Innovative green solutions for decarbonising Malta’s ports
Transport Malta (Malta)

Background

Transport Malta (TM) is the governmental authority for transport in Malta. Since 2010, TM has comprised of the Malta Transport Authority, the Malta Maritime Authority and the Civil Aviation Directorate. The Authority falls under the responsibility of the Ministry for Transport and Infrastructure, and it regulates all modes of transport (road, sea and air) including the regulation of all forms of public transport systems and their operations.

Road transport currently accounts for 16.8% of the total greenhouse gas emissions generated in Malta. Making transport in Malta environmentally sustainable is one of the main priorities of the Maltese government. To achieve this, the government has placed the electrification of Maltese transport as one of its main pillars in its transport policy. To further support this, the Malta National Electromobility Action Plan was launched by the Minister for Transport and Infrastructure in 2013. The Action Plan lists 22 initiatives which will facilitate the roll out of 5,000 electric vehicles (EVs) and deployment of 500 charging points in the national road network by 2020; targets which the national government has committed to at EU level.

To help support the implementation of the Action Plan’s objectives, the government also set up the Malta National Electromobility Platform (MNEP). The MNEP is a joint initiative between the Ministry for Transport and Infrastructure and TM. Besides the promotion of electromobility in Malta, the role of the MNEP is to oversee the implementation of the Action Plan; promote Malta as a test bed for the technology; facilitate local market breakthrough of the technology and ensure that the right initiatives are taken in order for the targets to be reached.

Procurement objectives

One such initiative undertaken by TM was carried out within the framework of the Port-Photovoltaic Electric Vehicle (PORT-PVEV) project; which was co-financed by the Operational Programme (OP) Italy-Malta 2007-2013. The overall objective of the project was to demonstrate how ports could be more energy efficient, and demonstrate the feasibility of using electric mobility in operations associated with ports and port areas.

Through PORT-PVEV, TM has deployed thirteen full EVs as part of its general fleet, ranging from crew and panel vans, passenger vehicles and quadricycles (micro-cars). These vehicles are used as part of TM’s general operations, including enforcement duties, maintenance and courier services. Charging infrastructure was also purchased and installed to support the electric fleet, ranging from medium-fast ZE ready wall boxes, to fast chargers which charge 80% of the car battery in less than 20 minutes. The range of charging infrastructure reflects the different models and technologies now present in the 13-car fleet.

Furthermore, a photovoltaic (PV) plant was installed covering a span of 1,200 square metres on top of the Authority’s main building (situated within the Valletta Grand Harbour). The purpose of this installation was to test the extent to which carbon neutrality in transport can be achieved by generating solar power on-site, and using said energy to offset the electricity required by the vehicles.

Direct carbon neutrality was also tested through the construction and deployment of three solar car charging stations located within the port. Through PV panels installed at each station, solar power is generated on-site and stored in batteries, also found on-site. Through the four charging points at each station, EVs can be charged through the power stored within the on-site batteries. Should demand be too high, the stations switch automatically and retrieve power from the national grid.
Approach to the procurement

Pre-procurement
Prior to drafting and issuing the tenders, intensive market research was carried out to assess what technologies were available on the market, particularly in terms of the EVs. This was very important since the concept of electromobility was very new to the island at the time. While it was important that the vehicles purchased would meet the Authority's needs, the PORT-PVEV project was first and foremost a demonstration project. Other entities therefore had to be shown the efficiency and feasibility of EVs in the corporate and industrial environment. Therefore, ensuring that the vehicles purchased would meet the necessary standards was very important.

One-to-one discussions with main stakeholders were also important since at the time very few car importers where selling EVs in Malta. Before attempting to purchase any vehicles, therefore, TM had to make sure that the right standards were in place locally, which would then allow international car manufacturers to sell their vehicles to the island.

Following this process, an Open public procurement procedure was launched in August 2013 to purchase the EVs and supporting infrastructure.

Procurement phase
The contract notice was issued by Malta's Department of Contracts (which falls within the portfolio of the Ministry for Finance). Considering the tender cost estimate, the Department of Contracts acted as the Contracting Authority on behalf of TM, as per official procurement procedure.

Subject matter of the contract: Tender for the supply of eight full EVs for the OP Italia-Malta (2007-13) Strategic project Port-PVEV.

The contract was divided into the following Lots:

- Lot one: Four full electric N1 light goods crew vans; and two full electric N1 light goods panel vans.
- Lot two: One full electric M1 5-door vehicle with an electric motor output of no less than 60kW.
- Lot three: One full electric M1 5-door vehicle with an electric motor output of no less than 125kW.

A second tender was issued for the purchase of two full electric L7e quadricycles (micro-cars). Separate tenders were also issued for the PV Plant, the charging pillars, the solar car ports and the feasibility study.

Award criteria: The tender's award criteria were based on the cheapest technically compliant bid as per official procurement procedures at the time.

Results
While the tenders for the infrastructure procurement projects (PV plant, charging pillars, solar car charging stations) generally received a healthy number of bids (11 in the case of the PV plant), it was a different case with the EVs.

Despite the intensive market research carried out prior to the start of the procurement process, no bids were received for either of the two tenders. Following discussions with the Department of Contracts, an agreement was reached whereby TM would purchase the required vehicles through Direct Order. The conditions of contract were not substantially altered. Only, due to some savings which had been made as part of the project, the fleet could be marginally enlarged to 13 vehicles.

No problems were experienced by the companies which bid for the infrastructure related procurement projects. However, for the vehicles an additional market research phase was undertaken where TM looked at suppliers who could deliver vehicles to Malta, and which vehicles could possibly meet the required specifications and the time frames of the Port-PVEV project.
Environmental impacts

The PORT-PVEV project has achieved an overall 122.99 tonnes in savings of CO₂ emissions per annum. These include the savings from the energy produced through the PV installations and use of said energy to offset electricity consumed by the EVs. Furthermore, 95 tonnes in CO₂ emissions could potentially be saved on an annual basis through the use of the solar charging stations, which offer the possibility of 3,285 EV charging events at full carbon neutrality. Moreover, considering air quality in Malta, a total of 45 tonnes of nitrogen oxide (NOx) and 1.6 tonnes of particulate matter (PM) emissions have been saved as a result of the project, and will continue to be saved annually through the ongoing use of the 13 vehicles deployed by TM.

Through the twelve-month testing and demonstration period it has been concluded that cost savings per EV, when compared to those of combustion engine vehicles, amount to €1,474.86 per annum. Battery range autonomy has been recorded at an average of 131 kilometres (km) per charge for winter (considering that air-conditioning is not in use) and 111 km for summer per full charge (considering that air-conditioning is on most of the time). Moreover, an electric car is estimated to consume €0.04 in electricity per km travelled.

Through the PV installations deployed as part of the project, an annual average total of 260,735kWh of solar energy is being generated in both Malta and Sicily.

Lessons learned

Considering that electromobility has now taken root on the island, next time round it will be easier to purchase the required vehicles and infrastructure. More car importers are now selling EVs locally, offering more choices and varying technologies with improved capacity to meet different clients’ needs.

Moreover, through government grants and assistance, suppliers have been able to become better equipped to host electromobility, which requires different expertise than that of the combustion engine vehicles sector. Therefore, government has assisted the private sector with the training of staff where necessary. The MNEP is also in close consultation with the Malta College of Arts, Sciences and Technology (Malta’s main vocational education and training institution) to assist in providing relevant training and courses as part of its annual prospectus.

Finally, national government grants made available to individuals, private companies, NGOs and local councils to assist in the purchase of EVs have also helped to create demand. Grants started at €5,000 for the purchase of new vehicles in 2014 and increased to €7,000 in 2016 (second hand vehicles are granted €4,000 based on certain criteria). Grants are also offered for the purchase and installation of charging infrastructure. By creating demand, suppliers are encouraged to import and bring in new models and technology to sell locally.

Advice for other authorities looking to conduct a similar procurement:

* From TM’s experience, it has been made very clear that certain standards must first be in place locally before suppliers consider selling their vehicles; such as the availability of government grants for the purchase of vehicles by individuals and the availability of the right public charging infrastructure.

* Certain suppliers also require a minimum order before they even consider exporting EVs. Therefore, combining the procurement with both a comprehensive media campaign and government grants would go the necessary length of creating the demand necessary to justify importing the vehicles.

* Finally, be patient. Electromobility is a new concept. There are a lot of misconceptions about the technology which need to be overcome, both by the public and the private sector, before the concept can take root and become at par with combustion engine vehicles.

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For related information, please see European GPP criteria for Transport and the Technical Background Report.