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Car dealerships and their role in electric vehicles' market penetration-A Greek market case study

Alkiviadis Tromaras[a]*, Aggelos Aggelakakis[a], Dimitris Margaritis[a]

[a] *Hellenic Instiute of transport (HIT)/ Centre for Research and Technlogy (CERTH), 6th Km Charilaou - Thermi Rd, PO Box 361 - 57001 Thermi, Thessaloniki, Greece*

Abstract

This paper explores the contribution of car dealerships in Electric Vehicle (EV) market up-take. Car dealerships play a significant role in EV market penetration where the most critical moments of the EV's life happens, the actual sale process. The recent yet limited literature from the US shows certain issues during the sale process of EVs. The literature also indicates that the car dealers are not always qualified enough, lack knowledge to sell EVs, or in other cases they might even discourage potential customers from purchasing an EV. Furthermore, the paper presents statistical EV sales data from the Greek market and explores the literature findings through interviews that have been carried out on the only two existing EV distributors in Greece. The aim is to identify the validity of the literature review findings as well as to present the current state of the EV market in the country. Finally, policies and suggestions are made that can improve EV market penetration in Greece.

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* Corresponding author. Tel.: +30 2310 498484; fax: +30 2310 498269. E-mail address: atromaras@certh.gr

1. Introduction

Governments across the world are trying to reduce air emissions through various pledges, directives and regulations. The transport sector alone is responsible for 25.3 percent of the EU's Green House Gas (GHG) (European Union, 2015) emissions, while road transport itself contributes to almost 72 percent of the EU GHG transport sector emissions (European Union, 2015). Furthermore, road transport contributes globally to 10 percent of total GHG emissions (OECD, 2009). As a response to the impact that the transport sector has to the environment, the EU has introduced various policies, including aiming at making the sector more competitive in the future while creating growth and providing employment.

One of these main driving policies, the 2011 Roadmap to a Single European Transport Area (European commission, 2011), aim at shaping the future of the transport sector by increasing sustainability and competitiveness of the transport system through the reduction of GHGs, better energy efficiency, and the use of alternative fuels and energy sources. The White Paper also sets as a target the reduction of GHG emissions to 20 percent below their 2008 level by 2030 for the transport sector. As a response to the European Union's heavy dependency on oil products, the European Commission introduced in 2015 the Energy Union package (European Commission, 2015), aiming at providing secure,

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sustainable, competitive and affordable energy to EU consumers. Disturbingly the following figures present how much the EU is dependent on hydrocarbons with 94 percent of transport relying on oil products out of which 90 percent is imported (European Commission, 2015). Reference to the development and deployment of alternative fuels as means to decarbonise transport and reduce oil dependency, is also made in the Clean power for Transport (European Commission, 2013) and the Directive on the deployment of alternative fuels infrastructure (European Parliament, 2014). Regardless, energy efficiency and the need for the EU to become a leader in renewable energies, are raised in President Junker's agenda (Junker, 2014) not only as a climate change response mechanism, but also as a way of creating growth and jobs.

Based on the aforementioned GHG figures coming from road transport, EVs can play a significant role, not only for the EU but globally, in meeting their commitments for their reduction. According to EURELECTRIC (2009): a) EVs can help attain major EU energy environmental policy goals by replacing conventional internal combustions engines, b) EV technology can offer an opportunity for the EU to become a front runner in the production of EVs thus creating a sustainable green economy, c) EVs are more efficient than alternative transport technologies. So, despite the benefits that EVs have in terms of carbon footprint, while being able to handle people's daily driving needs and save money from refuelling, why are they not selling fast enough?

Based on data from the European Automobile Manufacturers Association (ACEA) the total amount of EVs registered in the EU were 186,170 for 2015 and 92,455 for 2014 (ACEA, 2016). This accounts to a 101. 4 percent increase in EV registrations between 2014 and 2015. Figure 7 presents the number of EV registrations in the EU per country with the Netherlands being in the first and Norway in the second place. However, Norway has the market with the world's highest plug-in share (19 percent in 2015) competing with the UK which has a market 15 times larger (EV-Volumes website, 2016). Greece, the market that is going to be the focal point of this paper, has an EV market at an infancy level with a total of 67 registered EVs in 2015 and 59 in 2014 (ACEA, 2016). Vehicles like the BMW i3 were introduced in early 2014 at a starting price of 35,000€ while the Mercedes-Smart electric was introduced at the middle of the same year at 24,500€. The charging infrastructure in the country is also at a very similar level with only one main charging network of 15 chargers located in the vicinity of Athens. Despite the fact that the total numbers of EV sales are growing, the figures are still not satisfactory or enough across the EU countries to compete against the conventional vehicles.

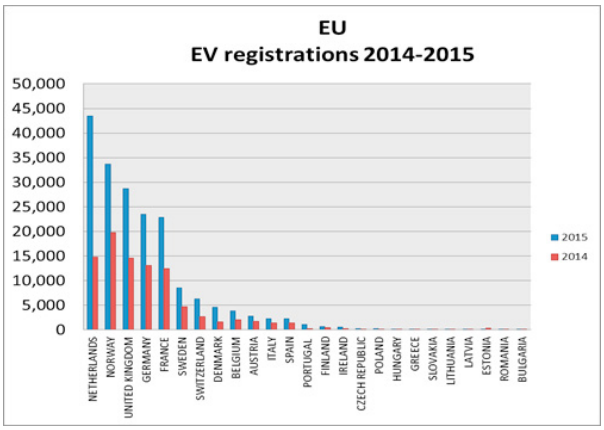

Figure 1 Number of EV registrations in EU per country for 2014-2015. Source of data ACEA (2016)

In addition another factor that could influence the purchase of EVs is the cost of charging. Specifically, electricity prices are relatively cheap compared to conventional fuels with the average kwh cost at 0.221 € in the Euro zone and 0.179 € in Greece (Eurostat, 2015). On the contrary, the average cost for gasoline and diesel is 1.378€ and 1.027€ respectively in Greece (fuelprices.gr, 2016). Therefore, charging an EV cost less during its lifecycle compared to conventional vehicles (Wu *et al.*, 2015; Prud'homme *et al.*, 2012). Furthermore, the cost of maintenance of EVs is also another parameter that seems to cost less compared to conventional vehicles. Specifically, EVs require less