Survey to Assess the Barriers to Widespread Electric Vehicle Use in a Mediterranean Island Setting

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Yearly sum of global irradiation incident on optimally-inclined equator-oriented photovoltaic modules.

Yearly sum of solar electricity generated by 1 kW_{peak} system with optimally-inclined equator-oriented photovoltaic modules and system performance ratio 0.75.
Malta: $316 \text{ km}^2 \, ; \, 417,608 \text{ inhabitants}$
Number of passenger cars per 1000 inhabitants, 2015

Number of households in Malta in 2015 was 151,300.
About 1.80 passenger vehicles (2.4 motor vehicles) per household. (Data: Eurostat)
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Number of petrol and diesel passenger vehicles 2010-2016

(Data: National Statistics Office, 2017)
Age distribution of passenger vehicles in Malta 2008 to 2015.
(Data: National Statistics Office, 2009-2016)

Nearly half the cars older than 15 years.

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2016 GDP per capita, PP adjusted

<table>
<thead>
<tr>
<th>Country</th>
<th>GDP per capita</th>
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<tbody>
<tr>
<td>MT</td>
<td>€ 27,900</td>
</tr>
<tr>
<td>EU-28</td>
<td>€ 29,100</td>
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<tr>
<td>AUT</td>
<td>€ 37,200</td>
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<tr>
<td>GER</td>
<td>€ 36,000</td>
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</tbody>
</table>

Source: Eurostat

Through five national programmes, Malta has been allocated **EUR 828 million [ca. €2,000 per inhabitant]** from ESI Funds over the period 2014-2020. With a national contribution of EUR 196 million, Malta has a total budget of **EUR 1.02 billion** to be invested in various areas, ..
..the EU-financed DemoEV project, which by December 2014 had installed 90 charging points [50 pillars, 40 of which have two charging points] on the islands, put 24 electric vehicles on the roads, and trained over 170 participants on the operation and functioning of electric vehicles.

.. The project’s market research activities showed a marked increase in overall positive perception on EVs as a result of the project’s activities.

(Calamatta, 2015)
EV Grants

A grant of €4,000 will be given to persons registering an electric car. The grant shall increase from €4,000 to €5,000 in cases of persons registering a Battery Electric Vehicle while at the same time opting to de-register another internal combustion engine propelled vehicle which is at least 10 years old from the year of its manufacture.

Transport Malta, no date provided, http://www.transport.gov.mt/land-transport/electric-cars

2017:

• €5,000 when registering a new or used electric vehicle without scrapping an older vehicle;
• €8,000 when registering a new electric vehicle and de-registering another vehicle which is at least 10 years old from year of manufacture;

EVs in 2016

169 electric passenger vehicles in Malta in 2016, compared to 281,415 diesel and petrol ICE passenger vehicles.

Less than 0.1%.

Two EVs per public charging point.

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Survey- Method

• paper and online
• link to the online survey sent to email addresses and social media platforms
• target group: residents 18 years and older: population of 338,086 (2014 demographic review)
• confidence level: 95% (probability that the sample accurately reflects the attitudes of the population)
• margin of error: 10% (reflecting range that the population’s responses may deviate from the sample’s)
• resulting sample size: 97
• 11 questions, nine of which were polar questions (yes/no questions), while the remaining two were multiple choice questions.
Survey- Results

- Demographics: Female respondents (54%) and male respondents (46%) relatively equally represented.
- Median age: 30 years for female and 37 years for male respondents. (For comparison, the median age of the Maltese population as a whole is 41.5 years.)
- Educational level: 2% primary, 19% secondary, 79% tertiary. (For comparison, 32.3% of the Maltese population have tertiary level education.)
Survey - Results

• Half of respondents use car daily. Just over half not using car daily were women.
• 90% considered pollution generated by road traffic a problem. Of the remaining 10%, most were non-users of cars on daily basis.
• Over 85% of respondents had never driven an electric vehicle. Among those who had, there was only one woman.
• Half of respondents had considered buying an electric vehicle. Among men the share was larger (65%) comp. to women (42%). Many who had considered buying one had previously driven one.
Survey- Results

- Main reasons of concern, choice of up to three answers out of:
  - “The purchase price is too high”
  - “The driving range is not sufficient”
  - “The battery lifetime and its replacement costs”
  - “Maintenance costs”
  - “Charging takes too long”
  - “Availability of charging points”
  - “The resale value”
  - “The technology”

- Top three choices:
  1. “availability of charging points”
  2. “the battery lifetime and its replacement costs”
  3. “the purchase price is too high”

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Survey- Results

• 85% of (both male and female) respondents indicated that they would consider buying an electric vehicle if the upfront cost would be the same as with a conventional ICE car
• 78% stated that if they were to buy a car within the next two years, they would purchase an EV if it was economically possible.
• 26% of respondents knew about the grant scheme available for the purchase of electric vehicles
• 35% knew that electric cars require the lowest registration tax and annual road license fee.
Survey - Results

• Answering a question shown with a map that indicated the location of charging points: Just over half of all respondents stated that they had not noticed any of the charging points on the streets of Malta.

• Regarding the most important benefit of EVs, top two answers:
  • “EVs do not produce tailpipe exhaust” (67% of respondents)
  • “It shows that the owner is an environmentally friendly person” (14% of respondents)
Conclusions

• DemoEV project (started 2012) so far failed to trigger a transition
• Only 169 EVs out of 283,138 licensed passenger cars by start 2017
• Additional information campaign required
  • Installed charging stations remained invisible for half the respondents; top-ranking concern: “availability of charging points”
  • Existing incentive schemes largely unknown; while cost-related concerns high
• Driving range anxiety absent (insular structures)
• Local environmental benefits of EVs well known
• Holders of tertiary education overrepresented in survey; large share of respondents already interested in EVs.
Thank you!

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