Electric mobility in Barcelona

Good practices

Barcelona City and its Metropolitan Area are an urbanistically compact territory with a high population density. It therefore faces important challenges in the sphere of mobility and transport, such as finding a sustainable, non-polluting model of mobility.

Although e-mobility has a very small weight in Barcelona vehicle fleet, the Catalan capital government has already taken the first steps towards the gradual introduction of electric vehicles, both in public transport and for private use, in order to make these vehicles a more widespread and everyday technology.

LIVE: a platform to boost electric mobility

The Barcelona City Council spearheaded the creation of LIVE: Logistics for the implementation of Electric Vehicles in 2009. This public-private platform promotes the e-mobility sector and encourages the use of EV (Electric Vehicle) in the city. LIVE coordinates the e-mobility plans of various levels of government and also disseminates information and raises awareness among companies. It works to promote the creation of new companies and business models related to EV, associated services and the infrastructure needed to make this possible.

The **objectives** of the LIVE platform are: support the electric mobility projects; support the R+D in order to make it easier to promote innovation; support the creation of local consortiums and to increase the flow of information in academic and professional circles; support the creation and organization of activities and events that promote the electric mobility in Barcelona; support the creation of public and private charging stations around the whole metropolitan area of Barcelona.

LIVE: Good practices and strategies towards e-mobility

Electrification of municipal vehicle fleet

One of the objectives of the new Sustainable Urban Mobility Plan of the city and the LIVE project priorities is to increase the number of EVs of the municipal vehicle fleet acting as an example to encourage the use and spreading of electric mobility in all areas, with special focus on private transport.

Urbaser, the company that manages the streets cleaning and municipal wastes in Barcelona, has recently renewed its fleet with the introduction of electrical vehicles.

The city currently has a municipal fleet of 270 cars and 10 motorcycles and 37 electric hybrid vehicles for services. Hybrid vehicles (diesel-Electric or gas natural-Electric) are a good choice for reducing consumption (consumption reduction of around 25-30%) and emissions pollutants.
With the introduction of electrical vehicles in waste collection and streets cleaning the average acoustic pollution has been reduced by 30% to 40% and it's possible to reduce by the 60% energy consumption.

In addition, Transports Metropolitans de Barcelona (TMB) has added one latest-generation BYD K9 electric bus to its fleet to test it during operation with passengers over a two-year period. The goal is to determine whether a 100% electric vehicle, powered solely by batteries can be operated as part of a passenger transport service in a city such as Barcelona, with a similar level of performance as any other vehicle in the current fleet regarding range, comfort, efficiency, and also with equivalent costs per passenger and kilometre.
The public transport company has already one of the cleanest buses fleet in Europe, and the third fleet of hybrid buses (55 buses) as a result of the strong investment made in hybrid and compressed natural gas vehicles and the retrofitting of diesel vehicles with particulate filters.

The electrification of the municipal vehicle fleet is an opportunity to encourage shift patterns mobility and promote the development of a new industrial and technological context.

New BYD K9 100% electric bus. Source: TMB

Support infrastructures to electric vehicles

The new Sustainable Urban Mobility Plan of Barcelona includes, as one of the main strategies, the promotion of the e-mobility. For this reason, one of the key actions of LIVE project is to install new charge points in Barcelona in public and private places to facilitate the progressive implementation of electric vehicle. The deficiency in recharging infrastructures can have a deterrent effect in the use of these vehicles.

Barcelona currently has 249 public charging points, becoming the city with more charging stations in the Spanish territory. 134 correspond to motorbikes (114 in public space and 20 in underground parking). However, most of the points installed in Barcelona are slow charging points. It means long time periods to recharge the batteries and a low number of charged vehicles for each station.

The city of Barcelona already has two public fast charging stations and 13 more can be found throughout Catalonia.

It's clear that more fast charging stations (where is possible to charge batteries in less than an hour) are needed throughout the territory to allow batteries to be charged much more quickly than with conventional methods. The Barcelona City Council, with collaboration from the LIVE platform, aims to create 6 additional fast charging stations in the near future.

On the other hand, LIVE also works to make the services of the various operators in the city compatible and inter-operable. For this reason, NOC (Network Operation Centre), a municipal control centre was created in 2010. It monitors the network of charging stations on public space run by various operators and centralises all incidents.

In addition, the non-standardization on charging technologies and types of connectors in the current market remains as a limitation to make these vehicles a more widespread and everyday technology.

LIVE benefits and advantages

Exemplifying public promotion practices such as the electrification of the municipal fleet work as a key role in raising awareness and spreading the word about electric mobility and ecological practises among citizens. It also reduces air and noise pollution in Barcelona (main environmental concerns of the city) and with it, clearly improves life conditions.

In addition, LIVE has become an effective governance system to provide a centralised framework to develop electromobility. This public-private platform should work as an instrument to guarantee democratic control of the development of this new technology in the city, and at the same time offer business opportunities to the private companies collaborating in it.

With nearly 30% of the Spanish automotive industry concentrated in the metropolitan area of Barcelona, supporting the development of the electric mobility is vital for the global competitiveness of the car industry and a way to improve life conditions and city health.

LIVE project has several benefits also for citizens with electric vehicles such as: free parking in determinate areas on street (green coloured and some blue ones); 75% discount on IVTM (Tax on Mechanically Powered Vehicles); free vehicle energy (free charging on charging stations).

LIVE direct or indirect effects on the mainstreaming of Electric Scooters Sharing

The fact that local authorities in our cities clearly work to promote the use of e-vehicles is key to the development of the sector and to continue exploring the market in search of the most innovative and efficient products (electric propulsion) being developed by the industry.

As a result of all the policies and practices promoted by the LIVE platform, Barcelona has become the leading city in the world in implementing a flexible sharing system with 100% e-motorbikes that can be used by both residents and visitors, called MOTIT.

It's important to highlight that the previous existence of successful sharing experiences in the city such as Bicing has been very useful to implement this new scooter sharing system, because it has helped to introduce innovative vehicle ownership and use alternatives in mobility.

Bicing is a public bicycle sharing system inaugurated in March 2007 and promoted by the City Council of Barcelona. In 6 years the Bicing service has reached almost 100.000 users with an average of 1.400.000 uses on a month and more than 12.000.000 accumulated in 2012.

Like Bicing, and unlike other similar services, MOTIT allows users to pick up and drop off e-motorbikes anywhere in the city (on-demand mobility). This system is made possible by the use of new technology to manage and monitor the process.

There's another initiative related with electric scooters sharing system called "Mobec Hotels", where tourists hosted at participating hotels can rent electric motorbikes at the same hotel and enjoy a cheap, sustainable and efficient transportation system.

Moreover, Barcelona has created an effective useful solution for charging e-motorbikes called Mobecpoint. It is a small, easy-to-install, maximum safety station, designed to simultaneously charge various two-wheel EVs. Their modular design allows the station to adapt to any space, with 2 to 25 individual charging points in a row depending on specific needs.

Mobecpoint, e-motorbikes charging station. Source: mobecpoint.com

MOTIT, electric scooter sharing service. Source: ajuntamentimpulsa.cat