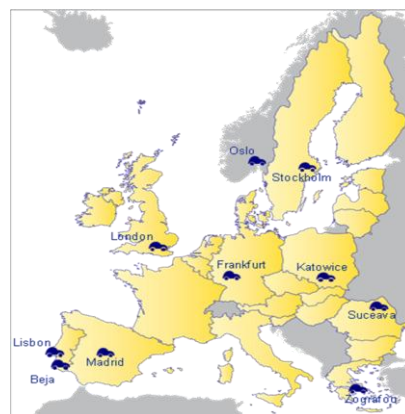
1 Introduction

Cities are responsible for nearly 80% of carbon dioxide emissions, and in the EU transport accounts for around 25% of those emissions. So it follows that de-carbonising urban mobility is a critical challenge to create sustainable cities. Electric mobility can play an important part of urban strategies to green transport.

This is a new area of fast moving technology and policy. The opportunity for city planners and policymakers to share successes and failures with peers across Europe helps to avoid costly errors and to get electric vehicle strategies right.

The [EVUE \(Electric Vehicles in Urban Europe\) project](#) within the [URBACT](#) Programme provides a platform for cities to learn together how best to increase the use of electric vehicles. [URBACT](#) is a European exchange and learning programme promoting sustainable urban development and is part of the European Regional Development Fund. EVUE is led by Westminster City Council in London, and involves 10 European cities: Beja, Lisbon, Katowice, Madrid, Frankfurt, Oslo, Stockholm, Suceava, Zografou and London.

The three year project aims to explore, exchange and implement ideas on how cities can develop integrated and sustainable strategies to increase the use of electric vehicles. Funded until the end of 2012 the lessons learnt about these very real challenges will be identified and transferred to European and international networks, such as EVS and EDTA.



EVUE partner cities across Europe

2 Green cars for green cities

There is no doubt that electric cars can help to make city streets cleaner, quieter and more attractive. The obvious advantages are that they are well suited to urban mobility patterns, decrease

CO2 emissions and can harness renewable energy. They can also play a part in reducing noise and improving air quality.

Around 50% of European car trips in cities are less than 6 km in length. Electric vehicles' current limited battery range does not represent a problem for the short distances involved and as vehicle technology improves in the future longer distances between cities and regions will become increasingly possible with EVs.



Electric vehicles contribute to the sustainable cities of tomorrow

The change to EVs requires a change of mindset amongst drivers and fleet managers. There are still real and perceived barriers of cost, performance and range, and a lack of charging infrastructure. Public information and financial incentives - such as tax breaks, subsidies, free parking and charging- are key tools to encourage citizens and businesses to swap their gas guzzlers for more sustainable options.

The political agenda in Europe is favourable with the EU Climate and Energy Package 20:20:20 targets (1) and the emphasis on clean technologies for economic growth. The Transport White Paper published by the European Commission in 2011 states that a key goal is to have 'no more conventionally fuelled cars in cities by 2050.' (2)

European Union funded projects on electric mobility are tackling the issue from a number of perspectives, and involving stakeholders from industry, government, knowledge institutions and civil society. Framework Programme 7 Research and Development supports research, innovation and demonstrations; Intelligent Energy Europe supports, amongst other things, transfer of behaviour change initiatives; CIVITAS co funds projects on cleaner transport in cities, interregional programmes exchange knowledge

and transfer good practice across regions. A map of some of these projects is available at http://www.eurelectric.org/Dev/AmMap/Interactiv_eMapEurope_EV/ The results of these projects are disseminated and exploited through European networks, such as HyER, POLIS, Eurelectric, Eurotowns and Eurocities.

3 The challenges

Many mobility experts now agree that electric cars could and should be part of future urban mobility solutions. The question is how can cities realise the potential benefits, without making costly errors, in a new and fast moving area of policy? What are the most efficient ways to implement strategies that maximise public investment, generate confidence and bring returns in reduced CO2, and better quality of life? How do city planners harness electric mobility without increasing congestion or a negative modal shift away from active modes or public transport?

The EVUE exchange programme focuses on these key challenges identified in its Baseline Report (3) and advanced cities, such as London, Stockholm, Oslo, Frankfurt, Madrid and Lisbon share their approaches, successes and best practices.

The themes for EVUE exchange and reporting fall under the following headings.

- Infrastructure
- Awareness raising
- Procurement
- Business Models

4 Results

Following on from the programme of on-site city visits, workshops, and expert seminars to exchange experience EVUE has produced a series of reports documenting emerging lessons. These can all be found at www.urbact.eu/evue.

4.1 Infrastructure

The lack of agreed standards can make it difficult to make the right decisions when investing in publicly accessible charging facilities. Technological innovations are moving fast, and the range of options has to be carefully considered.

Fast and inductive charging may become viable and attractive options in the medium to long term, to reduce street clutter. Most cities are installing charging posts on streets and in car parks to get started.

Cities face challenges in allocating reserved spaces for EV parking and charging in busy streets, and how to work out cost structures and incentives for EVs without losing too much parking revenue. Each city takes a different approach, and can learn from each other about the efficacy of different solutions.

One solution for future proofing is to commission modular or flexible charging posts that can be easily modified or upgraded. Another option is to start with simple, key operated posts, as in Oslo, for the first stage of the strategy and graduate over time to intelligent systems with sophisticated control and connectivity, as in the MOBI-E system in Portugal. Most cities cannot legally charge for electricity, so Frankfurt has developed a system whereby a charge is incurred for access to the charging point instead.



Simple EV Charging Point, with a fake petrol pump for publicity, on the forecourt of Sparkasse bank in Frankfurt

It is a complex task to identify the best locations to install the posts. Lisbon City Council has an ambitious strategy to install 687 Charging Posts. EMEL, the city mobility agency charged with delivery in Lisbon, has brought together all the relevant actors, such as city officials responsible for streets, the energy companies, grid operator and company contracted to do the installation. They all meet every week on the same day at the same time to review and agree progress.

4.2 Awareness raising

Cities can play a part in educating the future consumers of EVs, both individual car owners and fleet managers. EVUE cities raise awareness of the benefits of green cars, for instance in Beja, Portugal through school activities, test and ride EV sessions in public places, holding exhibitions at local fairs, and creating special websites linked to the urban transport sites. The City of Katowice in Poland is now developing an e-mobility portal in anticipation of the first wave of EVs arriving in the city. This general information is considered neutral advice, as opposed to manufacturer marketing materials or the sometimes negative media hype. Lighthouse projects, like EV taxis or brightly branded cars, such as in the municipal fleet in Stockholm, attract positive public attention.



Press launch of new fleet EVs in Stockholm

4.3 Procurement

Although EV purchase prices still represent a major barrier for public authorities as well as individual consumers, costs can be controlled to some extent by using the right EV for the job, making use of electric bikes and small maintenance trucks as well as passenger cars and light vans.

Procurement of EVs in municipal fleets helps grow the market, provides visibility, and allows more drivers and citizens to 'touch and feel' the vehicles. Experience from EVUE cities shows that an analysis of the different functions required means that the specifications can include passenger cars, light duty vans, pedelecs, and maintenance vehicles. Several EVUE cities have set targets for a percentage increase in EVs in fleets each year. Public agencies, such as cities, but also schools, hospitals, emergency services can also use procurement as a tool to influence supply chains, using their purchasing power to encourage suppliers to adapt their own fleets.

As well as national and regional incentives for EVs cities can offer additional advantages and encouragement such as free parking, charging, use of bus lanes, priority access to city centres/and low emission zones. These incentives are, of course, not sustainable in the long term, so have to be carefully introduced, monitored and communicated. The most comprehensive package amongst EVUE cities is to be found in Oslo, which not surprisingly has significant and growing numbers of EV owners.

4.4 Business models and innovation

Cities can capitalise on their governance role and build on what are often existing relationships with EV stakeholders, such as utility companies, grid operators, citizen and consumer groups, business support agencies, research institutes, vehicle suppliers, and universities. They are in a position to actively facilitate Private Public Partnerships and multi stakeholder involvement around EV strategies.

Innovation is needed to create new business models and mobility services, to market them effectively and change travel behaviours. Collaborations with entrepreneurs, inventors, researchers, financiers and banks are the best way to succeed in these ventures. Car sharing schemes incorporating EVs are under development in several EVUE cities. Integrating electric mobility within new mobility offers and making them user friendly and appealing is important. Also key is basing investment decisions and direction of travel on sound analysis of travel patterns, urban plans and data from existing EV trials. Evidence from pilots and surveys in Stockholm and London, for instance, shows that early adopters mostly charge their vehicles at home and at work, making less use of public infrastructure. This trend needs to be factored into planning for infrastructure rollout.

Urban logistics is another future focal point for city promotion of EVs. Regulatory incentives such as lifting night time delivery curfews or allowing EV-only access to city centre zones could encourage delivery companies to convert fleets. EVUE cities plan to continue collaboration with potential demonstration projects in urban logistics.

And finally EVs can provide an additional push to decarbonise the energy mix and develop

renewable energy markets, in line with the EU Climate goals.



Downtown EV parking in Oslo provides visibility

5 Actions today for cities of tomorrow

The EVUE network knowledge transfer to date has identified a number of actions for cities. There is no 'one size fits' all model. Plans have to be adapted to local conditions, such as economic context, population density, travel patterns, climate. The best EV strategies are not developed in isolation, but are embedded in the framework of sustainable urban mobility, and link to spatial planning and economic development. In this way the tools available to cities to support EV market development can be deployed in a strategic way.

It is important to raise awareness of the benefits of EVs across municipal departments from environment, transport and economic development to education. In particular agencies that stimulate local business growth can help businesses to spot and capitalise on commercial opportunities in this new growing sector.

Cities can effectively become living labs for the deployment of electric mobility. The conditions for successful innovation are to stimulate co-creation, multi stakeholder cooperation, across the private, public and non profit sector to share risk and gain, and importantly to be open and share knowledge about both successes and failures. This innovation around EVs relates not just to technology but to processes such as new partnerships, models of finance, and mobility services.

In conclusions the role of public bodies is to advise, encourage, incentivise, and to lead by

example, incorporating EVs into fleets, and having politicians and civic leaders drive EVs.

EVUE has demonstrated the ongoing benefits of collaboration and shared learning for urban professional and policy makers on the steep learning curve of electric mobility early market stages.

“We have the possibility to access "fresh" information on what the other partner cities are doing in practice on EVs, Electric Mobility and other related issues, providing a really transnational gathering of all the different state of the art of each partner. The level of interaction in the EVUE network is great and fosters productive exchange and ideas generation.” (4)

References

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