

The historic city taking a modern approach to e-mobility

As part of the Horizon 2020-funded REMOURBAN project, the city of Valladolid undertook the task of electrifying one of its bus lines to enable more sustainable public transport. Here, *Ángela Rivada*, REMOURBAN Project Manager, Agency of Innovation and Economic Development, Valladolid City Council, details some of the main benefits of carrying out this work.

CONCENTRATING on the area where sustainable mobility, energy efficiency and ICT converge, the city of Valladolid has worked to implement several actions focused on urban mobility – with the electrification of public transport being one of the most important.

Valladolid is working intensively on sustainable mobility following the pathway marked out by our sustainable urban mobility plan – PIMUSSVA. One section of PIMUSSVA is specifically dedicated to public transport and includes a set of guidelines to help promote more sustainable, environmentally-friendly public transport services in the city.

Valladolid currently operates five plug-in hybrid buses on route seven with opportunity charging via pantograph. Line seven, which covers six kilometres of the city centre from north to south, was the first electrified commercial line in Spain.

The buses can operate in three modes: hybrid mode (diesel-electric hybrid), partially-full electric mode and fully-electric mode. After testing and evaluating different options and taking into account several variables and parameters (e.g. battery capacities, orography), the technical team decided to implement the partially-full electric mode as the default mode for these buses.



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The buses then automatically enter their fully-electric mode upon arrival in the city centre, covering 70 per cent of the line in this mode (four kilometres out of the six-kilometre length of the line).

What lessons were learnt about implementing electric and sustainable public transport from the electrification of Valladolid's bus line 7?

One of the main successes has been the adaptive solution offered by Vectia, the bus manufacturer: the three possible modes of operation. With clear ideas of what we wanted, gaining the support of the manufacturer was key to achieving this.

Another lesson learnt came from the implementation of the solution as a part of a wider strategy in the city that helped multiply the effect of clean public transport. Electrifying line seven has been accompanied by other e-mobility implementations in the city. For example, within the framework of the REMOURBAN project, we now have 63 charging points for electric vehicles across the city, promoting some of them as part of business models for shopping centres, hotels and other sectors. We have also incentivised the purchase of electric vehicles for services and last-mile companies.

Citizens have now seen first-hand how a project like this, where more sustainable bus travel has been introduced, can make a real impact on their lives.

What challenges were faced in implementing and adapting to new infrastructure? How were you able to overcome these challenges?

The road travelled to this point was not entirely easy to navigate. From defining the technical parameters of the solution, to the public procurement process, and then the civil works required for the testing phase, there were a number of challenges to overcome.

The communication and dissemination of information to citizens was also a great challenge, as we had to answer numerous questions about comfort, security, benefits and cost when compared to a fossil-fuelled bus.

What advice would you give to other cities regarding implementing e-buses in urban spaces?

This is one of the more challenging smart city projects that has been carried out by the city of Valladolid, but it is also a project that has filled us with satisfaction and pride.

Several cities throughout Spain, and also the rest of Europe, have now contacted us to find out more about the electrification of the bus route. Our main advice for those cities is to dedicate enough time to analyse all the variables and potential issues that they might face – time is a key factor in the success of such projects. Valladolid today is proof of that, and we now have a tailored solution that answers our need for sustainable public transportation.

Do you have further plans for advancing e-mobility/sustainable transport in Valladolid?

The replacement of older buses with new and more sustainable vehicles is one of the main goals in the near future – the average age of a bus in our current fleet is almost 13 years.

We have planned the replacement of 30 older buses with compressed natural gas buses. We also purchased six new hybrid buses in January 2019.

Further actions in our sustainable urban mobility plan will be implemented in the coming years, helping to increase the use of more sustainable transport means in Valladolid.

What is next on the agenda for the REMOURBAN project in Valladolid?

This is the final year of the REMOURBAN project and it will see the evaluation and monitoring of the work that's been done. It's important to obtain and understand the primary results and conclusions of the actions carried out.

All the mobility actions, together with the energy efficiency actions, are monitored and collated in a platform in which we are analysing several factors. The electric buses are monitored through an on-board device that records and transmits data from the vehicles. The metrics being monitored are energy consumption, battery level, heating and, among others, regenerated energy under braking. There are also some external sensors to measure nitrogen oxide, temperature and humidity. 📶

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- REgeneration MOdel for accelerating the smart URBAN transformation – REMOURBAN – is a five-year project financed by the European Commission (EC) through the Smart Cities and Communities call
- REMOURBAN is a lighthouse project that aims to develop urban regeneration in three medium-sized European cities: Tepebasi in Turkey; Nottingham in the UK; and Valladolid in Spain
- The consortium is made up of 22 partners from seven countries and has an overall budget of €24.8 million, with financing of €21.5 million from the EC
- In Valladolid, the investment in sustainable mobility actions is valued at €2.4 million.