



EVUE Electric Vehicles in Urban Europe

Madrid Local Action Plan





EVUE PARTNER CITIES

- City of Beja
- City of Katowice
- City of Frankfurt
- Lisbon
- London
- City of Madrid
- City of Oslo
- City of Stockholm
- Municipality of Suceava

Electric Vehicles in Urban Europe (EVUE) is focused on the development of integrated sustainable strategies and dynamic leadership techniques for cities to promote the use of electric vehicles (EVs). Urban initiatives to encourage individuals and organisations to use EVs will contribute to EU clean air and car fleet targets, making cities more attractive and competitive. EVUE is also focused on exchanging approaches to key barriers such as public resistance, lack of infrastructure, rapid technology change and obsolete economic modelling.

For the past three years, Madrid has participated at the transnational exchange programme between nine European cities and their electric vehicle strategies and approaches.

The URBACT programme is focused on improving the decision and policy making within cities through transnational exchange and learning. As a methodology it requires partner cities to form an URBACT Local Support Group (ULSG). These groups, comprising public, private and the third sector organisations and individuals, seek to enhance the quality of discussion and decision making through the contribution of a broad range of experience and expertise.

BACKGROUND

Madrid City Council is part of the team of cities of the Electric Vehicles in Urban Europe project, co-funded by the European Regional Development Fund (ERDF) through the URBACT programme. URBACT is a European exchange and learning programme promoting sustainable urban development.



The Spanish government has also set ambitious carbon reduction targets over the next 20 years and is encouraging the shift to low emission vehicles, fostering the automotive industry which is key in the Spanish economy, which accounts 9 car manufacturers and 17 factories (2011 data).

Electro-mobility and more specifically, electric vehicles have significant potential to address these areas as when they are coupled with non CO₂ emitting electricity generation such as renewables, it can be a completely 'clean' method of transport.

Madrid, through its AIR QUALITY PLAN has set a group of measures specifically focused in e-mobility promotion, most of them aligned with EVUE objectives:

- Measure 9: Develop a Strategic Framework for the Promotion of electric vehicles (2011-2016).
- Measure 10: Consolidation and spread of the less polluting alternative fuels supply network.
- Measure 11: Consolidation and extension of tax incentives to promote the use of cleaner fuels and technologies.
- Measure 12: Consolidating and strengthening of the renewal of the municipal fleet to cleaner technologies.
- Measure 14: Promote taxi fleet renewal to cleaner fuels and technologies.
- Measure 15: Ensure that 100% of the bus fleet of EMT serving in the Low Emission Zone incorporate clean technologies.
- Measure 16: Increase the number of alternative fuels supply points in EMT centres.
- Measure 34: Voluntary agreements with private sector to promote the renewal of freight and delivery fleets to cleaner technologies.
- Measure 35: Mobility advantages for cleaner commercial vehicles.



MADRID CONTEXT

Madrid is the biggest and most populated city in Spain. It has an area of 698 km² with around 3.2 million inhabitants. The city is the core of a very populated metropolitan area that has nearly 6 million inhabitants.

Madrid has been using electric vehicles in different operations such as public transportation and urban services: 20 100% electric minibus model Gulliver 520 ESP LR, 23 GNC-hybrid buses (13 of which are PHEV), Green areas and parks maintenance services with 95 EVs, 31 EVs to attend urgent road repairs, 2 EVs in the water department and 6 electric motorbikes for police and mobility agents.

The City Council has also implemented several incentives to promote e-mobility in the City, including free on-street parking for zero-emission vehicles (including PHEV and REEV), discounts on local taxes, and free charging until the end of 2012, as well as supportive policy on procurement processes to promote fleet renewal among public services.

Madrid has a comprehensive public charging point network (25 on-street plus 274 off-street charging points).

The MADRID URBACT Local Support Group

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Within the framework of the EVUE Project Madrid ULSG has been working since 2010 to discuss the challenges and opportunities associated with enabling electro mobility in Madrid, and how policies can help to achieve not only mobility targets, but air quality ones.



It has provided an opportunity for the diverse stakeholders involved with this particular issue, to come together, identify issues of concern and seek ways to overcome them.

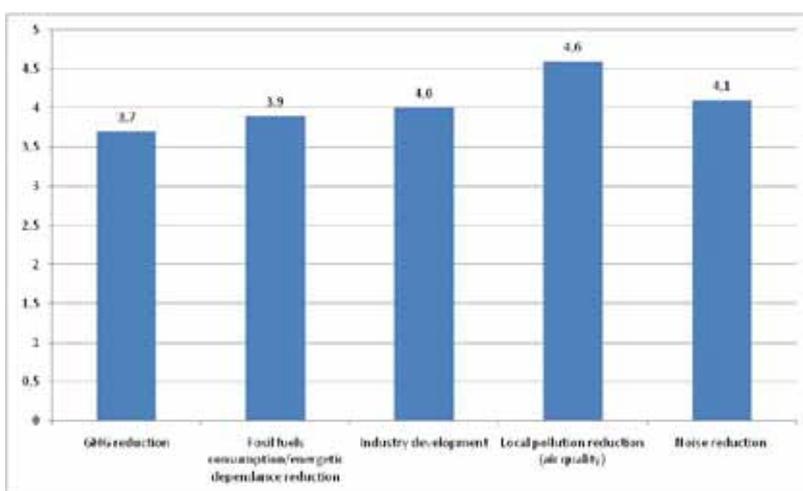
With representatives from local, regional and national authorities, the motor industry, electricity generators/distributors and retailers as well as academic

institutions, private research institutes and consultancies, the ULSG has provided a focused approach to looking at the challenges while incorporating the experience of other EVUE partner cities, in developing an approach that can be taken forward in Madrid.

EVUE project process

At the different sessions, ULSG members were asked about different topics, in order to define e-mobility priorities and concerns.

ULSG members evaluation of the EV benefits (1=less benefit; 5=bigger benefit)



ULSG members agree that **local air quality improvement is the better benefit**. Other pointed topics are:

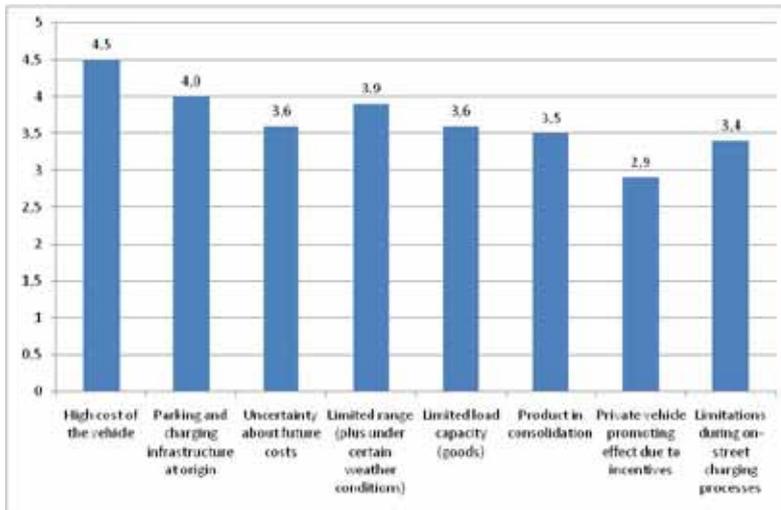
- EV's small range promotes inter modality and reduction of EV sizes
- Lower maintenance costs
- Better comfort
- Uncertainty on petrol prices

MADRID ULSG MEMBERS

- City Council departments (Mobility, Housing, Urban services, Treasury, Public transportation company, political parties in the opposition, etc.)
- Regional Authorities (Consortio Regional de Transportes de Madrid, CRTM)
- National Authorities (Instituto para la Diversificación y el Ahorro de la Energía, IDAE)
- Trade Unions (CCOO, UGT)
- Associations (Asociación Española de Renting, Federación Española de Municipios y Provincias, Asociación Española de fabricantes de Automóviles y Camiones, Asociación Española de Aparcamientos y Garajes, Asociación Española de Gestores de Flotas de Automóviles, etc.)
- Chamber of Commerce
- Universities
- OEMs (Peugeot, Renault)
- Energy network operators and providers (Endesa, Gas Natural Fenosa, Iberdrola, IBIL)
- Service Companies (ACS-Cobra)
- Research institutes (RACC, RACE)
- Logistic companies (SEUR, Grupo Leche Pascual)



ULSG members evaluation of the EV barriers and threats (1=smaller; 5=bigger)

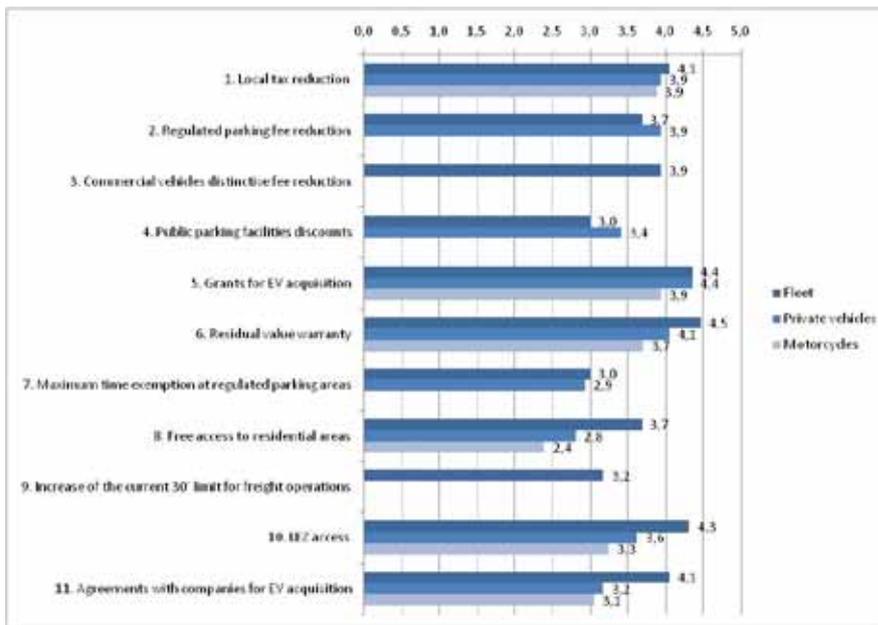


Despite the **price**, the **need of a parking lot for overnight charging** and **range limitations** are the main barriers.

Other pointed topics are:

- Batteries life cycle and recycling processes
- Financing problems and residual costs
- Lack of EV variety at the public transportation sector
- Competition against public transportation, cycling and walking
- Lack of information
- Safety issues during charging
- Sustainability directly linked with energy origin
- Threats to public incomes via fuel taxes reductions
- Economic crisis

ULSG members evaluation of possible measures to decrease EV price/costs (1=less likely; 5=more likely)

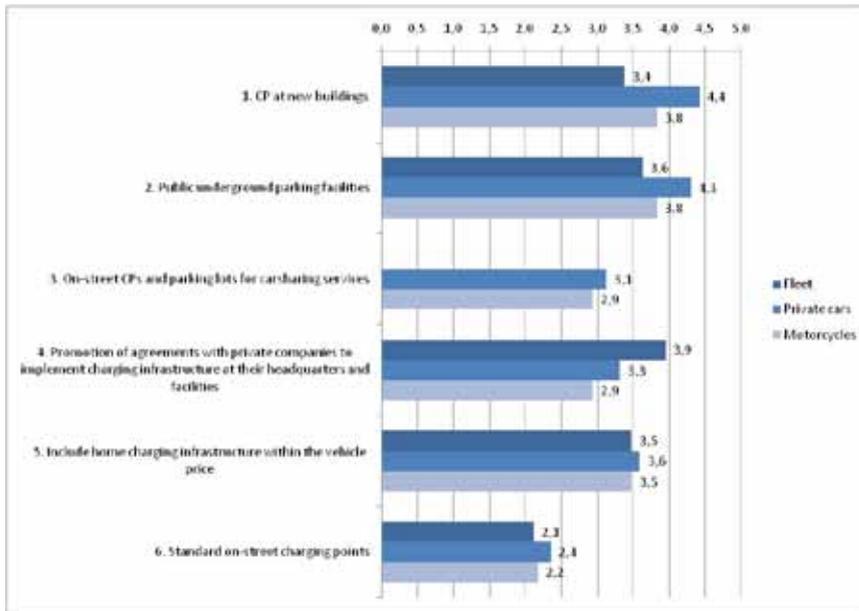


Other possible measures pointed by Madrid ULSG:

- Enable economic advantages in financing systems when purchasing EVs
- Municipal additional incentive when unregistering a conventional car when purchasing an EV
- Increase current taxes on polluting cars
- Incentives for electric vehicle production
- Use, in a first stage, of the bus-taxi dedicated lane for EVs
- Funding for the purchase of low cost EVs for companies and individuals



ULSG members evaluation of actions to ease parking + charging in origin (1= lower priority; 5=higher priority)



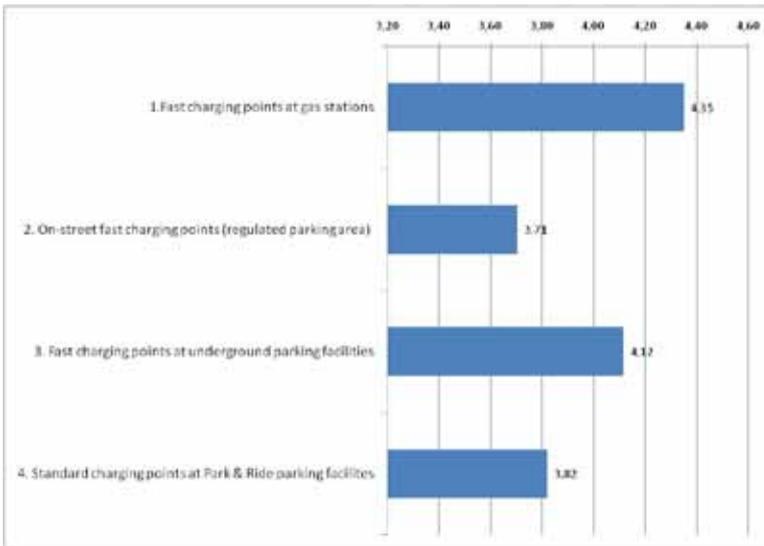
Action	Agent	Comments
CP at new buildings	National Authority/City Council	In order to ease access to e-mobility at new buildings and housing, and according to the expected changes in the Spanish Low Voltage regulation, implementation of charging infrastructure at new buildings should be forced by Law
Public underground parking facilities	City Council	The specifications of the new parking concessions will set minimum quotas of lots for electric vehicles
On-street CPs and parking lots for carsharing services	City Council	Madrid participates at the Green eMotion project as a demonstrative city, with a pilot project to test on-street charging points linked to carsharing services
Promotion of agreements with private companies to implement charging infrastructure at their headquarters and facilities	City Council/Companies	Work on the revision of the regulations to incorporate the requirement that all new buildings must have pre-installation of charging points
Include home charging infrastructure within the vehicle price	Car manufacturers and retailers	Encouraging car manufacturers and energy companies to market products "turnkey" to facilitate the purchase of an electric vehicle by potential customers. The City Council will cooperate disseminating these measures
Standard on-street charging points	City Council	On-street charging points generates drawbacks such as the private use of public space and potential problems of vandalism

Other possible actions:

- Facilitate CPs implementation in condominium garages (neighbour's association parking)
- Quick/Fast charging points at gas stations (strategically placed around the city)
- Grant of on-street parking lots and charging points for car-pooling services
- Definition and publishing of a technical regulation to encourage the standardization of vehicle-infrastructure interfaces

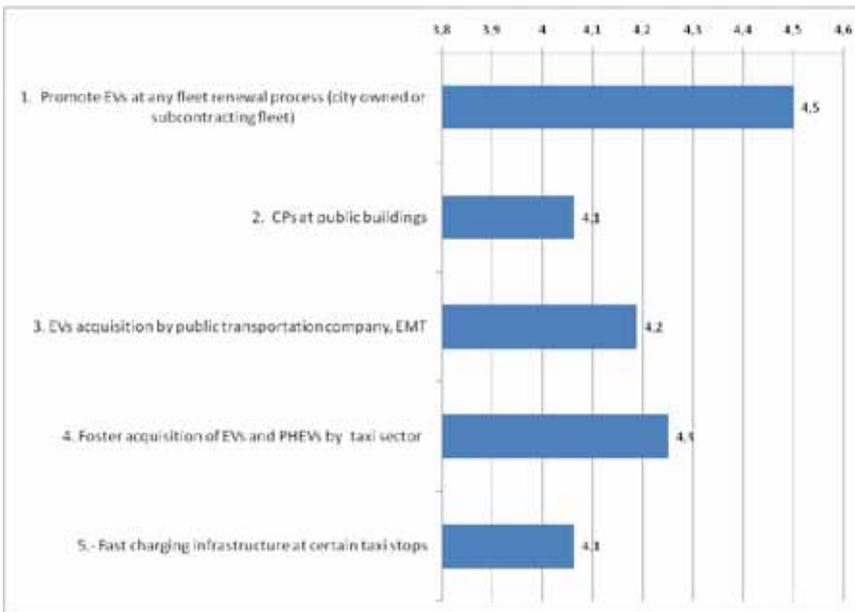


ULSG members evaluation of actions to help reducing range anxiety (1= lower priority; 5=higher priority)



Action	Agent	Comments
1	Utility and petrol companies	Speed up regulatory processes to allow gas stations to implement charging points
2	City Council/ Companies	As the regulated parking area will be soon redesigned, the City Council will analyze the feasibility of implementing CPs at parking poles
3	Parking's/ Malls	The City Council will study a possible new regulation to implement certain EV parking lots at new parking facilities
4	Metro/ Railway National Company	Encourage these public transportation companies to implement CPs at their parking facilities

ULSG members evaluation of measures to promote EVs at fleet and taxi sector (1= lower priority; 5=higher priority)



Action	Agent	Comments
1	City Council	Madrid City Council is already including EV clauses at any fleet renewal processes
2	City Council	As e-fleet is increasing this process is under development
3	City Council	EMT is studying new e-bus routes at specific areas of the city
4	City Council/ Companies	The Air Quality Plan includes incentives for the acquisition of less pollutant vehicles, as well as CO2 and NOx limitations for new taxi vehicles
5	City Council/Car manufacturers and retailers	In medium term Madrid plans to develop agreements with car manufacturers and retailers to introduce EVs at taxi fleet and dedicated fast charging infrastructure at certain taxi stops

Madrid e-mobility "road map"

1. In recent years, all major cities are planning strategic actions to reduce traffic pollution levels. The electric vehicle can help to improve Madrid's air quality.
2. Madrid's support to the development of electric mobility does not contradict or question the fundamentals or the orientation of the mobility policy of the city, which is a policy based on the rational use of private vehicles and the promotion of more efficient transport modes (public transport, cycling and walking).
3. Electric mobility is not the "solution" to the problems of urban mobility but can help reducing the environmental impact, especially when applied to those trips necessary for the functioning of the city (freight operations, services fleet, etc.) which cannot be easily derived to other modes (public transport, walking or cycling).
4. To support the transition to cleaner mobility technologies is necessary to reduce barriers against EVs: higher acquisition cost, range limitations, cargo and charge speed limitations, technical and economic uncertainties and misinformation resistances derived from potential customers.
5. In short term: The generalization of vehicles, fuels and technologies that can respond to the operational needs of the city with a lower environmental impact is a desirable objective and consistent with the mobility policy. The transition to this stage requires and justifies a concerted effort among various stakeholders: governments, companies, for the identification and implementation of actions of different nature. These actions, given the rapidly changing technological and economic context, should be updated permanently.
6. E-mobility promotion shouldn't ignore other current technologies and fuels that can respond to the operational needs of the city with a lower environmental impact: hybrid, LPG (Liquefied Petroleum Gas) and LNG (Liquefied Natural Gas).
7. Madrid should go in depth to use parking regulations and rights of access for certain type of vehicles to create incentives that offset and weigh the costs involved in the use of cleaner fuels and technologies.
8. Promote the implementation of the necessary infrastructure to facilitate the use of commercial e-fleets (charging infrastructure, freight consolidation centres, etc.).
9. Support companies interested in acquiring and renewing their fleets: facilitating the evaluation of alternatives in purchasing decisions, easing access to available assistance or special training to optimize the management and maintenance of vehicles, etc.
10. Strengthen the functioning of Madrid Electric Mobility Forum as the institutional framework and key tool to encourage innovation and competitiveness of services and technologies within this emerging sector with great capacity to generate wealth and employment.

Madrid LAP includes the support for raising awareness activities and PPP, including OEM's, logistic companies, etc.



Nissan



TNT

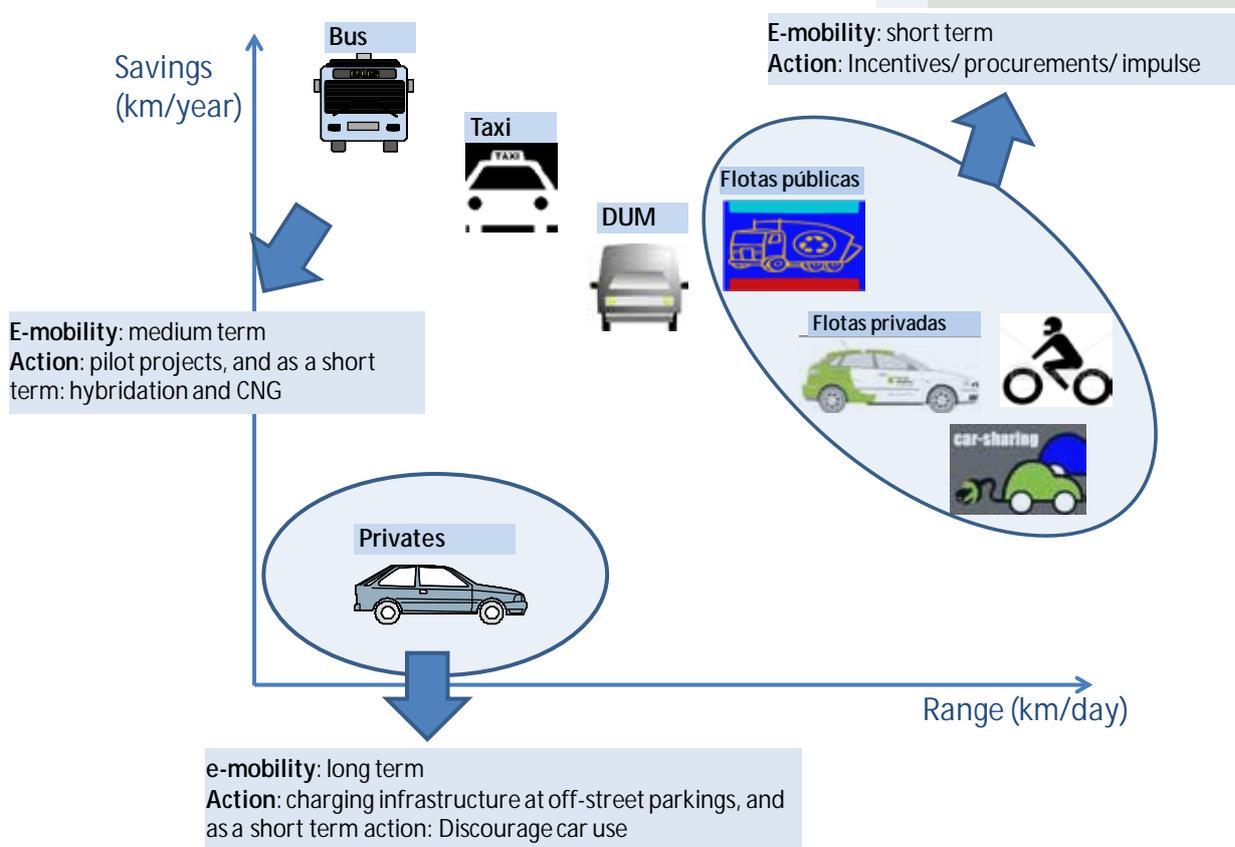


SEAT



TOYOTA

Madrid vision and priorities on e-mobility (short/medium/long term):



CONCLUSION

Though transition to EVs in Madrid is underway, there are still several issues which constrain the rate of adoption.

While the high purchase price and limited availability is significant, in the initial uptake stages of the technology diffusion curve, customer confidence and satisfaction is essential.

Electro-mobility can address many of the environmental challenges facing Madrid and any other big city, while not inhibiting the free movement of goods and people that drive cities forward.

But in the meantime, we must not forget that on the way we shouldn't ignore other possible technologies and fuels that can respond to the operational needs of a big city with a lower environmental impact such as hybrid vehicles, LPG (Liquefied Petroleum Gas) and LNG (Liquefied Natural Gas).

The city of Madrid considers that participation at international projects and initiatives is key for e-mobility promotion and innovation.

Among others, Madrid participates at the Green e-Motion Project, as a demonstrative city.





Next steps: FR-EVUE – Demonstration of urban freight electric vehicles for clean city logistics

As a networking result among EVUE cities, Madrid, together with more than 30 public and private sector organisations concentrated around the cities of Amsterdam, Lisbon, Milan, Oslo, Rotterdam, Stockholm and London, presented, in March 2012, a proposal under the FP7-Transport-2012- Move-1 call.

This proposal, called FR-EVUE, has been accepted by the European Commission DG-MOVE, and would bring together eight of Europe's largest cities to demonstrate EVs in the urban logistics sector.

This demonstration project has been designed to ensure FR-EVUE covers the breadth of urban freight applications that are common across Europe, including a wide range of goods deliveries (including food, waste, pharmaceuticals, packages and construction goods), novel logistics systems and associated ICT (with a focus on consolidation centres which minimise trips in urban centres), vehicle types (from small car-derived vans to large 18 tonne goods vehicles), different climates (from Northern to Southern Europe) and diverse political and regulatory settings that exist within Europe.

The project will trial over 120 electric freight vehicles in the day to day rigours of the urban logistics environment. The project will seek to prove that the current generation of large electric vans and trucks can offer a viable alternative to diesel vehicles – particularly when combined with state of the art urban logistics applications, innovative logistics management software, and with well designed local policies.

The trial will also explore innovative charging solutions to overcome the long EV charge times and short ranges that have hampered early EV uptake, including: fast charging, time-shifted charging and load management to minimise grid impact.

For further information, please contact:

Sustainable Mobility Office

Madrid City Council

www.madrid.es

www.movilidadelectricamadrid.es

movilidad.electrica@emtMadrid.es

Tel: +34 912093880

URBACT is a European Exchange and learning programme promoting sustainable urban development.

It enables cities to work together to develop solutions to major urban challenges, reaffirming the key role they play in facing increasingly complex societal challenges. It helps them to develop pragmatic solutions that are new and sustainable, and that integrate economic, social and environmental dimensions. It enables cities to share good practices and lessons learned with all professionals involved in urban policy throughout Europe. URBACT is 181 cities, 29 countries, and 5,000 active participants.

