

# 32

## Spain



### 32.1 Major Developments in 2017

#### 32.1.1 VEA Strategy 2014-2020

On 26 June 2015, the Spanish National Government approved an Agreement of knowledge about a new National Strategy to promote Energy Alternative Vehicles in Spain for the period 2014-2020 (the so called VEA Strategy).



Three main guidelines considered in the VEA Strategy are targeting:

- Industry: to promote R&D and industrialization measures regarding vehicles, components and infrastructure
- Market: actions to promote the demand of alternative vehicles and communication and training campaigns
- Infrastructure: actions to promote recharging and refueling networks to allow an adequate use of alternative vehicles

The VEA Strategy is congruent with the objectives of the Directive 2014/94/EU brought on 22 October 2014, which is concentrating on the promotion of infrastructure of alternative fuels and technologies. This Strategy establishes 30 key actions to place Spain as a reference country for the alternative energies applied to the transport sector: electric, LPG, Natural Gas, Biofuels, and Hydrogen vehicles, focusing on the industrial development in order to meet energy and environmental challenges.

#### 32.1.2 Spanish National Policy Framework (MAN)

Directive 2014/94/EU states that each Member State shall adopt a national policy framework for the development of the market as regards as alternative fuels in the transport sector and the deployment of the relevant infrastructure and notify them to the European Commission before 18 November 2016.

Directive 2014/94/EU was transposed into Spanish normative through Royal Decree 639/2016 on 9 December 2016, and the Spanish National policy framework

(Marco de Acción Nacional-MAN-), consistent with the VEA Strategy 2014-2020 and establishing an objective of 150,000 electric vehicles by 2020, was notified on time to the EC.

### 32.1.3 MOVEA Website

In the frame of the VEA Strategy, the MOVEA website was created, a Government official site for sharing relevant information of the different alternative fuels and technologies in the transport sector. On this website, a database on alternative vehicles is available where users can search the different models of vehicles available in the Spanish market and technical information of them.

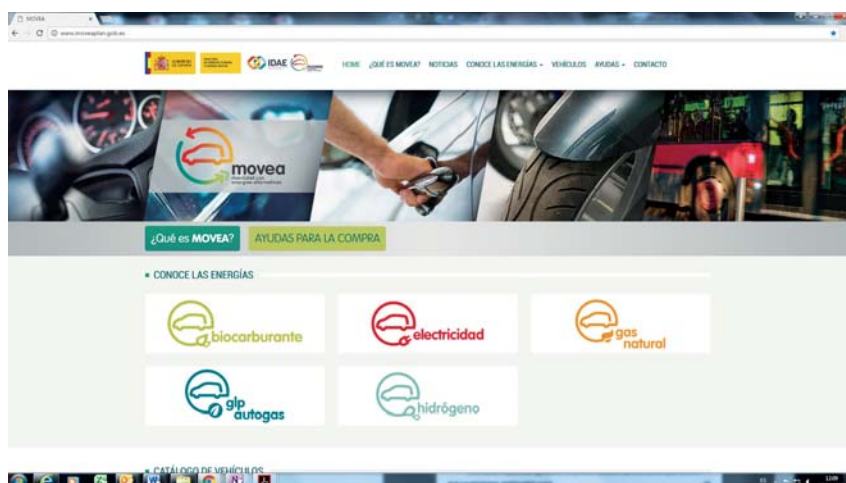


Figure 1: MOVEA Website (Source: [www.moveaplan.gob.es](http://www.moveaplan.gob.es))

### Plan MOVEA 2017: An Incentive Plan for the Acquisition of Alternative Vehicles

In order to give continuity to MOVEA 2016 incentives plan, the Spanish Government published the “Plan MOVEA 2017” on June 23, 2017 (Royal Decree 617/2017), a National Plan of direct incentives for the acquisition of alternative vehicles (LPG, CNG /LNG and Electric vehicles and also the deployment of charging infrastructure for EVs). Plan MOVEA 2017 lasted from June 24, 2017 to October 15, 2017 and it was funded with a total budget of 14.26 million EUR.

A number of 2,444 alternative vehicles and 26 public charging points for electric vehicles were subsidized in the frame of this plan, with a final budget of 9,258,646 EUR applied. Most of the subsidized vehicles were electric (67 %), in addition to LPG vehicles (21 %) and Natural Gas vehicles (12 %).

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Table 1: Plan MOVEA - Detail of incentives per electric vehicle (BEV, EREV, PHEV)

Plan MOVEA 2017: Incentives for Acquisition of Electric Vehicle						
Category	Incentives ( particulars / SME / big companies; in EUR)					
M1* (passenger cars)	1,300 / 1,300 / 1,100 (BEV), 15km ≤ range** ≤ 40 km					
	2,600 / 2,600 / 2,500 (BEV), 40km < range** ≤ 90km					
	5,500 / 4,300 / 3,200 (BEV), 90km < range**					
N1* (vans <3,5t)	8,000 / 6,300 / 5,000 (BEV), range** > 60 km**					
N2 (trucks ≤12t)	8,000 / 7,000 / 6,000 (BEV)					
M2 (busses ≤5t)	8,000 / 7,000 / 6,000 (BEV)					
M3 (busses>12t)	20,000 (range **> 60 km), for all beneficiaries					
N3 (trucks>12t)						
L6e (light quadricycles)	1,950 (BEV), for all beneficiaries					
L7e (heavy quadricycles)	2,350 (BEV), for all beneficiaries.					
L3e, L4e, L5e (motorbikes)	1,500 / 1,200 / 1,000 (BEV), 3 ≤ P (kW) < 4,5					
	2,000 / € 1,800 / € 1,500 (BEV) 4,5 ≤ P (kW) In all cases, range** >70km					
Plan MOVEA 2017: Incentives per Charging Point of EVs						
Charging Point 7 ≤ P (kW) < 15				1,000 for all beneficiaries		
Charging Point 15 ≤ P (kW) < 40				2,000 for all beneficiaries		
Charging Point 40 ≥ P (kW)				15,000 for all beneficiaries		
Plan MOVEA 2017: Electric Vehicles Subsidized						
Category	M1	N1	M3	L6e	L7e	Total
N° vehicles	1,230	151	1	6	15	1,403
Plan MOVEA 2017: Charging Points Subsidized						
N° Charging Points 15 ≤ P (kW)<40			28			
N° Charging Points 40 ≤ P (kW)			14			
Total Charging Points			42			

\* Incentives increased by 750 EUR, in case the vehicle is retired (scrapped)

\*\* Range in electric mode

In addition to the above table of incentives for electric vehicles and charging infrastructure, car dealers had to facilitate the installation of charging points,

assuming a cost of 1,000 EUR (150 EUR in case of the category of the vehicles being L6e or L7e).

### **New Plan MOVALT: Two Incentive Plans for the acquisition of alternative Vehicles and to promote EV charging Infrastructure**

Plan MOVEA 2017 incentives finished on October 15, 2017. After that, new incentives programs were approved:

“Plan MOVALT Vehicles”: The Institute for Energy Diversification and Savings (IDAE), through the Resolution of its Council of November 7, 2017 and the Resolution of its General Manager of November 21, 2017, approved the regulatory bases and public call respectively, of a new incentives program for alternative vehicles acquisition, quite similar in format to MOVEA 2017.



MOVALT Vehicles is funded with a total budget of 20 million EUR and is running effectively from December 13, 2017 to June 30, 2018. In this context, the Spanish Government dedicated 36.6 million EUR during 2017, to incentive the acquisition of alternative vehicles.

“Plan MOVALT Infraestructura”: The Institute for Energy Diversification and Savings (IDAE), through the Resolution of its Council of November 7, 2017 and the Resolution of its General Manager of January 10, 2018, approved the regulatory bases and public call respectively, of a new incentives program for EV charging infrastructure.



MOVALT Infraestructura was initially approved with a total budget of 15 million EUR that was increased by 5 million EUR in March 2018, and is running effectively from January 23, 2018 to December 31, 2018.

## **32.2 HEVs, PHEVs and EVs on the Road**

In the year 2017, in Spain a number of 11,160 *electric vehicles* were registered, considering BEVs, PHEVs and REEVs (Table 2), which almost double the figures of the previous year of 2016, with a number of 6,179 EVs registrations. This increase was heavily supported by National incentives programs for EVs acquisition (Plan MOVEA 2017 and MOVALT Vehicles) and also by other initiatives and incentive programs for vehicle acquisition at regional or local scale.

Focusing on *conventional hybrid vehicles*, the huge increase of the passenger car registrations along the years 2016 and 2017 is remarkable, with a total number of

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55,482 registrations during the year of 2017, coming from a total of 7,759 registrations during the year of 2015 (more than seven times the figures of 2015). It is remarkable that, at a National scale, there have not been any incentives programs running for the acquisition of these vehicles over the last years, but this is more than compensated by the impact of the new Environmental car labelling and the measures implemented for clean air in regions and cities.

Table 2: Fleet totals and sales of BEVs and HEVs, per category in 2017 (Data source: IDAE, based on registrations of Spanish Traffic Authorities)

Fleet Totals on 31 December 2017					
Vehicle Type	BEVs	HEVs	PHEVs	FCVs	Total Fleet <sup>h</sup>
Bicycles	187,000	0	0	0	30,000,000 <sup>i</sup>
Mopeds <sup>a</sup>	4,360	0	0	0	1,892,995
Motorbikes <sup>b</sup>	5,147	56	0	0	3,279,398
Quadricycles <sup>c</sup>	2,074	0	0	0	116,181
Passenger vehicles <sup>d</sup>	9,724	164,696	6,559	0	23,500,403
Commercial vehicles <sup>f</sup>	3,335	9	4	1	4,031,563
Buses <sup>e</sup>	101	307	51	0	63,589
Trucks <sup>g</sup>	76	64	0	0	892,914
<b>Totals (without bicycles)</b>	<b>24,817</b>	<b>165,132</b>	<b>6,614</b>	<b>1</b>	<b>33,777,043</b>

Fleet Sales on 31 December 2017					
Vehicle Type	BEVs	HEVs	PHEVs	FCVs	Total sales <sup>h</sup>
Bicycles	60,000	0	0	0	1,140,000 <sup>i</sup>
Mopeds <sup>a</sup>	1,958	0	0	0	21,815
Motorbikes <sup>b</sup>	233	0	0	0	143,960
Quadricycles <sup>c</sup>	112	0	0	0	3,056
Passenger vehicles <sup>d</sup>	4,206	55,482	3,689	0	1,342,011
Commercial vehicles <sup>f</sup>	923	1	1	0	150,678
Buses <sup>e</sup>	24	160	0	0	4,038
Trucks <sup>g</sup>	4	35	10	0	36,159
<b>Totals (without bicycles)</b>	<b>7,460</b>	<b>55,678</b>	<b>3,700</b>	<b>0</b>	<b>1,701,717</b>

n.a. = not available

<sup>a</sup> UNECE categories L1-L2

<sup>b</sup> UNECE categories L1-L5

<sup>c</sup> UNECE categories L6-L7

<sup>d</sup> UNECE categories M1

<sup>e</sup> UNECE categories M2-M3

<sup>f</sup> UNECE categories N1

<sup>g</sup> UNECE categories N2-N3

<sup>h</sup> Including both conventional and alternative technologies

<sup>i</sup> Estimated data at the end of 2017 (Source AMBE - Spanish Association of Bicycles and Brands)

In the specific case of electric passenger cars (BEVs, PHEV/EREVs), this category had a market penetration of 0.6 % during 2017. Considering both electric vehicles, jointly with hybrid electric vehicles (HEVs), resulted in a market penetration of 4.7 %. Regarding fleet numbers in Spain and considering vehicle registration figures showed in the Table 2, Electric vehicle fleet totals in Spain (considering BEVs, PHEVS and REEVs) during 2017, rose to a total number of 24,817, coming from a total amount of 20,012 electric vehicles registered during 2016 (an increase of 19.4 %)

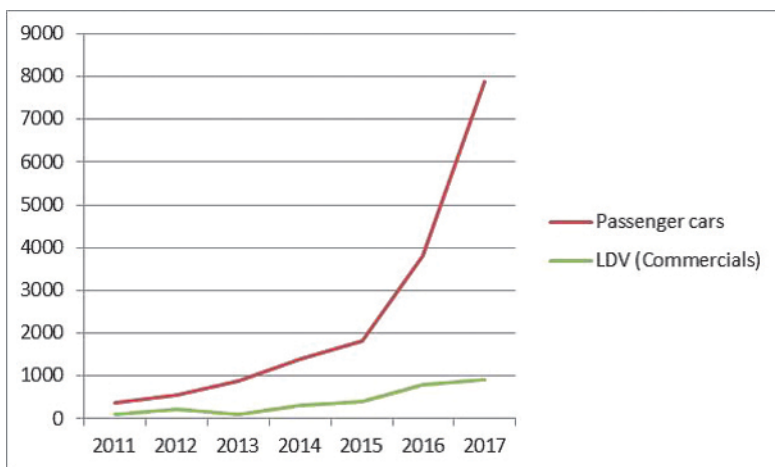


Figure 2: EVs market evolution (annual sales of cars –M1- and vans –N1-) in Spain

In the specific case of *conventional hybrid vehicles (HEV)*, the passenger car fleet amounted to a number of 164,696 vehicles in 2017, coming from a fleet of 94,771 vehicles at the end of 2016 (a remarkable increase of 74 %).

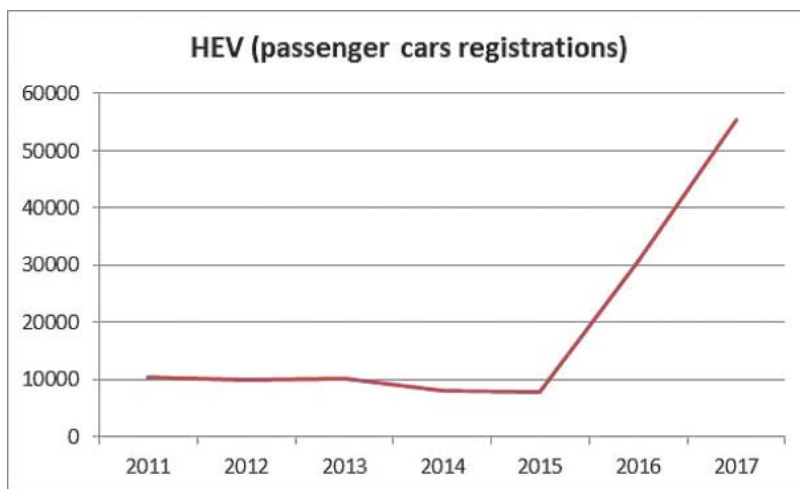


Figure 3: HEVs market evolution (annual sales of passenger cars –M1-) in Spain

### 32.3 Charging Infrastructure or EVSE

After an initial stage characterized by charging vehicles for free in the frame of pilots demonstration projects promoted by city councils and regional administrations, a public infrastructure service for charging electric vehicles in Spain must be operated at present by authorized charging operators “Gestor de Cargas”, established and defined by the National normative (Royal Decree 647/2011).

At the end of 2017, there were a number of 58 charging operators officially registered and published by the National Commission of Markets and Competition (CNMC), which deployed a total of 278 public charging stations for EVs in different cities all over the national territory, as it figures at the website.<sup>60</sup>

However, a total number of 1,600 public charging stations and an amount of 4,600 charging points is estimated in Spain, most of them deployed in the frame of pilot demonstration projects, pending of registration in the charging operators list of the CNMC, which means a ratio of 6,5 charging points per electric vehicle registered in Spain.

In this way, Spain is currently working on an accurate data collection of the placements and technical characteristics of the stations and charging points, according with the European Plan for Infrastructure deployment for alternative vehicles, as it is collected in Article 10, chapter 6 of the Directive 2014/94/UE.

<sup>60</sup> [https://sede.cnmc.gob.es/sites/default/files/2018-04/201803\\_Listado%20Gestores%20de%20Cargas\\_CNMC.pdf](https://sede.cnmc.gob.es/sites/default/files/2018-04/201803_Listado%20Gestores%20de%20Cargas_CNMC.pdf)

Table 3: Emplacements of charging stations and charging points for EVs in Spain (Data source: Professional associations of different activity sectors)

Emplacements/Sites	Number of Charging Stations	Number of Charging Points
Car dealers	189	398
Hotels	131	234
Restaurants	85	172
Petro stations	64	144
Shops/Malls	31	143
Car repair garages	35	88
Campings	14	30
Taxi stops	5	9
Airports	4	8
<b>Totals</b>	<b>1,659</b>	<b>4,547</b>

Apart from different regional and local initiatives in order to promote charging infrastructure for EVs all over the Spanish territory, there are other relevant initiatives at a national level:

- Plan MOVEA and Plan MOVALT Infrastructure: Incentives for private and public companies to deploy quick and semi-quick charging points for EVs for public use.
- Operative Program of Sustainable Growth (POCS), financed by Structural and Investment European Budget (EIE Funds) includes financing for local administrations which promote the deployment of charging infrastructure, in the framework of Sustainable Urban Mobility Plans, effective until 2020.
- Railway operator RENFE is preparing a plan for deploying charging infrastructure of EVs in parking lots of different railway stations.
- Airport operator AENA is studying a business model for the current charging infrastructure of EVs in parking lots of the Spanish Airports.
- PIRVEC 2016-2019, Strategic Plan for the deployment of charging infrastructure of electric vehicles in Catalonia

**CIRVE Project** - The Spanish and Portuguese National Governments promoted the creation of a consortium formed by eight partners to deploy quick charging points through the Mediterranean and Atlantic corridors, as a business model to study for the future implementation of RTE-T European charging network and connecting Iberian Peninsula with the rest of the European continent.



This project has a quantitative objective of installing a number of 25 new quick charging points and to adapt another 15 existing quick charging points in the Iberian corridors. The investment associated to this project is co-financed by the 2015 call for proposals of the “Connecting Europe Mechanism (CEF).

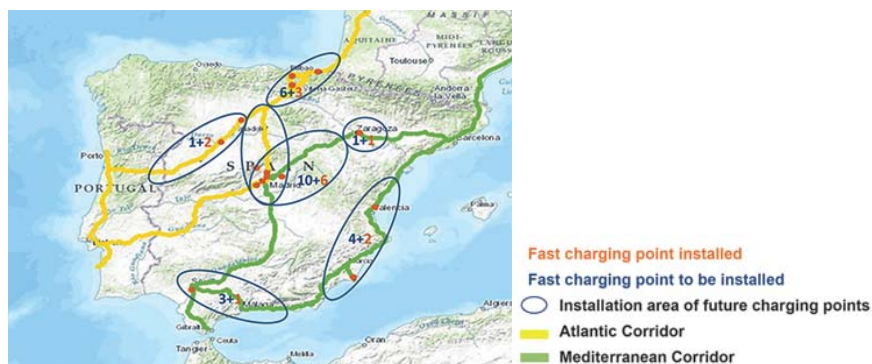


Figure 4: CIRVE (Iberian corridors of quick charging points)

**E-VIA FLEX-E project** - European project focused on the deployment of ultra-fast charging stations (150-350 kW), coordinated by Enel and co-financed by the European Commission and with the participation of the charging operator IBIL. This project started on December 28, 2017 and will run in Italy, France and Spain, with the objective to deploy 14 ultra-fast chargers, to test that this network enables new electric vehicles, with a range of more than 300 km, to travel long distances and to contribute to the development and spread of e-cars in Europe<sup>61</sup>.

## 32.4 EV Demonstration Projects

### Massive Infrastructure Deployment in the City of Barcelona

In the city of Barcelona, there are currently a number of 303 public use charging points working, from which 121 are located in streets (including 15 quick charge points), and the other 182 are located in covered parking facilities (74 % for cars and 26 % for motorbikes).

Moreover, Barcelona city has also more than 100 charging points in different private facilities (hotels, malls, etc.) for public use, but privately managed.

Regarding the Barcelona Metropolitan Area, a collaboration agreement was signed by the following entities: FGC, SIMON, DTES, RAILGRUP, VOLTOUR,

<sup>61</sup> <https://www.enel.com/media/press/d/2017/12/e-via-flex-e-eng>

ICAEN, IMESAPI, EMPARK to deploy charging stations for EVs in five train stations.

A new relevant initiative in Barcelona is the launching of the project “Car-Esmatic Project”, promoted by the European Commission, with the participation of the Barcelona Port, jointly with the Luka-Koper Port (Slovenia) and the Neptune Lines shipping company, focusing on the role of electric vehicles in the intermodal transport and on the logistic requirements for EVs imports and exports through the Barcelona Port.

### **Quick Charge Club (E-Car)**

The energy company “Endesa” deployed six quick charge points all over the island of Mallorca. The medium distance between the charging points is 35 km. In these charging points, EV users can charge 80 % of the car battery in less than 30 minutes.

The infrastructure is co-financed by the European budget “FEDER Program”. Charging points are equipped with the three technologies currently available in the market and can be reserved and controlled through a mobile phone application.