



"Deployment of an electric fueling framework along the motorway network"

Andrea Manfron

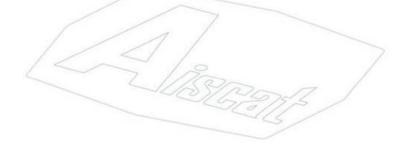
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Outline

- The electric vehicle market in Europe
- Focus on Italian Scenario
- The electric charging project
- Future Scenarios





The Company

OPERATING SINCE 2005, THE COMPANY HAS A CONSISTENT EXPERIENCE IN:

- > TRANSPORT ENGINEERING
- ➤ ADMINISTRATIVE AND FINANCIAL CONSULTING
- > TRANSPORT PLANNING
- > Transfer of Know-How





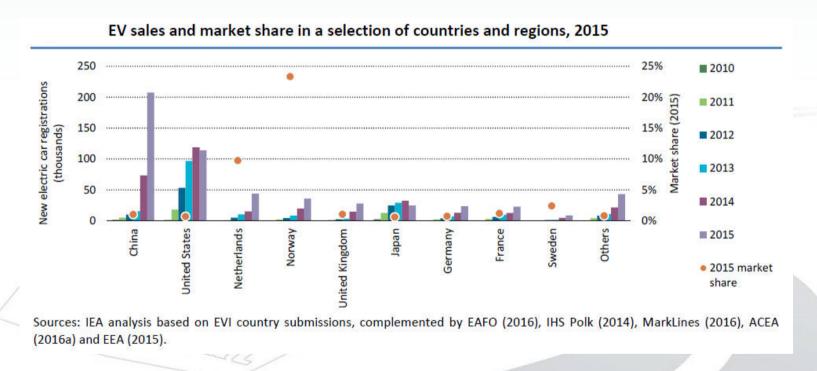
THE COMPANY IS SUBSIDIARY OF **AISCAT**,
THE ASSOCIATION THAT GROUPS SINCE **1966** ALL
MOTORWAY AND TUNNEL CONCESSIONAIRE
COMPANIES OPERATING IN ITALY





The Electric Vehicle Market in Europe

In 2015, 90% of car sales took place in eight main electric car markets. All of these markets except Japan and the United States experienced sustained growth between 2014 and 2015.



Sales more than doubled in the Netherlands (close to 10%) the highest in the European Union and the second-highest globally, after Norway (23%).



Incentives (1/2)

The electric market growth is <u>double-linked</u> with Country Incentives

Purchase incentives are the most effective instruments promoting electric car sales.



Subsidies are based on the price difference between an EV and a comparable gasoline car, with a maximum of 850 000 yen (about USD 7 800). Incentives amounted to EUR 3 000 to EUR 5 000 (USD 3 300 to USD 5 500) for typical BEVs and PHEVs.

Cars emitting zero CO₂ at the tailpipe are exempt from paying registration tax. For other cars there is a <u>differentiated taxation scheme with five levels of CO2 emissions with progressively increasing taxation per g CO2/km</u>. PHEVs qualify for the first level (below 80 g CO2/km) and pay EUR 6 per g CO₂/km.



Incentives (2/2)

The electric market growth is <u>double-linked</u> with Country Incentives

Purchase incentives are the most effective instruments promoting electric car sales.





In Norway, EVs are **exempt from purchase taxes** (about 100 000 kroner [NOK] – USD 12 000). BEVs are also exempt from VAT (set to 25% of the vehicle price before tax). The VAT exemption does not apply to PHEVs



In Portugal, BEVs are **exempt from vehicle registration** (about EUR 1 250, or USD 1 400) and circulation taxes. Scrapping existing vehicles for a selection of BEVs also entitles buyers to a bonus of EUR 4 500 (USD 5 000). PHEVs are not eligible for specific incentives.

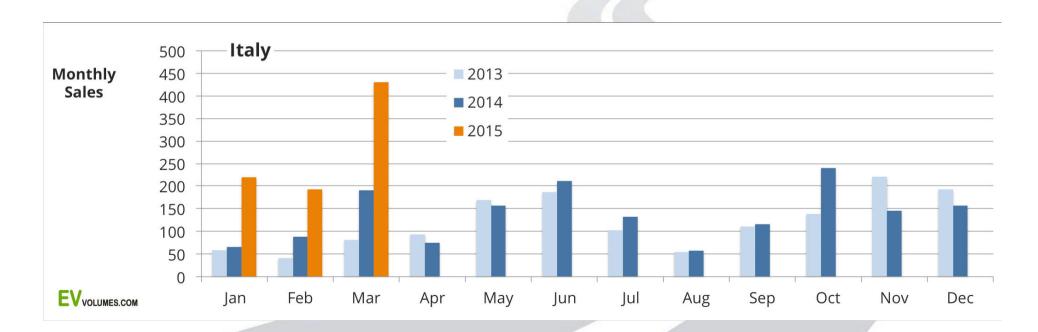


Focus on the Italian Scenario

EVs in Italy have been far after the other markets in Europe

During 2013 and 2014 Italy had a very small part of PEV sales, 0.10 - 0.11 % of total sales. However, 2012 was stronger than 2013 and 2014. Looking at the Q1 of 2015 we can celebrate.

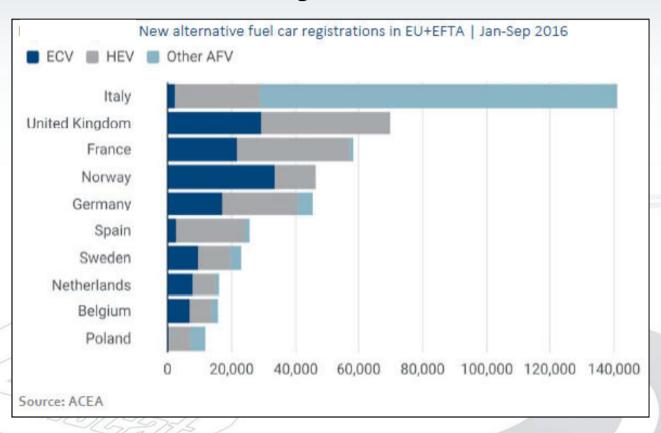
Every month, Italy has doubled the sales of PEVs compared to Q1 2014. All models are winners, but not the Model S and the Twizy.





Focus on the Italian Scenario

New alternative fuel car registrations in EU+EFTA in 2016



Italy performed less well than in 2015 (-14.6%), mainly due to the sharp decline in registrations of propane and gas-fuelled cars, which where only partly offset by increases in the sales of electric (+16.3%) and hybrid electric (+48.8%) cars



The Project

The idea behind the project is to make the adoption of electric vehicle (EV) use in the countries in question more viable, as the **current lack of fast-charging infrastructure is the primary remaining barrier** to mainstream adoption

AISCAT signed a MoU with ENEL with the aim of:

- enhancing technological innovation
- developing fast-charging infrastructure



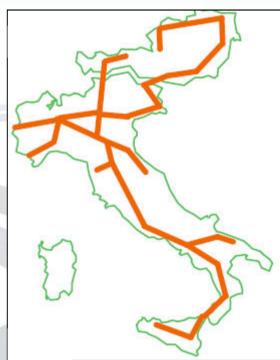


The Project

A cross-border, **multi standard fast charging network** will be deployed:

- ➤ 156 Fast Recharge Plus columns will be installed along all the AISCAT highways in Italy: this technology (provided by Enel) will enable 2 vehicles to be charged simultaneously in 20 minutes
- Among this amount, 50 EV charging station (Swap Areas) could be <u>directly installed and managed by the Motorway Concessionaires</u>

A **real life trial** with customers, charging point operators, electric utilities, highway operators and electric mobility service providers will be conducted to establish services, and test business cases





The Project

Main activities (3 Groups)

Technical Group

Evaluation of potential technologies to be deployed



Business Model hypothesis

Regulatory Group

Number and Localization of Service Areas



Methodology to evaluate the results of the

Steering Committee





Business-Model Compatibility of the project implementation with

current regulatory framework and concessions regime

of Italian Highways network



Future Scenarios

According to the "E-Mobility Report 2016" from Politecnico di Milano, there are **two main scenarios in Italy**

• EV Pull: investment in Electric Vehicles

+0,3% 2017 - +2% 2020 Evs

+70.000 EVs



*PNIRE Push: investment in the charging infrastructure up to 2020

4.500-13.000 normal power charging point

2.000-6.000 high power charging point

+130.000 EVs

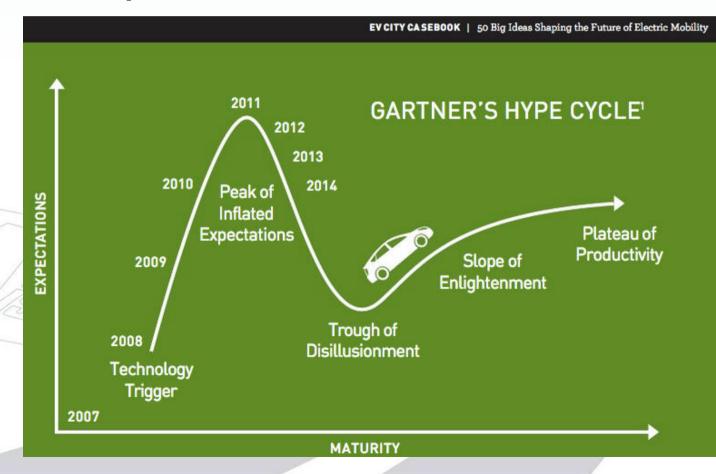


* Piano Nazionale Infrastrutturale per la ricarica dei veicoli alimentati ad energia elettrica – National Plan for the implementation of charging points for electric vehicles



Q&A Session

- > Will Electric Vehicles really reshape the future of Mobility? When?
- Which will be the road operator role?
- > Which will be the road operator business?





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