

## Procurement for public 'electromobility' in Barcelona (Spain)

**Author:**

Thomas Mourey

**City:**

Barcelona

**Country:**

Spain

**Topic:**

Clean and energy-efficient vehicles

**In brief**

While Barcelona's network is already one of the cleanest in Europe thanks to its hybrid and Compressed Natural Gas (CNG) buses and the retrofitting of its diesel vehicles with particulate filters, the public transport operator Transports Metropolitans de Barcelona (TMB) has decided to integrate fully-electric buses into its fleet. This started with the purchase of a BYD K9 bus and two IRIZAR buses. A tender for two additional electric buses was subsequently published in January 2014. These two extra buses (along with the IRIZAR buses) are part of the EU ZeEUS project which aims to introduce electric buses into the fleets of European municipalities.

**Context**

The purchase of electric buses is a part of a broader sustainability policy for TMB and the city of Barcelona with the common aim of lowering emissions from public transport as much as possible.

**In action**

The tender clearly specified that TMB would buy electric buses, whatever their type (battery, on-road charging or hydrogen fuel cell) and their length (12-metre, articulated 18-metre or bi-articulated 25-metre), together with the necessary charging stations. In choosing electric vehicles, emissions will be cut as electric buses are 'zero-emission'. Other technical specifications related to the battery range as the buses must be capable of providing an air-conditioned service for 16 hours per day. Then, after considering these exacting specifications, the award-criteria set for the tender was based on price. TMB chose to purchase two 18 metre-long Solaris Urbino, designed for 120 passengers each. The buses are charged at each end of the line. This charging system (25 per cent charging takes just 5 minutes at each terminal) allows lighter batteries to be used onboard and, consequently, is more energy-efficient. These two new buses will be integrated into the Barcelona fleet for a test phase in November 2015.

**Results**

First, the buses selected do not emit CO<sub>2</sub>, NO<sub>x</sub> or PM. Additionally, electric buses are energy-efficient. Simulations of Solaris Urbino buses in operation show an energy consumption of approximately 3.0 kWh/km during winter (when air-conditioning is not required).

**Challenges, opportunities and transferability**

The procurement process is regarded as producing a positive outcome as the new buses will integrate well into the fleet and fit in with TMB's sustainability policy. However, the public transport operator stresses the importance of closely following rapidly evolving technological developments so as not to miss future opportunities for further improvement.

### **In Depth**

- [TMB website](#)

Image copyright: [El bus ha estat assignat inicialment a la línia 20 \(Estació Marítima - Pl. Congrés\)](#) (image on Flickr) by Pep Herrero, licensed under [CC BY-NC-ND 2.0](#)

### **Related Case Studies**

[Innovation procurement of clean emergency vehicles \(Belgium\)](#)

[The national procurement of electric vehicles: the Swedish example](#)

[Joint articulated hybrid bus procurement in Nantes & Angers \(France\)](#)

---