

# Electric Vehicles in Portugal: an Odyssey from Oblivion to Obvious

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## Abstract

This paper reports on the experience related to constitution and the first two years of APVE's life. In a country where the electric vehicle concept was almost forgotten till the annulment of the "Automotive Tax" for electric vehicles in the Portuguese national budget for 2001 (a feat in no small measure to be also attributable to APVE's public outreach actions) a non-governmental association made way to the introduction and demonstration of the electric vehicle concept in the country.

The extremely diversified provenance of APVE's members, fairly included in its statutory boards and committees, facilitates distinctive views to be considered in the programmed activities. Based on the good-will of a little kernel, the involvement of almost seventy associates, namely companies, big and small, public and private institutions, universities, and individuals, allowed that the message began to be disseminated and considered at all levels of the Portuguese society.

A report on the different activities will be presented remarking, *inter alia*, the importance of outreach actions, namely the organisation of a debate and vehicle demonstration during the informal meeting of EU Environment Ministers (Oporto, April 2000) and the active participation in the "European Car Free Day", at 22 September 2000 where, for a first time, seven Portuguese cities were involved. The first shake of public opinion was done on this day. Other activities, namely standardisation, conferences, events, etc. will also be outlined. An important corollary must be mentioned: that local private companies are now designing and producing EV in Portugal! Something quite unthinkable two years ago, is now confirming an obvious reality: that the future is here to stay!

**Keywords:** EV, demonstration, promotion, standardisation

## 1. Introduction

Everything started during EVS'15 at Brussels (October of 1998), where the five Portuguese participants concluded that the "critical mass" had been reached for introducing a new star at the AVERE flag. Nine months later, on **June 22, 1999**, a non-profit, private association was created.

**Its name:** APVE- Associação Portuguesa do Veículo Eléctrico (Portuguese Electric Vehicles Association). APVE is a non-governmental entity, strictly "civil society", nation-wide, with a judicious, diversified, and balanced membership, which included Portugal's biggest automobile association, some car dealers, universities, energy agencies, small and medium industrial and services companies, individuals, students, etc.

**Its main objective:** to promote the use of electric and hybrid road vehicles, through different means, namely information and outreach initiatives, co-operation with Government and national and local entities for demonstration and partnership programmes, infrastructure development, fiscal and monetary and non-monetary incentives, standardisation, etc.

**Its philosophy** is, on one hand, non-discriminatory, aiming at comprehensiveness. Hence all types of cars are within its reach, namely battery electric vehicles (BEV), hybrids (HEV) and fuel cell electric vehicles (FCEV). On the other hand, APVE promotes not only full function EV's (FFEV), capable of travelling on highways, meeting all standards, and having the same practicability as a conventional passenger car, light-

duty truck, or bus on the road, but also City Electric Vehicles (CEV), having some of the attributes of a FFEV but smaller and with reduced (or lower) performance, and Neighbourhood Electric Vehicle (NEV), i.e. low speed vehicles, not capable of travelling on highways, although considered also a road vehicle. Of course other types of road vehicles, as bikes, scooters, etc. are also within its scope.

It's fair to say that two years ago, when APVE was created, the concept of road EV's was almost unknown by the great majority of the public in Portugal. And, to be frank, Government, while not totally oblivious of its existence, did not consider it as a really "starter concept".

Three different areas of activities were elected as needed at this initial stage: information and promotion; standards, regulation and incentives; demonstration and technique. Based on a tiny budget, the achievements in all those areas may be marked as significant. A conclusion, however, arrived: the successful introduction of the electric vehicle concept imposes, first of all, that we discuss all the mobility and transport implications, options and policies. Electric vehicle concept wins with wider discussion and only if all the alternatives to the internal combustion engine are considered. This allows that the disadvantages and advantages of actual electric vehicles are clearly specified but, also, that its apparent limitations are not so expressive as, at first sight, appear to be.

Since January 10, 2000, APVE is in Portugal the national section of AVERE.

## 2. The "Lisbon Undertaking"

Eighteen months after its constitution, on **February 22, 2001**, APVE, notwithstanding functioning from inception on a rather "symbolic" budget, was able to convene a national Round Table, under the theme "*Mobility and Technology: what policies for tomorrow?*" with the participation of six General Directorates (Energy, Planning, Industry, Customs, Road Traffic, Transportation) and the Lisbon Metropolitan Board, as well as some invited foreign entities (IEA, VEV from Mendrisio, Groupe Interministriel of France and ATAC/Rome).

The success of the Round Table may best be assessed, firstly from the fact that the great majority of Government agencies with a bearing on promoting EV under a framework of economic sustainability did manage to participate. But foremost from its main conclusion, the so called "*Lisbon Undertaking*", a formal statement in which all participants (yes, including all mentioned General Directors, amongst others) agreed upon on the following principles:

- ❑ To co-ordinate the relevant issues pertaining to urban mobility and transport under social conditions which may allow for the success of the undertaking;
- ❑ To gradually support measures which may strategically diminish an excessive dependency on oil-based fuels and increase an efficient and sustainable diversification of primary energy sources, as recommended by the Kyoto Protocol;
- ❑ To facilitate the gradual but firm introduction of renewable forms of energy which may also, directly or indirectly, be used in road transport under national and/or European programs and projects, in order to increase the benefits associated to low emission vehicles;
- ❑ To support the national industry in a key sector of our economy, under the perspective of sustainable development;
- ❑ To create synergies from the awareness resulting from this debate, in the framework of a more general consideration of the sustainable city of tomorrow.

So how to achieve such desirable aims? The Undertaking is quite specific, as follows:

- ❑ To implement a **horizontal working group** that may include all participants in this event;
- ❑ To **design and create policies** for mobility and technology in Portugal, including advanced and sustainable transport solutions, in relation to low emissions vehicles;
- ❑ To facilitate the design, the development and the monitoring of exemplary **pilot-projects** for electric vehicle applications, in partnership with municipalities and public and private entities, as deemed adequate and sustainable;
- ❑ Notwithstanding all tax and fiscal measures already approved and a future analysis of their effects, to consider the design and implementation of **integrated incentive programs**, including direct or indirect monetary and non-monetary incentives related to the acquisition and use of low emission vehicles in Portugal, in order to create a sustainable and efficient market for such vehicles;
- ❑ To develop policies aiming at creating **technical competence** related to low emission vehicles, which may render industrial investment attractive in Portugal in this area and may allow the country to implement the programs and projects here suggested.

APVE is proud to announce that the first meeting of the Working Group took place on June 18, 2001, in Lisbon.

### 3. Conditions for success

Why was a pure civil association able to achieve a significant milestone as undoubtedly is “Lisbon Undertaking?” in such a short time, so moving the EV concept from the back rear to the front of the administrative agenda?

Pursuing three essential objectives: pro-activeness, opportunity, and credibility.

Firstly, APVE may well serve as an example of pro-activeness. No effort or time has been spared so that the message is indeed disseminated. And notwithstanding international technological and marketing difficulties to push more vehicles on to the market, the times are now more mature for an early acceptance of this new type of cars and mobility. Finally, the diversified membership of APVE and the judicious structure of its Board of Directors have always guaranteed that objectivity is a necessary ingredient of all output from APVE, whatever its nature or objectives. Indeed the need for frank and public discussion on the various known barriers to an early entrance on the market of EVs have always been recognised and supported by APVE. Therefore, all spectres of society today rate APVE as a serious, objective, albeit looking-forward, institution.

### 4. The automobile market and the electricity mix in Portugal

While the Portuguese motorization is approaching those of other Europe Union countries, the proportion of cars with high power rates is rather small. So the possibility of acceptance of smaller EV may be not difficult (provided other circumstances are present).

The overall mix of electricity production in Portugal has recently been upgraded, so that new combined cycle natural gas fired turbines and power plants emit much less pollutants. This favourable trend may ease the introduction of EVs in Portugal.

## 5. What APVE did up to now

The future looks bright and promising! But in no small measure all past actions – indeed a past not so long, since APVE's inception was two years ago – have established the Association's repute for objectivity, and laid the foundations for its desirable future. Hereinafter follows a quick review of **main actions** from, or **results** attributable to APVE, during the last 24 months:

### 1999

- ❑ Active participation in several meetings / conferences / exhibitions (EVS 16, in Beijing, 1<sup>st</sup> National Conference of ARAN- Components manufacturers , AUTARCAR – RODOVIÁRIO 99 - Components and equipment for Municipalities, Project Sagittaire (Sintra), Strategies for the Kyoto Protocol);
- ❑ Execution of a “*Protocole d'accord* ” with the General Directorate for Road Transports, and establishing contacts with other General Directorates , in order to support and promote policies and actions;
- ❑ In the field of standardisation, creation in Portugal of a Technical Committee – TC 146 “Electrically propelled road vehicles”, mirroring CEN TC 301, with a representative participating in the 15<sup>th</sup> Meeting in Paris , 12 January , 2000;
- ❑ Publication of first edition of APVE's Newsletter “**VE Informação**” and creation of a Web site ([www.apve.pt](http://www.apve.pt)), which in future will serve as a portal for electric / hybrids vehicles.

### 2000

- ❑ Translation of "*Experience of Electric Vehicles Projects and Programmes. A Study from Europe, USA and Japan.* (in English)", Tina Karlberg (ed.) Swedish Office of Science and Technology - KFB – Swedish Transport and Communications Research Board, Stockholm.  
Translation of best practice guides, EVs papers and state of art reports.
- ❑ April 14,15. Organisation of the debate "*Alternatives for Urban Mobility*", and vehicle demonstration during the informal meeting of EU Environment Ministers, Oporto. This debate relies on representatives of Oporto Transport Company, DG for Surface Transport, EC – Environment DG, Environment Ministry of Italy and Car free Cities organisation.
- ❑ **European Car Free Day.** APVE actively participated in the organisation of the event “In town, without my car!” which took part on September 22, 2000, in seven cities in Portugal (Lisbon, Oporto, Aveiro, Leiria, Beja, Évora and Sintra). In all above cities APVE was present, directly and also with its associate members, with EVs that were displayed and used by the public, and by central and local government officials. In addition, APVE officials also participated in conferences held in same cities, where EVs and alternative fuels and propulsion systems were analysed, discussed and promoted. For this first time in Portugal EVs visibility was greatly

enhanced, which contributed, in no small measure, to the approval of new tax exemption benefiting EVs.

#### ❑ **Standardisation**

During 2000 APVE, through TC 146, managed successfully to translate to Portuguese Language all the European Standards, applicable to EVs, that have been since incorporated in Portugal's legislation. Such European Standards are:

- EN 1821-1 – Electrically propelled road vehicles – Measurement of road operating ability – Part 1: Pure electric vehicles;
- EN 1821-2 – Electrically propelled road vehicles – Measurement of road operating ability – Part 2: Thermal electric hybrid vehicles;
- EN 1986-1 – Electrically propelled road vehicles – Measurement of energy performances – Part 1: Pure electric vehicles;
- EN 1987 –1 – Electrically propelled road vehicles – Specific requirements for safety – Part 1: On the board energy storage;
- EN 1987 – 2 – Electrically propelled road vehicles – Specific requirements safety – Part 2: Functional safety means and protection against failures;
- EN 1987 – 3 – Electrically propelled road vehicles – Specific requirements for safety – Part 3: Protection of users against electrical hazards.

### **2001**

- ❑ The so called “Automotive Tax” (AT) was recently amended, with effect as from January 1, 2001. The AT is a tax calculated upon the number of cm<sup>3</sup> per engine of each vehicle, and is paid by the final buyer of the vehicle. The AT is in addition of the VAT also charged for same vehicle. The Government budget for 2001 grants a 100% exemption of the AT for “light vehicles exclusively electric or propelled with renewable energies”. For hybrids using as a “propulsion system” LPG, NG, electric or solar energy, or petrol or diesel, the reduction amounts to 40%.
- ❑ February 22, - The Round Table “*Mobility and technology: what policies for tomorrow?*” public seminar and vehicle demonstration.
- ❑ Organisation of the Road Show “*VE2001 Portugal, Vehicles of Tomorrow... Today!*”. In this road show, that is now in progress, about 20 cities are visited, with local seminars and vehicle demonstration. There is also planed an EV rally.
- ❑ Participation in seminars and conferences as speakers
- ❑ Translation of best practice guides, EVs papers and state of art reports

## **6. Conclusion**

Two years ago it would require a good amount of prescience to predict that APVE would now be member of a working group the form, participants and aim of which has been established in the “Lisbon Undertaking”. Two years ago in Portugal the concept of EV was indeed enmeshed in total oblivion. Now

it appears that Electric Vehicles (whatever the type) are in the front seat of the administrative agenda. APVE's aim is nothing but to put EV in the driving seat. Where of course they obviously belong!

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