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## Promoting electro mobility in Spain. Public measures and main data (2007–2012)

José M. Cansino<sup>a,b</sup>, Rocio Yñiguez<sup>a,\*</sup>

<sup>a</sup> Universidad de Sevilla, Spain

<sup>b</sup> Universidad Autónoma de Chile, Chile



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### ABSTRACT

This paper offers systematic and innovative information to the usage of electrical vehicles (EVs) in Spain between 2007 and 2012. Five different EV categories are analyzed. The data is broken down by provinces and regions.

Likewise, the study analyzes the evolution of EV use as well as the percentage of EVs in each category with regards to the total number of vehicles in a given category, with the percentage of EVs per 10,000 habitants. In addition to this, the paper provides detailed information about the legislation promoting the use of EVs, both in the European Union (EU) and in Spain.

The article includes an assessment of the promotional measures used for EVs for their growth rate. Finally, the authors provide a number of recommendations about the type of efforts to be undertaken by the authorities of Spain and the EU to increase the use of EVs.

In Spain, the development of the electrical vehicle stock has increased annually for each of the categories. Nevertheless, the relationship with the total number of vehicles, EVs have failed to reach 1% in any of the categories. The ratio number of EVs per 10,000 inhabitants has increased in each of the provinces, with more than twenty provinces (44%) having a ratio that surpassed 1 EV/10,000 inhabitants in 2012.

### 1. Introduction

Electric vehicles (EVs) could reduce the consumption of fossil fuels and the emissions of greenhouse gases (GHG) while at the same time eliminate other pollutants from the atmosphere (Siang and Wei, 2013; Perujo and Ciuffo, 2010; Sioshansi et al., 2010; Camus et al., 2011). Hannan et al., (2014) offer a recent and useful review of these alternative vehicles. Electric vehicles can help reduce GHG emissions, improving the air quality in cities and, thus the health of their populations because they only emit natural byproducts and not exhaust fumes (Mierio et al., 2006; Ma et al., 2012; Hannan et al., 2014) so for climate change, local air pollutants in congested inner-cities, and noise some advantageous effects can be observed for EVs (Jochem et al., 2016). However, some authors have criticized this finding (Sioshansi and Miller, 2011; Ji et al., 2012). In areas such as the European Union (EU27), EVs could also contribute to reducing its external dependency upon fossil fuels. Spain is a clear case of this dependency with a 99.7% of its fossil fuel being imported in 2012 (Cores, 2013).

These arguments support part of the energy and environmental decisions made by the EU27. The Europe 2020 strategy for a smart, sustainable and inclusive growth, in its Flagship Initiatives “Resource efficient Europe” and “Innovation Union”, aims at tackling social challenges such as climate change, energy and resource scarcity, while enhancing competitiveness and meeting energy

\* Corresponding author at: Av. Ramón y Cajal n°1, 41001 Seville, Spain.

E-mail address: [ovando@us.es](mailto:ovando@us.es) (R. Yñiguez).

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security with a more efficient use of resources and energy (European Commission Communication, 2010). In line with this strategy, the White Paper “Roadmap to a Single European Transport Area – Towards a Competitive and Resource Efficient Transport System” called for breaking the oil dependence of transportation and set a 60% GHG emission-reduction target from transport by 2050 (European Commission, 2010).

Together with this, in EU27, promotional strategy for electric mobility is included in the European Green Cars' Initiative, which is part of the European Economic Recovery Plan. Both initiatives emphasize the importance of the cooperation between public and private organizations (European Commission Communication, 2008).

Thus, there is an important set of measure to promote the use of EV but researchers face two challenges. The first is the dispersion of current legal initiative focused on promoting the use of EVs. The second is a lack of detailed stat about the number of EVs.

This article focuses on the case of Spain. There are two objectives, with the first being to offer an overview of the current legal framework promoting the use of EVs, both in the European Union, but more specifically in Spain. The second objective offers detailed information for the period 2007–2012. The starting-date coincides with the sales of these vehicles on the general market, and concludes with the last available data when the research was performed. The database differentiates five EVS categories, 52 provinces and 17 regions. To the best of our knowledge, there are no official statistics providing such information as this article offers. The data also considers population density information. The article offers interesting information, not only for research, but also for the electric vehicle industry and for policy makers.

The rest of the paper is structured as follows: Section 2 summarizes legal EU28 and Spanish frameworks. Section 3 shows data. The discussion and concluding remarks are provided in Section 4.

## 2. Legal framework and support policy measures for EVs

Today the legal EU framework <sup>1</sup>for EV's is supported by the three following pillars.

- i. The Renewable Energy Directive 2009/28/EC (European Parliament and of the Council, 2009a), the Fuel Quality Directive 2009/30/EC (European Parliament and of the Council, 2009c), the Clean Vehicle Directive 2009/33/EC (European Parliament and of the Council, 2009b), the Regulations setting CO<sub>2</sub> standards for passenger cars (Regulation N° 443/2009; European Parliament and of the Council, 2009e) and light commercial vehicles (Regulation N° 510/2011; European Parliament and of the Council, 2011) are all key EU legislation regarding the promotion of sustainable, low-carbon fuels and low CO<sub>2</sub> emission vehicles.
- ii. Directive 2009/28/EC by the European Parliament and the Council dated 23/04/2009 for the promotion of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC<sup>12</sup> set a target of 10% market share of renewables in transport fuels.
- iii. The Commission Communication on a European alternative fuels strategy (European Commission Communication, 2013). This document evaluates the main alternative fuel options available to substitute crude oil whilst contributing to reduce GHG emissions from transportation, and suggests a comprehensive list of measures to promote the market development of alternative fuels in Europe, complementing other policies for reducing fossil fuel consumption and GHG emissions from transport.

The main alternative fuel options are electricity, hydrogen, biofuels, natural gas (in the forms of Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG), or Gas- To-Liquid (GTL), and Liquefied Petroleum Gas (LPG).

Together with EU's legal instruments, Member States (MS) have put in force measures related to the use of EVs. A specific legal framework to promote the use of EVs in Spain is supported by the three documents indicated below:

- i. Royal Decree 648/2011 provides aid for domestic users to purchase EVs (Ministerio de Industria, Turismo y Comercio, 2011b). This consists of a bonus up to 25% of the sales price of the vehicle before tax, with a maximum of 6000 euros per unit. This norm is part of the 2010–2012 Action Plan to demonstrate the technical and power feasibility of electric mobility in urban areas between 2010 and 2014. Its aim is to introduce 2000 EVs into the Spanish automobile fleet, as well as to install > 500 charging points for these vehicles in various cities.
- ii. In addition to the document mentioned above, Royal Decree 647/2011 (Ministerio de Industria, Turismo y Comercio, 2011a) regulates the load operator defined by Law 54/1997 of the Electricity Sector (Jefatura del Estado, 1997), as a consumer qualified to sell electricity to recharge consumer vehicles. Load Operators are considered necessary for the quick development of EVs as an industrial product that combines the features of innovative technology that is able to generate a new sector with growth potential and, at the same time, a savings instrument that is energy and environmental efficient. In this Decree, a super-valley rate for recharging EVs in a specific time tracts is also introduced.
- iii. In the Royal Decree 294/2013, the direct grants for the purchase of EVs during 2013 are regulated, under the Comprehensive Strategy for the promotion of EVs in Spain between 2010 and 2014 (Ministerio de Industria, Turismo y Comercio, 2013). This document is an updated version of Royal Decree 648/2011, but with changes with regards to the amount of the subsidy, which offers up to 5500 euros per vehicles, full electric power operated, with a driving autonomy > 90 km.

<sup>1</sup> Table A.1 of Appendix A offers more detailed information relevant to the EU legal framework.

**Table 1**

Policy measures to promote EV in Spain not included in taxes.

Source: .

Financial incentives	Several local governments grant tax incentives of 2000–7000 Euro for the purchase of EVs and other ecofriendly vehicles
Research financing	€ 140 million for industrialization support and R&D; € 173 million to priority R & D lines
Infrastructure	The government initiated 'Movele program' (2008–2011, investments ca. € 10 million) targeted the ramp up of infrastructure and dispersion of EVs in Barcelona, Madrid, and Seville Amount of charging points to be achieved by 2014: 62,000 in homes, 263,000 for company fleets, 12,150 public parking and 6200 public road-side charging points. € 35 million investment in electric grid related communication systems
Financial support of public authorities	For municipalities with $\geq 50,000$ inhabitants (= 145 cities) 20% subvention for the purchase of EVs (€ 6000 max/unit), i.e. € 240 million in sum
Consumer perception	Private consumer interest in EVs is currently low, due to high purchasing cost, low vehicle autonomy, recharging models and battery issues. Fleets are seen as an initial market driver. One handicap of Spain is that all car producers have their decision-making headquarters outside of Spain

Similarity with others low carbon energy strategies (Cansino et al., 2010, 2011, 2012) public policies play a key role accelerating the market penetration of EVs, particularly due to the high initial investment costs. Depending on the objectives and time horizon, public policy can put different measures in place in order to promote electro mobility. In accordance with Proff and Kilian (2012) three types of policy measures are considered: Indirect technology support (e.g. tax incentives), direct technology support (e.g. grants) and public purchasing incentives (including tax exemptions).

In the field of direct technology support, all five major EU MSs support research activities. Together with such a policy measures, non-financial incentives might be taken into account such as regulation and –mainly at local levels- the use of high occupancy lanes in the cities. In this sense, Germany, France, UK, Italy and Spain offer infrastructure support for EVs through the use of these types of lanes.

For the case of Spain Tables 1–3 detailed policy measured in force for the period under consideration.

Tables 2 and 3 show tax exemptions in order to promote electro mobility. The two relevant taxes are the tax on vehicles' ownership (Table 2) and the special (Table 3). Tax on ownership it's a local tax and most important city councils decided to reduce it for fuel efficient vehicles by 75%. As representative tax Table 2 considers the one applied in Madrid.

**Table 2**

Tax on vehicle's ownership.

Source: Own elaboration from ACEA (2014).

	Minimum amount €	Representative taxes applied €	Representative amount for Evs €
<i>Private cars</i>			
< 8 HP	12.62	22	5.5
8–11.99 HP	34.08	65	16.25
12–15.99 HP	71.94	140	35
> 19.99 HP	112	224	56
<i>Buses and coaches</i>			
< 21 seats	83.3	158	39.5
21–50 seats	118.64	231	57.75
> 50 seats	148.3	296	74
<i>Commercial vehicles</i>			
<i>Lorries</i>			
< 999 kg	42.28	79	19.75
1000–2999 kg	83.3	162	40.5
3000–9999 Kg	118.64	237	59.25
<i>Tractive units</i>			
> 9999 kg	148.3	296	74
< 16 HP	17.67	35	8.75
16–25 HP	27.77	54	13.5
> 25 HP	83.3	166	41.5
<i>Motorcycles</i>			
< 125 cc	4.42	8	2
125–250 cc	7.57	13	3.25
250–500 cc	15.15	30	7.5
500–1000 cc	30.29	59	14.75
> 1000 cc	60.58	121	30.25

**Table 3**

Special tax.

Source: AEAT (n.d.).

CO <sub>2</sub> emissions (g/km)	Rate		
	Peninsula and Baleares islands	Canary Islands	Ceuta and Melilla cities
≤120	0%	0%	0%
> 120 < 160	4.75%	3.75%	0%
≥160 < 200	9.75%	8.75%	0%
≥200*	14.75%	13.75%	0%
Others**	12%	11%	0%

\* Also taxable vehicles which should have presented their CO<sub>2</sub> emissions, but have not been proven.

\*\* Vehicles not included in previous epigraphs and ships, boats, light aircrafts, airplanes and others airships.

Spanish Special tax on vehicle is applied on the first definitive registration in Spain of motor vehicles. It was amended to take into account CO<sub>2</sub> emissions level of the vehicle measured in grams per kilometer with fixe taxable brackets varying from ≤120 g/km (the relevant rate for EVs) to ≥200 g/200 (Table 3). Taxes rates can be modify by regional governments. That is what happens in Extremadura, Andalucia, Cataluña, Asturias and Murcia regions.

### 3. Data for Spain

EV is understood as a vehicle that complies with the definition provided in Directive 2007/46/EC of the European Parliament and of the Council dated 5 September 2007 (European Parliament and of the Council, 2007). This Directive establishes a framework for the approval of motor vehicles and their trailers, as well as the systems, components and separate technical units intended for such vehicles. These have a maximum design speed exceeding 25 km/h, equipped with one or more traction motor(s) operated by electric power and not permanently connected to the grid; it also covers all of their high voltage components and systems which are galvanically connected to the high voltage bus of the electric power train.

Due to the fact that there is no detailed statistics information of EVs in Spain, this paper has elaborated these statistics. Four categories of EVs have been considered. These are electric trucks and vans, electric buses, electric cars, electric motorcycles and other EVs. Data refers to the 2007–2012 period. The beginning of the time series is the first year that EVs were offered to customer in a standard scale. 2012 is the last year for accessible data. Table 4 shows the EVs in circulation in Spain between 2007 and 2012. The distribution throughout the country is provided for each of the 52 provinces and the 17 regions found in Spain. The data show very uneven results for the number of EVs in circulation in 2012. 59.5% of all EVs are concentrated in 5.76% of the provinces. This later percentage corresponds to the provinces of Barcelona, Valencia and Madrid. At the regional level, 70% of all EVs in circulation in 2012—the last year included in this study—are concentrated in three of the 17 regions, which are Catalonia, the Community of Valencia and Madrid.

Graph 1 shows the development of the number of EVs on the highway for each of the years studied in Spain and for all of the categories. The tendency has always been upwards, and this is especially true in the last year. Nevertheless, the growth rate has been different depending on the category of the vehicle.

Appendix B offers detailed information, disaggregated by EV categories, provinces and regions in absolute terms (Tables B1–B5).

In 2012, the degree of concentration in the geographic distribution of the number of electric vans in circulation in Spain is very high. 68% of all electric vans in circulation that year correspond to only two of the 52 provinces—Barcelona and Madrid. Likewise, 74.3% of all EVs on the highway were found in two of the 17 regions for the period included in this study (Table B1).

For most provinces in Spain, the low numbers of electric buses is noteworthy for each of the years considered. In 41 provinces (78.8%), there were no electric buses in circulation in 2012. Electric buses were, for the most part, found in the provinces of Barcelona and Madrid, where 92% of all such vehicles found in Spain were in circulation in 2012 (Table B2).

With regards to the number of electric cars on the highways for 2007–2012, we observed that in 2012, there was an increase in the number of such vehicles, with a total of 2161; of these, 63% were found in only three provinces (Barcelona, Madrid and Seville). This is 5.7% of the total number of provinces in Spain. Consequently, the distribution concentration is very high, the same as in the case of other vehicle types analyzed. (Table B3).

Upon analyzing the data for electro motorcycles on the road between 2007 and 2012, it interesting to note that 40% are found in 50% of the provinces. This indicates a distribution that is less uneven than for the rest of EVs analyzed. (Table B4).

The data for other EV types on the highway between 2007 and 2012, as well as the growth rate seen for these vehicles in 2012 in

Table 4

Total EVs in cumulative and absolute terms (2007–2012).

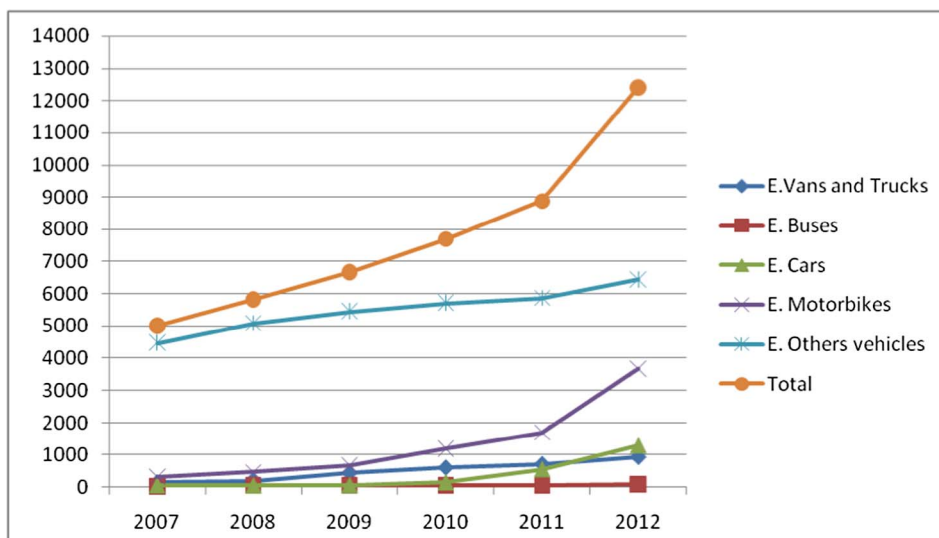
Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation rate
Almeria	7	12	12	17	21	36	414.3%
Cadiz	22	24	27	37	42	99	350.0%
Cordoba	24	28	33	36	42	82	241.7%
Granada	16	28	40	54	73	99	518.7%
Huelva	7	5	9	14	16	23	228.6%
Jaen	15	17	20	22	27	184	1126.7%
Malaga	35	46	65	75	97	156	345.7%
Seville	37	46	56	87	141	365	886.5%
Andalusia	163	206	262	342	459	1044	540.5%
Huesca	6	8	8	12	14	31	416.7%
Teruel	4	4	5	6	6	11	175.0%
Saragossa	141*	206*	220*	233*	257*	314*	122.7%
Aragon	151	218	233	251	277	356	135.7%
Cantabria	20	28	46	70	94	122	510%
Avila	0	1	1	1	2	12	1100%
Burgos	11	15	17	25	24	43	290.9%
Leon	7	8	11	19	25	45	542.9%
Palencia	1	1	4	5	5	15	1400.0%
Salamanca	5	10	13	18	25	34	580.0%
Segovia	5	6	8	8	10	13	160%
Soria	0	0	0	4	5	9	55.6%
Valladolid	26	29	34	45	54	88	238.5%
Zamora	1	1	2	4	4	9	800%
Castile & Leon	56	71	90	129	154	268	378.6%
Albacete	2	3	4	4	5	15	650%
Ciudad Real	6	8	11	13	17	24	300%
Cuenca	4	4	5	5	11	12	200%
Guadalajara	5	6	6	10	11	17	240%
Toledo	14	17	20	22	42	93	564.3%
Castile-La Mancha	31	38	46	54	86	161	419.4%
Barcelona	2245*	2431*	2790*	3054*	3187*	3663*	63.2%
Girona	77	77	92	108	132	199	158.4%
Lleida	34	35	48	54	70	97	185.3%
Tarragona	40	54	67	107	130	169	322.5%
Catalonia	2396#	2597#	2997#	3323#	3519#	4128#	72.3%
Ceuta	0	0	0	0	0	0	
Community of Madrid	471*#	667*#	728*#	921*#	1236*#	1999#	324.4%
Alicante	77	107	134*	168*	205*	280*	263.6%
Castellon	62	80	80	95	109	110	77.4%
Valencia	909*	1006*	1075*	1163*	1257*	1732*	90.5%
Community of Valencia	1048#	1193#	1289#	1426#	1571#	2122#	102.4%
Badajoz	3	5	5	14	21	45	1400%
Caceres	4	6	7	10	12	21	425%
Extremadura	7	11	12	24	33	66	842.8%
A Coruña	15	22	30	34	47	61	306.7%
Lugo	4	8	10	15	15	21	425%
Orense	5	7	9	18	23	36	620%
Pontevedra	39	41	46	52	101	120	207.7%
Galicia	63	78	95	119	186	238	277.8%
Balearic Islands	165*	181*	189*	219*	245*	364*	120.6%
Las Palmas	85	103	122	127	151	194	128.2%
Santa Cruz de Tenerife	28	39	56	59	71	96	242.9%
Canary Islands	113	142	178	186	222	290	156.6%
La Rioja	39	51	57	69	73	81	107.7%
Melilla	2	2	2	4	4	8	300%
Navarre	112*	150*	167*	177*	180*	204	82.1%
Alava	10	15	18	22	44	52	420%
Guipuzcoa	40	46	55	72	99	148	270%
Biscay	80	89	117	129	143	196	145%
Basque Country	130	150	190	223	286	396	204.6%
Principality of Asturias	22	29	50	55	67	78	254.5%
Region of Murcia	16	33	52	114	192*	500*	3025%
TOTAL	5005	5845	6683	7706	8884	12,425	148.3%

\* Above average by province.

# Above average by regions.

Graf 1: EV Stock Trend (2007-2012)



Graf 1. EV Stock Trend (2007–2012).

comparison with 2007, shows that in 2012, the number of these vehicles rose to 6442; of these almost 75% were found in only 7.6% of the provinces of Spain. This indicates a very uneven distribution. On the other hand, the variation percentage for such EVs in 2012, when compared to 2007, is considerable in many provinces of Spain, with the average being 120.56%, surpass this number in 12 provinces of Spain (Table B5).

A comparison in relative terms allows for a better designed analysis. Upon analyzing in relative terms, Table 5 shows the percentage of EVs over the total number of vehicles registered in each of the years analyzed. In no case does it reach 1%, but it is noteworthy to see the high growth rate using this ratio in 2012 in comparison with 2007, in which case, the average is 368%. 37% of the provinces in Spain are above this average, which show a distribution that is somewhat less uneven than when considering absolute terms.

Appendix B offers detailed data, disaggregated by categories of EVs, provinces and regions in relative terms (Tables B6–B10).

The percentage of electric vans over the total number of registered vehicles in each of the years analyzed, and as was the case for the total number of EVs, in this case, the 1% mark was not reached. However, the growth rate for 2012 when compared to 2007 has increased, with an average of 369.63%. 25% of the provinces in Spain are above this average, which indicates a slightly less uneven distribution than the previous category (Table B6).

As was the case for the total number of electric vehicles and electric vans, the percentage of electric buses based on the total number of vehicles registered in each year analyzed, as well as the variation rate in 2012 with regards to 2007, also fails to reach the 1% mark. In many provinces, it was observed that the variation rate for this indicator was zero. This indicates the difficult penetration for such vehicles in considerable number of provinces in Spain—specifically in 35 provinces. This represents 67% of the total. However, the provinces with the two most important capital cities of Spain presented a very high growth rate: 425.49% in Barcelona and 332.11% in Madrid (Table B7).

In terms of the percentage for electric cars of the total number of vehicles registered, as well as the variation rate in 2012 with regards to 2007, the 1% mark was not reached. In many provinces, the variation rate of this indicator was zero, which indicated the penetration difficulties this type of vehicle has in a number of Spanish provinces. Specifically, in 30 provinces; this represents 57% of the total. In the rest of the provinces, the important differences presented for this ratio reflect an uneven penetration of electric vehicles with regards to the general number of automobiles (Table B8).

With regards to the number of electric motorbikes of all such vehicles registered in the years analyzed, as well as the variation rate in 2012 in comparison to 2007, fails to reach the 1% mark. Although the variation rate is very high in many of the provinces studied, with an average for the province of 1236.22%, with 27% of the provinces above this average (Table B9).

On the other hand, the percentage of other electric vehicles over the total for this type of vehicles registered for each of the years analyzed, as well as the variation rate for 2012 with regards to 2007, does reach a value above 1% in various years for several provinces, reaching 8.34% in the province of Valencia in 2012. The average percentage at the provincial level is 94.2%, with 28.8% of the provinces being above the average (Table B10).

Table 6 shows that the ratio for the number of electric vehicles per 10,000 inhabitants has increased in almost all provinces

Table 5

Total EVs in relative terms (2007–2012).

Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation Rate
Almeria	0.002%	0.003%	0.003%	0.004%	0.004%	0.01%	400%*
Cadiz	0.003%	0.003%	0.004%	0.01%	0.01%	0.01%	233.3%
Cordoba	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	100%
Granada	0.003%	0.004%	0.01%	0.01%	0.01%	0.02%	566.7%*
Huelva	0.002%	0.002%	0.003%	0.004%	0.01%	0.01%	400%*
Jaen	0.004%	0.004%	0.01%	0.01%	0.01%	0.04%	900%*
Malaga	0.003%	0.004%	0.01%	0.01%	0.01%	0.01%	233.3%
Seville	0.003%	0.004%	0.01%	0.01%	0.01%	0.03%	900%*
Andalusia	0.003%	0.004%	0.005%	0.006%	0.009%	0.019%	533.3%#
Huesca	0.004%	0.01%	0.01%	0.01%	0.01%	0.02%	400%*
Teruel	0.003%	0.004%	0.004%	0.01%	0.01%	0.01%	233.3%
Saragossa	0.02%	0.03%	0.04%	0.04%	0.04%	0.06%	200%
Aragon	0.018%	0.026%	0.028%	0.030%	0.033%	0.043%	138.9%
Cantabria	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	200%
Avila	0.00%	0.001%	0.001%	0.001%	0.002%	0.01%	900%*
Burgos	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	100%
Leon	0.002%	0.002%	0.003%	0.01%	0.01%	0.01%	400%*
Palencia	0.001%	0.001%	0.003%	0.004%	0.004%	0.01%	900%*
Salamanca	0.002%	0.01%	0.01%	0.01%	0.01%	0.01%	400%*
Segovia	0.004%	0.01%	0.01%	0.01%	0.01%	0.01%	150.0%
Soria	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0%
Valladolid	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	200%
Zamora	0.001%	0.001%	0.002%	0.003%	0.003%	0.01%	900%*
Castile & Leon	0.003%	0.004%	0.005%	0.008%	0.009%	0.015%	400%#
Albacete	0.001%	0.001%	0.002%	0.001%	0.002%	0.01%	900%*
Ciudad Real	0.002%	0.002%	0.003%	0.004%	0.01%	0.01%	400%*
Cuenca	0.003%	0.003%	0.003%	0.003%	0.01%	0.01%	233.3%
Guadalajara	0.003%	0.004%	0.004%	0.01%	0.01%	0.01%	233.3%
Toledo	0.003%	0.004%	0.004%	0.01%	0.01%	0.02%	566.7%*
Castile-La Mancha	0.002%	0.003%	0.003%	0.004%	0.006%	0.011%	450%#
Barcelona	0.06%	0.07%	0.08%	0.09%	0.09%	0.10%	66.7%
Girona	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	200%
Lleida	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	200%
Tarragona	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	200%
Catalonia	0.049%	0.052%	0.060%	0.066%	0.070%	0.082%	67.3%
Ceuta	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Community of Madrid	0.01%	0.02%	0.02%	0.02%	0.03%	0.05%	400.0%*,#
Alicante	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	100%
Castellon	0.02%	0.02%	0.02%	0.02%	0.03%	0.03%	50%
Valencia	0.05%	0.06%	0.06%	0.07%	0.08%	0.1%	100%
Community of Valencia	0.032%	0.035%	0.039%	0.043%	0.047%	0.064%	100%
Badajoz	0.001%	0.001%	0.001%	0.003%	0.004%	0.01%	900%*
Caceres	0.001%	0.002%	0.002%	0.003%	0.004%	0.01%	900%*
Extremadura	0.001%	0.002%	0.002%	0.003%	0.004%	0.009%	800%#
A Coruña	0.002%	0.003%	0.004%	0.01%	0.01%	0.01%	400%*
Lugo	0.002%	0.003%	0.004%	0.01%	0.01%	0.01%	400%*
Orense	0.002%	0.003%	0.004%	0.01%	0.01%	0.01%	400%*
Pontevedra	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	100%
Galicia	0.004%	0.004%	0.005%	0.006%	0.010%	0.012%	200%
Balearic Islands	0.02%	0.02%	0.02%	0.02%	0.03%	0.04%	100%
Las Palmas	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	200%
Santa Cruz de Tenerife	0.004%	0.01%	0.01%	0.01%	0.01%	0.01%	150%
Canary Islands	0.008%	0.010%	0.012%	0.013%	0.015%	0.019%	137.5%
La Rioja	0.02%	0.03%	0.03%	0.04%	0.04%	0.04%	100%
Melilla	0.004%	0.004%	0.004%	0.01%	0.01%	0.01%	150%
Navarre	0.03%	0.04%	0.04%	0.04%	0.04%	0.05%	66.7%
Alava	0.01%	0.01%	0.01%	0.01%	0.02%	0.03%	200%
Guipuzcoa	0.01%	0.01%	0.01%	0.02%	0.02%	0.03%	200%
Biscay	0.01%	0.01%	0.02%	0.02%	0.02%	0.03%	200%
Basque Country	0.010%	0.012%	0.015%	0.017%	0.022%	0.030%	200%
Principality of Asturias	0.003%	0.004%	0.01%	0.01%	0.01%	0.01%	233.3%
Region of Murcia	0.002%	0.003%	0.01%	0.01%	0.02%	0.05%	2400%*,#

\* Above average by province.

# Above average by REGIONS.

**Table 6**

Total EVs per 10,000 inhabitants (2007–2012).

Source: National Traffic Department and National Institute of Statistics.

	2007	2008	2009	2010	2011	2012	Variation Rate
Almeria	0.11	0.18	0.18	0.24	0.30	0.51	372.2%
Cadiz	0.18	0.20	0.22	0.30	0.34	0.80	336.3%
Cordoba	0.30	0.35	0.41	0.45	0.52	1.02	236.4%
Granada	0.18	0.31	0.44	0.59	0.79	1.07	492.7%
Huelva	0.14	0.10	0.18	0.27	0.31	0.44	212.7%
Jaen	0.23	0.25	0.30	0.33	0.40	2.75	1116.6%
Malaga	0.23	0.29	0.41	0.47	0.60	0.95	312.2%
Seville	0.20	0.25	0.29	0.45	0.73	1.88	840.8%
Andalusia	0.20	0.25	0.32	0.41	0.54	1.24	510.9%
Huesca	0.27	0.36	0.35	0.53	0.61	1.36	399.6%
Teruel	0.28	0.27	0.34	0.41	0.41	0.77	175.6%
Saragossa*	1.51	2.16	2.27	2.39	2.64	3.21	112.3%
Aragon	1.16	1.64	1.73	1.86	2.06	2.64	126.5%
Cantabria	0.35	0.48	0.78	1.18	1.58	2.05	488.4%
Avila	0.00	0.06	0.06	0.06	0.12	0.70	no data
Burgos	0.30	0.40	0.45	0.67	0.64	1.15	281.5%
Leon	0.14	0.16	0.22	0.38	0.50	0.91	546.7%
Palencia	0.06	0.06	0.23	0.29	0.29	0.88	1422.6%
Salamanca	0.14	0.28	0.37	0.51	0.71	0.97	581.5%
Segovia	0.31	0.37	0.49	0.49	0.61	0.79	153%
Soria	0.00	0.00	0.00	0.42	0.53	0.95	no data
Valladolid	0.50	0.55	0.64	0.84	1.01	1.65	230.5%
Zamora	0.05	0.05	0.10	0.21	0.21	0.47	826.4%
Castile&Leon	0.22	0.28	0.35	0.50	0.60	1.05	375.3%
Albacete	0.05	0.08	0.10	0.10	0.12	0.37	630%
Ciudad Real	0.12	0.15	0.21	0.25	0.32	0.45	284.8%
Cuenca	0.19	0.19	0.23	0.23	0.50	0.55	190.8%
Guadalajara	0.22	0.25	0.24	0.40	0.43	0.66	193.5%
Toledo	0.22	0.25	0.29	0.32	0.59	1.31	497.4%
Castile-La Mancha	0.16	0.19	0.22	0.26	0.41	0.76	384%
Barcelona*	4.21	4.49	5.08	5.54	5.76	6.60	56.7%
Girona	1.09	1.05	1.23	1.43	1.74	2.61	139.6%
Lleida	0.82	0.82	1.10	1.23	1.58	2.19	166.6%
Tarragona	0.53	0.68	0.83	1.32	1.60	2.08	293.2%
Catalonia*	3.32	3.53	4.01	4.42	4.67	5.45	64.1%
Ceuta	0.00	0.00	0.00	0.00	0.00	0.00	no data
Community of Madrid*	0.77	1.06	1.14	1.43	1.90	3.08	297.2%
Alicante	0.42	0.57	0.70	0.87	1.06	1.44	241.4%
Castellon	1.08	1.34	1.33	1.57	1.80	1.82	68.2%
Valencia*	3.66	3.96	4.17	4.51	4.87	6.71	83.6%
Community of Valencia*	2.15	2.37	2.53	2.79	3.07	4.14	92.8%
Badajoz	0.04	0.07	0.07	0.20	0.30	0.65	1365.3%
Caceres	0.10	0.15	0.17	0.24	0.29	0.51	422.4%
Extremadura	0.06	0.10	0.11	0.22	0.30	0.60	827.4%
A Coruña	0.13	0.19	0.26	0.30	0.41	0.53	302.7%
Lugo	0.11	0.23	0.28	0.42	0.43	0.60	434.4%
Orense	0.15	0.21	0.27	0.54	0.69	1.09	634.5%
Pontevedra	0.41	0.43	0.48	0.54	1.05	1.25	204.2%
Galicia	0.23	0.28	0.34	0.43	0.67	0.86	276.6%
Balearic Islands	1.60	1.69	1.73	1.98	2.20	3.25	103.1%
Las Palmas	0.82	0.96	1.13	1.16	1.38	1.76	116.1%
Santa Cruz de Tenerife	0.28	0.39	0.55	0.57	0.69	0.94	231.5%
Canary Islands	0.56	0.68	0.85	0.88	1.04	1.37	145.4%
La Rioja	1.26	1.61	1.77	2.14	2.26	2.50	98.3%
Melilla	0.06	0.06	0.06	0.12	0.12	0.25	281.9%
Navarre*	1.85	2.42	2.65	2.78	2.80	3.16	71.2%
Alava	0.33	0.48	0.57	0.69	1.38	1.61	392.4%
Guipuzcoa	0.58	0.66	0.78	1.02	1.40	2.08	261.1%
Biscay	0.70	0.78	1.02	1.12	1.24	1.69	141.4%
Basque Country	0.61	0.70	0.87	1.02	1.31	1.81	197.5%
Principality of Asturias	0.20	0.27	0.46	0.51	0.62	0.72	253.7%
Region of Murcia*	0.11	0.23	0.36	0.78	1.31	3.39	2850.5%

\* Above 3 Total EVs per 10,000 inhabitants by 2012.



in the five-year period studied; there are more than twenty provinces (44%) in 2012 with a ration of > 1 EV per 10,000 inhabitants. Provinces with more than two and three electric vehicles per 10,000 inhabitants decreased respectively to 12 (23%) and 6 (11.5%) for the same year. Valencia (6.71) and Barcelona (6.60) surpassed the ratio of six EVs per 10,000 inhabitants for the last year of the study. Madrid—the capital of Spain—registers half of all EVs per 10,000 inhabitants, compared to the two aforementioned cities.

#### 4. Discussion and concluding remarks

By the end of 2012, there were 12,425 EVs on the highways of Spain. This is a 148.3% increase when compared to 2007. The total number of EVs includes four different categories: electric trucks and vans, electric bus, electric cars, electric motorcycles and other EVs. The data shows a very high concentration in the use of EVs in three provinces only—Barcelona, Valencia and Madrid. This result is foreseeable, as it coincided with major population concentrations.

The development of certain EVs for public services, such as public clean-up, is being promoted by initiatives such as the CLIMA Project by the Ministry of Agriculture, Food and the Environment, which in turn is backed by the European Union's LIFE Program (European Parliament and of the Council, 2014). This conclusion is coherent with the results of other researchers (González-Limón et al., 2013).

Nonetheless, in 2012, the average percentage of EVs of all vehicles on the highway was about 0.02% in Spain. This is far cry from the 10% mark established by some European countries for 2020: for example, Ireland (Brady and O'Mahony, 2011).

The total number of electric automobiles registered in 2012 (12,425) surpassed the objective of the 2010–2012 Action Plan for the higher Comprehensive Plan to push EVs in Spain for the 2010–2014 period. The aim of which is to introduce 2000 EVs into the Spanish automobile fleet. However, the promotional efforts and the incentives will have to be intensified if Spain wants to significantly contribute to the European objective of having 8–9 million Electrical Vehicle on the road by 2020 (European Commission, 2011).

Between 2012 and 2014, EVs enjoyed a greater growth rate (40%); well above the statistics registered for the two previous years (15%). This important growth rate is due to the measures that promote the use of EVs, as established in Royal Decree 648/2011.

Once the statistics for 2013 are accessible, the impact of the promotional measure of Royal Decree 294/2013 can be evaluated. This measure is a subsidy for EVs purchased prior to the end of October 2013.

Spain will have to make great efforts to promote EVs, so that these vehicles contribute significantly to achieve the objective of 10% market share of renewables in transport fuels (Directive 2001/77/EC, 2009/28/EC and 2003/30/EC12, see European Parliament and of the Council, 2001, 2009a, 2003).

On the other hand, the technological developments to provide EVs with greater kilometer coverage without recharging will be an important incentive for possible users of these vehicles. In this regard, the work of private Spanish firms in the electric sector is important. A number of companies have backed this technology and have participated in various European R + D + i standardization projects such as Green eMotion, 2014] or Euroelectric/Grupo Berlin, 2014.

At EU level, the Commission will work to present proposals to modernize and decarbonize the transportation sector, thereby contributing to increased competitiveness. This can be done through a mix of measures; for example, infrastructure measures such as early deployment of grid infrastructures for electrical mobility, intelligent traffic management, better logistics, pursuing the reduction of CO<sub>2</sub> emissions for road vehicles. The same holds true for the aviation and maritime sectors including the launch of a major European “green” car initiative to help promote new technologies including electric and hybrid cars through a mix of research, setting common standards and developing the necessary infrastructure support (European Commission, 2011).

Major growth in the number of EVs registered in 2012 over 2011—established in 40%—could be explained by the effects of the promotional policy to purchase EVs, as indicated in Royal Decree 648/2011. This decree established that to take advantage of the subsidy, an EV had to be registered before the May eleventh deadline in 2012.

Once all of the data for EVs registered in 2013 has been published, the effects of Royal Decree 294/2013 will have to be analyzed. This Royal Decree grants a subsidy to purchase EVs, which in turn must be registered before the end of October 2013.

The support measures to EVs adopted by local or national governments of countries in different continents such as: USA, China, France, Germany, UK, Norway or Spain contribute to the use of this type of vehicle and also to raise social awareness for a global change of mobility model in big cities. In fact, Bjerkan et al., 2016 showed relationship between incentives measures and kind of transport systems.

In summary, electricity is a clean fuel that is particularly attractive for deployment of EVs and electric two-wheelers in urban agglomerations which can contribute to improving air quality and reducing noise. Member States should ensure that recharging points for EVs are built with sufficient coverage, at least twice the number of vehicles, and 10% of them publicly accessible, focusing specifically on urban agglomerations. Private EV owners depend, to large extent, on access to recharging points in collective parking lots, such as in apartment blocks, offices and business locations. Regulatory provisions should be set up by public authorities, assisting citizens by ensuring that the appropriate infrastructure with sufficient EVs recharging points is provided by site developers and managers (Al-Alawi and Bradley, 2013). Any case, literature shows high misunderstanding by citizens on political measures in force

to promote electro mobility. Krause et al. (2013) founded that potential purchasers have a limited knowledge of relevant political measures in promoting electro mobility and this is a lack that reveals communication errors. These types of problems make educational programs a useful to in EVs promotion; for example, the majority of potential purchaser has incorrect knowledge of the basic cost and operating features of EVs. This degree of misperception is decreased with educational level. All else equal, potential purchasers with higher education express a higher stated intent to purchase.

EVs could contribute to the stability of the electricity system by recharging their batteries from the grid at times of low general electricity demand and feeding power from the batteries back into the grid at times of high general electricity demand (Nunes et al., 2015). Therefore, recharging points should incorporate intelligent metering systems, and the price for electricity at a recharging point should be market based, so that flexible consumption (and storage) of electricity is promoted through dynamic fees. With regards to accessing point to recharge EVs which are not publicly accessible, Member States must ensure consistency and maximize synergies with intelligent meter roll-out plans following the obligation under Annex I.2 of Directive 2009/72/EC concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC. Public access to recharging points is currently not part of the regulated activities of a distribution system operator as defined in Chapter VI of Directive 2009/72/EC (European Parliament and of the Council, 2009d).

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## Appendix A

See Table A1

**Table A1**  
Summary of main EU framework for EV's

2001	Communication from the Commission A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development (Commission's proposal to the Gothenburg European Council)
2002	Decision N° 1600/2002/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 July 2002, laying down the Sixth Community Environment Action Programme
2006	Keep Europe moving - Sustainable mobility for our continent. Mid-term review of the 2001 White Paper
2006	Communication from the Commission of 19 October 2006 entitled: Action Plan for Energy Efficiency: Realising the Potential
2007	Communication from the Commission to the European Council and the European Parliament of 10 January 2007, "An energy policy for Europe"
2007	Commission Green Paper dated 25.9.2007 "Towards a new culture for urban mobility"
2009	Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC
2009	Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO <sub>2</sub> emissions from light-duty vehicles
2009	Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Action Plan on Urban Mobility
2010	Communication from the Commission of 3 March 2010 - Europe 2020 A strategy for smart, sustainable and inclusive growth
2010	Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee of 28 April 2010 - A European strategy on clean and energy efficient vehicles

## Appendix B

See Tables B1–B10.

**Table B1**

Registrations of electric trucks and vans in absolute terms in the period 2007–2012.

Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation Rate
Almeria	0	1	1	1	1	0	–100%
Cadiz	1	1	1	1	0	1	0%
Cordoba	0	0	0	0	0	1	
Granada	1	1	1	2	2	2	100%
Huelva	0	0	0	0	0	1	
Jaen	1	1	1	1	1	2	100%
Malaga	1	1	1	2	4	3	200%
Seville	2	3	3	3	4	10	400%*
Andalusia	6	8	8	10	12	20	233.3%
Huesca	1	1	1	1	1	5	400%*
Teruel	0	0	0	0	0	1	
Saragossa	4	23	23	25	26	23	475%*
Aragon	5	24	24	26	27	29	480%#
Cantabria	1	1	1	1	2	4	300%
Avila	0	0	0	0	0	1	
Burgos	0	0	2	2	2	3	50%
Leon	0	0	0	0	0	0	
Palencia	0	0	0	0	0	2	
Salamanca	3	3	2	2	2	7	133.3%
Segovia	1	1	1	1	1	1	0%
Soria	0	0	0	3	3	4	33.3%
Valladolid	0	0	0	0	0	10	
Zamora	0	0	0	0	0	0	
Castile & Leon	4	4	5	8	8	28	600%#
Albacete	0	0	0	0	0	0	
Ciudad Real	0	0	0	0	0	1	
Cuenca	0	0	1	1	1	1	0%
Guadalajara	0	0	0	0	1	1	0%
Toledo	1	1	1	0	0	2	100%
Castile-La Mancha	1	1	2	1	2	5	400%#
Barcelona	77	82	290	364	396	447	480.5%*
Girona	1	1	2	3	3	23	2200%*
Lleida	2	2	2	2	2	2	0%
Tarragona	2	3	2	26	26	29	1350%*
Catalonia	82	88	296	395	427	501	510.9%
Ceuta	0	0	0	0	0	0	
Community of Madrid	25	41	64	104	138	189	656%*,#
Alicante	7	7	8	11	13	17	142.9%
Castellon	1	1	1	1	3	3	200%
Valencia	5	5	6	7	8	12	140%
Community of Valencia	13	13	15	19	24	32	146.1%
Badajoz	0	0	0	0	0	1	
Caceres	0	0	0	0	1	4	300%
Extremadura	0	0	0	0	1	5	400%
A Coruña	0	0	0	0	1	2	100%
Lugo	0	0	0	1	1	2	100%
Orense	0	0	0	4	4	5	25%
Pontevedra	2	2	2	2	3	5	150%
Galicia	2	2	2	7	9	14	600%#
Balearic Islands	0	0	1	3	4	9	800%*,#
Las Palmas	2	2	2	2	4	10	400%*
Santa Cruz de Tenerife	1	1	1	1	3	3	200%
Canary Islands	3	3	3	3	7	13	333.3%
La Rioja	0	1	1	1	2	7	600%*,#
Melilla	0	0	0	0	0	0	
Navarre	1	1	3	3	6	6	500%*
Alava	1	1	1	1	1	1	0%
Guipuzcoa	1	1	1	1	8	12	1100%*
Biscay	6	8	9	11	13	26	333.3%
Basque Country	8	10	11	13	22	39	387.5%
Principality of Asturias	1	1	2	3	4	6	500%*
Region of Murcia	1	2	2	5	17	21	2000%*,#
Total	153	200	440	602	712	928	506.5%

\* Above average by province.

# Above average by REGIONS.

**Table B2**

Registrations of electric buses in absolute terms in the period 2007–2012.

Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation rate
Almeria	0	0	0	0	0	0	
Cadiz	0	0	0	0	0	0	
Cordoba	0	0	0	0	0	3	
Granada	0	0	0	0	0	0	
Huelva	0	0	0	0	0	0	
Jaen	0	0	0	0	0	0	
Malaga	0	0	1	1	1	1	0%
Seville	2	2	4	4	4	4	100%*
Andalusia	2	2	5	5	5	8	300%#
Huesca	0	0	0	0	0	0	
Teruel	0	0	0	0	0	0	
Saragossa	0	3	3	3	3	3	0%
Aragon	0	3	3	3	3	3	0%
Cantabria	0	0	0	0	0	0	
Avila	0	0	0	0	0	0	
Burgos	0	0	0	0	0	0	
Leon	1	1	1	1	1	1	0%
Palencia	0	0	0	0	0	0	
Salamanca	0	0	0	0	0	0	
Segovia	1	1	1	1	1	1	0%
Soria	0	0	0	0	0	0	
Valladolid	0	0	0	0	0	0	
Zamora	0	0	0	0	0	0	
Castile & Leon	2	2	2	2	2	2	0%
Albacete	0	0	0	0	0	0	
Ciudad Real	0	0	0	0	0	0	
Cuenca	0	0	0	0	0	0	
Guadalajara	0	0	0	0	0	0	
Toledo	0	0	0	0	0	0	
Castile-La Mancha	0	0	0	0	0	0	
Barcelona	3	3	3	8	16	16	433.3%
Girona	0	0	1	1	1	1	0%
Lleida	0	0	0	0	0	0	
Tarragona	0	0	0	0	0	0	
Catalonia	3	3	4	9	17	17	466.7%#
Ceuta	0	0	0	0	0	0	
Community of Madrid	12	23	23	26	26	50	316.7%*,#
Alicante	0	0	0	0	0	0	
Castellon	1	4	4	4	4	4	300%*
Valencia	5	5	2	0	0	0	-100%
Community of Valencia	6	9	6	4	4	4	-33.3%
Badajoz	0	0	0	0	0	0	
Caceres	0	0	0	0	0	0	
Extremadura	0	0	0	0	0	0	
A Coruña	0	1	1	1	1	1	0%
Lugo	0	0	0	0	0	0	
Orense	0	0	0	0	0	0	
Pontevedra	0	0	0	0	1	1	0%
Galicia	0	1	1	1	2	2	100%#
Balearic Islands	0	0	0	0	0	0	
Las Palmas	0	0	0	0	0	0	
Santa Cruz de Tenerife	0	0	0	0	1	1	0%
Canary Islands	0	0	0	0	1	1	0%
La Rioja	0	0	0	0	0	0	
Melilla	0	0	0	0	0	0	
Navarre	0	0	0	0	1	1	0%
Alava	0	0	0	0	0	0	
Guipuzcoa	0	0	0	0	0	0	
Biscay	1	1	1	1	3	3	200%#
Basque Country	1	1	1	1	3	3	200%#
Principality of Asturias	0	0	0	0	0	0	
Region of Murcia	0	0	0	0	0	0	

\* Above average by province.

# Above average by regions.

**Table B3**

Registrations of electric cars in absolute terms in the period 2007–2012.

Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation Rate
Almeria	0	0	0	0	0	0	
Cadiz	1	1	1	1	1	33	3200%*
Cordoba	1	1	1	1	1	33	3200%*
Granada	1	1	1	2	4	5	400%
Huelva	0	0	0	0	1	3	200%
Jaen	1	1	1	1	1	3	200%
Malaga	4	4	4	4	7	15	275%
Seville	0	0	0	3	30	221	7266.7%*
Andalusia	8	8	8	12	45	313	3812.5%#
Huesca	1	1	1	1	2	6	500%
Teruel	0	0	0	0	0	1	
Saragossa	0	0	0	1	4	12	1100%
Aragon	1	1	1	2	6	19	1800.0%#
Cantabria	1	1	1	4	6	6	500%
Avila	0	0	0	0	1	1	0%
Burgos	0	0	0	0	0	3	
Leon	2	2	2	2	3	3	50%
Palencia	0	0	0	0	0	2	
Salamanca	0	0	0	0	0	2	
Segovia	0	0	0	0	0	0	
Soria	0	0	0	0	0	2	
Valladolid	1	1	1	1	4	6	500%
Zamora	1	1	1	1	1	1	0%
Castile & Leon	4	4	4	4	9	20	400%
Albacete	0	0	0	0	0	1	
Ciudad Real	0	0	0	0	0	1	
Cuenca	0	0	0	0	0	0	
Guadalajara	0	0	0	0	0	1	
Toledo	0	0	0	0	15	50	233.3%
Castile-La Mancha	0	0	0	0	15	53	253.3%
Barcelona	10	9	18	51	107	222	2120%*
Girona	1	2	2	3	10	19	1800%*
Lleida	0	0	0	0	1	7	600%
Tarragona	1	1	1	1	1	8	700%
Catalonia	12	12	21	55	119	256	2033.3%#
Ceuta	0	0	0	0	0	0	
Community of Madrid	9	9	12	42	235	386	4188.9%*#
Alicante	1	1	1	0	3	11	1000%
Castellon	0	0	0	2	5	6	200%
Valencia	1	1	1	2	9	37	3600%*
Community of Valencia	2	2	2	4	17	54	2600%#
Badajoz	0	0	0	0	0	3	
Caceres	0	0	0	0	0	2	
Extremadura	0	0	0	0	0	5	
A Coruña	0	0	0	0	5	7	40%
Lugo	0	0	0	0	0	0	
Orense	0	0	0	0	0	4	
Pontevedra	1	1	1	1	33	35	3400%*
Galicia	1	1	1	1	38	46	4500%#
Balearic Islands	5	5	5	6	12	17	240%
Las Palmas	3	3	3	4	6	15	400%
Santa Cruz de Tenerife	2	2	2	2	2	8	300%
Canary Islands	5	5	5	6	8	23	360%
La Rioja	0	0	0	0	0	3	
Melilla	0	0	0	0	0	0	
Navarre	0	0	2	2	4	14	600%
Alava	0	0	0	2	20	25	1150%
Guipuzcoa	0	0	0	5	6	11	120%
Biscay	1	1	1	4	8	24	2300%*
Basque Country	1	1	1	11	34	60	5900%#
Principality of Asturias	2	2	2	3	6	9	350%
Region of Murcia	0	0	0	0	0	4	

\* Above average by province.

# Above average by REGIONS.

**Table B4**

Registrations of electric motorcycles in absolute terms in the period 2007–2012.

Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation Rate
Almeria	0	2	3	6	10	23	1050%
Cadiz	1	2	4	14	19	41	4000%*
Cordoba	6	6	7	9	14	18	200%
Granada	3	7	18	30	45	69	2200%*
Huelva	0	0	1	1	2	6	500%
Jaen	2	2	2	3	5	160	7900%*
Malaga	4	6	15	18	30	70	1650%*
Seville	9	11	14	39	60	79	777.8%
Andalusia	25	36	64	120	185	466	1764%
Huesca	1	1	1	3	4	11	1000%
Teruel	0	0	0	0	0	3	
Saragossa	0	7	10	16	33	48	585.7%
Aragon	1	8	11	19	37	62	6100%#
Cantabria	4	6	22	43	60	83	1975%*
Avila	0	0	0	0	0	9	
Burgos	0	0	0	5	5	16	220%
Leon	0	1	4	9	11	30	2900%*
Palencia	0	0	1	2	2	8	700%
Salamanca	0	0	0	1	6	8	700%
Segovia	0	1	2	2	3	6	500%
Soria	0	0	0	0	1	2	100%
Valladolid	2	3	6	9	12	33	1550%*
Zamora	0	0	0	2	2	7	250%
Castile & Leon	2	5	13	30	42	119	5850%#
Albacete	0	0	1	1	2	11	1000%
Ciudad Real	0	0	1	1	4	9	800%
Cuenca	2	2	2	2	8	9	350%
Guadalajara	0	2	2	6	6	10	400%
Toledo	5	6	7	10	12	25	400%
Castille-La Mancha	7	10	13	20	32	64	814.3%
Barcelona	42	69	132	250	305	548	1204.7%
Girona	2	4	14	22	39	74	3600%*
Lleida	0	0	3	6	11	32	966.7%
Tarragona	5	7	9	12	21	41	720%
Catalonia	49	80	158	290	376	695	1318.4%
Ceuta	0	0	0	0	0	0	
Community of Madrid	31	101	91	173	253	769	2380.6%*,#
Alicante	6	11	27	52	82	137	2183.3%*
Castellon	3	6	7	10	15	21	600%
Valencia	14	18	31	66	92	158	1028.6%
Community of Valencia	23	35	65	128	189	316	1273.9%*
Badajoz	2	2	2	11	15	35	1650%*
Caceres	2	2	2	4	5	9	350%
Extremadura	4	4	4	15	20	44	1000%
A Coruña	3	4	8	12	19	30	900%
Lugo	2	2	2	3	3	5	150%
Orense	0	1	1	1	5	12	1100%
Pontevedra	2	2	3	8	22	40	1900%*
Galicia	7	9	14	24	49	87	1142.8%
Balearic Islands	145	149	152	177	192	297	104.8%
Las Palmas	1	1	3	5	18	40	3900%*
Santa Cruz de Tenerife	2	2	14	15	22	37	1750%*
Canary Islands	3	3	17	20	40	77	2466.7%#
La Rioja	0	1	4	5	5	11	1000%
Melilla	0	0	0	0	0	0	
Navarre	0	0	3	9	8	19	533.3%
Alava	0	1	2	4	8	10	900%
Guipuzcoa	0	0	4	7	20	51	1175%
Biscay	2	5	11	16	20	44	2100%*
Basque Country	2	6	17	27	48	105	5150%#
Principality of Asturias	5	8	15	17	23	29	480%
Region of Murcia	0	4	17	74	134	431	10675.0%*,#

\* Above average by province.

# Above average by region.

**Table B5**

Registrations of other EVs in absolute terms in the period 2007–2012.

Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation Rate
Almeria	7	9	8	10	10	13	85.7%
Cadiz	19	20	21	21	22	24	26.3%
Cordoba	17	21	25	26	27	27	58.8%
Granada	11	19	20	20	22	23	109.1%
Huelva	7	5	8	13	13	13	85.7%
Jaen	11	13	16	17	20	19	72.7%
Malaga	26	35	44	50	55	67	157.7%*
Seville	24	30	35	38	43	51	112.5%
Andalusia	122	152	177	195	212	237	94.6%
Huesca	3	5	5	7	7	9	200%*
Teruel	4	4	5	6	6	6	50%
Saragossa	137	173	184	188	191	228	66.4%
Aragon	144	182	194	201	204	243	68.7%
Cantabria	14	20	22	22	26	29	107.2%
Avila	0	1	1	1	1	1	0%
Burgos	11	15	15	18	18	21	90.9%
Leon	4	4	4	7	10	11	175%*
Palencia	1	1	3	3	3	3	200%*
Salamanca	2	7	11	15	17	17	750%*
Segovia	3	3	4	4	5	5	66.7%
Soria	0	0	0	1	1	1	0%
Valladolid	23	25	27	35	36	37	60.8%
Zamora	0	0	1	1	1	1	0%
Castile & Leon	44	56	66	85	92	97	120.5%#
Albacete	2	3	3	3	3	3	50%
Ciudad Real	6	8	10	12	13	13	116.7%
Cuenca	2	2	2	2	2	2	0%
Guadalajara	5	4	4	4	4	5	0%
Toledo	8	10	12	12	15	16	100%
Castile-La Mancha	23	27	31	33	37	39	69.7%
Barcelona	2113	2268	2347	2381	2363	2430	15%
Girona	73	70	73	79	79	82	12.3%
Lleida	32	33	43	46	56	56	75%
Tarragona	32	43	55	68	82	91	184.4%*
Catalonia	2250	2414	2518	2574	2580	2659	18.2%
Ceuta	0	0	0	0	0	0	0%
Community of Madrid	394	493	538	576	584	605	53.5%
Alicante	63	88	98	105	107	115	82.5%
Castellon	57	69	68	78	82	76	33.3%
Valencia	884	977	1035	1088	1148	1525	72.5%
Community of Valencia	1004	1134	1201	1271	1337	1716	70.9%
Badajoz	1	3	3	3	6	6	500%*
Caceres	2	4	5	6	6	6	200%
Extremadura	3	7	8	9	12	12	300%#
A Coruña	12	17	21	21	21	21	75%
Lugo	2	6	8	11	11	14	600%*
Orense	5	6	8	13	14	15	200%*
Pontevedra	34	36	40	41	42	39	14.7%
Galicia	53	65	77	86	88	89	67.9%
Balearic Islands	15	27	31	33	37	41	173.3%*#
Las Palmas	79	97	114	116	123	129	63.3%
Santa Cruz de Tenerife	23	34	39	41	43	47	104.3%
Canary Islands	102	131	153	157	166	176	72.5%
La Rioja	39	49	52	63	66	60	53.8%
Melilla	2	2	2	4	4	8	300%*
Navarre	111	149	159	163	161	164	47.7%
Alava	9	13	15	15	15	16	77.8%
Guipuzcoa	39	45	50	59	65	74	89.7%
Biscay	70	74	95	97	99	99	41.4%
Basque Country	118	132	160	171	179	189	60.2%
Principality of Asturias	14	18	31	32	34	34	1,429.8%*#
Region of Murcia	15	27	33	35	41	44	193.3%*#

\* Above average by province.

# Above average by region.

**Table B6**  
 Registrations of electric trucks and vans in relative terms in the period 2007–2012.  
 Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation Rate
Almeria	0.000%	0.001%	0.001%	0.001%	0.001%	0.000%	– 100.0%
Cadiz	0.001%	0.001%	0.001%	0.001%	0.000%	0.001%	0.0%
Cordoba	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Granada	0.001%	0.001%	0.001%	0.002%	0.002%	0.002%	100.0%
Huelva	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%	
Jaen	0.001%	0.001%	0.001%	0.001%	0.001%	0.002%	100.0%
Malaga	0.001%	0.001%	0.001%	0.001%	0.002%	0.002%	100.0%
Seville	0.001%	0.002%	0.002%	0.002%	0.003%	0.007%	600.0%*
Andalusia	0.001%	0.001%	0.001%	0.001%	0.001%	0.002%	100.0%
Huesca	0.003%	0.003%	0.003%	0.003%	0.003%	0.013%	333.3%
Teruel	0.000%	0.000%	0.000%	0.000%	0.000%	0.004%	
Saragossa	0.004%	0.025%	0.025%	0.027%	0.029%	0.026%	550.0%*
Aragon	0.003%	0.014%	0.014%	0.016%	0.016%	0.019%	533.3%
Cantabria	0.002%	0.002%	0.002%	0.002%	0.003%	0.007%	250.0%
Avila	0.000%	0.000%	0.000%	0.000%	0.000%	0.004%	
Burgos	0.000%	0.000%	0.005%	0.005%	0.005%	0.008%	60.0%
Leon	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Palencia	0.000%	0.000%	0.000%	0.000%	0.000%	0.011%	
Salamanca	0.008%	0.008%	0.005%	0.005%	0.006%	0.020%	150.0%
Segovia	0.005%	0.005%	0.005%	0.004%	0.004%	0.005%	0.0%
Soria	0.000%	0.000%	0.000%	0.020%	0.021%	0.028%	40.0%
Valladolid	0.000%	0.000%	0.000%	0.000%	0.000%	0.024%	
Zamora	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Castile & Leon	0.001%	0.001%	0.002%	0.003%	0.003%	0.010%	900.0%
Albacete	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Ciudad Real	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Cuenca	0.000%	0.000%	0.003%	0.003%	0.003%	0.003%	0.0%
Guadalajara	0.000%	0.000%	0.000%	0.000%	0.003%	0.003%	0.0%
Toledo	0.001%	0.001%	0.001%	0.000%	0.000%	0.002%	100.0%
Castile-La Mancha	0.000%	0.000%	0.001%	0.000%	0.001%	0.002%	100.0%
Barcelona	0.014%	0.015%	0.055%	0.070%	0.077%	0.089%	535.7%*
Girona	0.001%	0.001%	0.002%	0.003%	0.003%	0.020%	1900.0%*
Lleida	0.003%	0.003%	0.003%	0.003%	0.003%	0.003%	0.0%
Tarragona	0.002%	0.003%	0.002%	0.025%	0.025%	0.028%	1300.0%*
Catalonia	0.010%	0.011%	0.036%	0.049%	0.054%	0.064%	540.0%
Ceuta	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Community of Madrid	0.004%	0.006%	0.010%	0.017%	0.022%	0.032%	700.0%*
Alicante	0.004%	0.003%	0.004%	0.006%	0.007%	0.009%	125.0%
Castellon	0.001%	0.001%	0.001%	0.001%	0.004%	0.004%	300.0%
Valencia	0.002%	0.002%	0.002%	0.003%	0.003%	0.005%	150.0%
Community of Valencia	0.002%	0.002%	0.003%	0.004%	0.005%	0.006%	200.0%
Badajoz	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Caceres	0.000%	0.000%	0.000%	0.000%	0.002%	0.006%	200.0%
Extremadura	0.000%	0.000%	0.000%	0.000%	0.001%	0.004%	300.0%
A Coruña	0.000%	0.000%	0.000%	0.000%	0.001%	0.002%	100.0%
Lugo	0.000%	0.000%	0.000%	0.002%	0.002%	0.005%	150.0%
Orense	0.000%	0.000%	0.000%	0.010%	0.010%	0.013%	30.0%
Pontevedra	0.002%	0.002%	0.002%	0.002%	0.004%	0.006%	200.0%
Galicia	0.001%	0.001%	0.100%	0.003%	0.004%	0.006%	500.0%
Balearic Islands	0.000%	0.000%	0.001%	0.002%	0.003%	0.007%	600.0%*
Las Palmas	0.001%	0.001%	0.001%	0.001%	0.002%	0.006%	500.0%*
Santa Cruz de Tenerife	0.001%	0.001%	0.001%	0.001%	0.002%	0.002%	100.0%
Canary Islands	0.001%	0.001%	0.001%	0.001%	0.002%	0.004%	300.0%
La Rioja	0.000%	0.002%	0.002%	0.002%	0.005%	0.017%	750.0%*
Melilla	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Navarre	0.001%	0.001%	0.004%	0.004%	0.007%	0.007%	600.0%*
Alava	0.003%	0.003%	0.003%	0.003%	0.003%	0.003%	0.0%
Guipuzcoa	0.001%	0.001%	0.001%	0.001%	0.011%	0.017%	1600.0%*
Biscay	0.007%	0.009%	0.010%	0.012%	0.014%	0.029%	314.3%
Basque Country	0.004%	0.005%	0.006%	0.007%	0.011%	0.020%	400.0%
Principality of Asturias	0.001%	0.001%	0.002%	0.003%	0.004%	0.007%	600.0%*
Region of Murcia	0.001%	0.001%	0.001%	0.003%	0.011%	0.013%	1200.0%*

\* Above average by province.



Table B7

Registrations of electric bus in relative terms in the period 2007–2012.

Source: National Traffic Department.

		2008	2009	2010	2011	2012	Variation Rate
Almeria	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Cadiz	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Cordoba	0.000%	0.000%	0.000%	0.000%	0.000%	0.424%	
Granada	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Huelva	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Jaen	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Malaga	0.000%	0.000%	0.065%	0.064%	0.063%	0.061%	– 6.2%
Seville	0.096%	0.095%	0.190%	0.193%	0.196%	0.200%	108.3%*
Andalusia	0.023%	0.024%	0.059%	0.059%	0.059%	0.095%	313.0%#
Huesca	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Teruel	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Saragossa	0.000%	0.251%	0.259%	0.264%	0.268%	0.269%	7.2%
Aragon	0.000%	0.174%	0.178%	0.179%	0.182%	0.187%	7.5%
Cantabria	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Avila	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Burgos	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Leon	0.141%	0.130%	0.127%	0.140%	0.140%	0.143%	1.4%
Palencia	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Salamanca	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Segovia	0.370%	0.369%	0.366%	0.361%	0.361%	0.355%	– 4.1%
Soria	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Valladolid	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Zamora	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Castile & Leon	0.060%	0.059%	0.058%	0.059%	0.058%	0.060%	0.0%
Albacete	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Ciudad Real	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Cuenca	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Guadalajara	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Toledo	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Castile-La Mancha	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Barcelona	0.051%	0.049%	0.048%	0.131%	0.262%	0.268%	425.5%*
Girona	0.000%	0.000%	0.101%	0.099%	0.096%	0.095%	– 5.9%
Lleida	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Tarragona	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Catalonia	0.037%	0.035%	0.046%	0.105%	0.196%	0.199%	437.8%#
Ceuta	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Community of Madrid	0.109%	0.203%	0.201%	0.229%	0.239%	0.471%	332.1%*,#
Alicante	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Castellon	0.210%	0.802%	0.813%	0.815%	0.808%	0.833%	296.7%*
Valencia	0.194%	0.197%	0.080%	0.000%	0.000%	0.000%	– 100.0%
Community of Valencia	0.129%	0.194%	0.131%	0.087%	0.087%	0.090%	– 30.3%
Badajoz	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Caceres	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Extremadura	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
A Coruña	0.000%	0.054%	0.054%	0.055%	0.056%	0.057%	5.6%
Lugo	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Orense	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Pontevedra	0.000%	0.000%	0.000%	0.000%	0.076%	0.077%	1.3%
Galicia	0.000%	0.021%	0.021%	0.021%	0.041%	0.043%	104.7%#
Balearic Islands	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Las Palmas	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Santa Cruz de Tenerife	0.000%	0.000%	0.000%	0.000%	0.035%	0.036%	2.8%
Canary Islands	0.000%	0.000%	0.000%	0.000%	0.018%	0.019%	5.6%
La Rioja	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Melilla	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Navarre	0.000%	0.000%	0.000%	0.000%	0.107%	0.111%	3.7%
Alava	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Guipuzcoa	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Biscay	0.062%	0.062%	0.061%	0.060%	0.173%	0.173%	179.0%#
Basque Country	0.034%	0.034%	0.033%	0.033%	0.095%	0.095%	179.4%#
Principality of Asturias	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Region of Murcia	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	

\* Above average by province.

# Above average by REGIONS.

Table B8

Registrations of electric cars in relative terms in the period 2007–2012.

Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation Rate
Almeria	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Cadiz	0.000%	0.000%	0.000%	0.000%	0.000%	0.006%	
Cordoba	0.000%	0.000%	0.000%	0.000%	0.000%	0.009%	
Granada	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.0%
Huelva	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Jaen	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Malaga	0.001%	0.001%	0.001%	0.001%	0.001%	0.002%	100.0%
Seville	0.000%	0.000%	0.000%	0.000%	0.003%	0.025%	733.3%*
Andalusia	0.000%	0.000%	0.000%	0.000%	0.001%	0.008%	700.0%#
Huesca	0.001%	0.001%	0.001%	0.001%	0.002%	0.005%	400.0%
Teruel	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Saragossa	0.000%	0.000%	0.000%	0.000%	0.001%	0.003%	200.0%
Aragon	0.000%	0.000%	0.000%	0.000%	0.001%	0.003%	200.0%
Cantabria	0.000%	0.000%	0.000%	0.001%	0.002%	0.002%	100.0%
Avila	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.0%
Burgos	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%	
Leon	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%	0.0%
Palencia	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%	
Salamanca	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Segovia	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Soria	0.000%	0.000%	0.000%	0.000%	0.000%	0.004%	
Valladolid	0.000%	0.000%	0.000%	0.000%	0.002%	0.002%	0.0%
Zamora	0.001%	0.001%	0.001%	0.001%	0.001%	0.001%	0.0%
Castile & Leon	0.000%	0.000%	0.000%	0.000%	0.001%	0.002%	100.0%
Albacete	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Ciudad Real	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Cuenca	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Guadalajara	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Toledo	0.000%	0.000%	0.000%	0.000%	0.004%	0.014%	250.0%
Castile-La Mancha	0.000%	0.000%	0.000%	0.000%	0.002%	0.005%	150.0%
Barcelona	0.000%	0.000%	0.001%	0.002%	0.004%	0.009%	800.0%*
Girona	0.000%	0.001%	0.001%	0.001%	0.003%	0.005%	400.0%
Lleida	0.000%	0.000%	0.000%	0.000%	0.000%	0.003%	
Tarragona	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%	
Catalonia	0.000%	0.000%	0.001%	0.002%	0.004%	0.008%	700.0%#
Ceuta	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Community of Madrid	0.000%	0.000%	0.000%	0.001%	0.007%	0.012%	1100.0%*,#
Alicante	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Castellon	0.000%	0.000%	0.000%	0.001%	0.002%	0.002%	100.0%
Valencia	0.000%	0.000%	0.000%	0.000%	0.001%	0.003%	200.0%
Community of Valencia	0.000%	0.000%	0.000%	0.000%	0.001%	0.002%	100.0%
Badajoz	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Caceres	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
Extremadura	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	
A Coruña	0.000%	0.000%	0.000%	0.000%	0.001%	0.001%	0.0%
Lugo	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Orense	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%	
Pontevedra	0.000%	0.000%	0.000%	0.000%	0.007%	0.007%	0.0%
Galicia	0.000%	0.000%	0.000%	0.000%	0.003%	0.003%	0.0%
Balearic Islands	0.001%	0.001%	0.001%	0.001%	0.002%	0.003%	200.0%
Las Palmas	0.001%	0.001%	0.001%	0.001%	0.001%	0.003%	200.0%
Santa Cruz de Tenerife	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%	
Canary Islands	0.001%	0.001%	0.001%	0.001%	0.001%	0.002%	100.0%
La Rioja	0.000%	0.000%	0.000%	0.000%	0.000%	0.002%	
Melilla	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Navarre	0.000%	0.000%	0.001%	0.001%	0.001%	0.005%	400.0%#
Alava	0.000%	0.000%	0.000%	0.001%	0.013%	0.017%	1600.0%*
Guipuzcoa	0.000%	0.000%	0.000%	0.002%	0.002%	0.004%	100.0%
Biscay	0.000%	0.000%	0.000%	0.001%	0.002%	0.005%	400.0%
Basque Country	0.000%	0.000%	0.000%	0.001%	0.004%	0.006%	500.0%#
Principality of Asturias	0.000%	0.000%	0.000%	0.001%	0.001%	0.002%	100.0%
Region of Murcia	0.000%	0.000%	0.000%	0.000%	0.000%	0.001%	

\* Above average by province.

# Above average by region.

Table B9

Registrations of electric motorcycles in relative terms in the period 2007–2012.

Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation Rate
Almeria	0.000%	0.006%	0.008%	0.016%	0.026%	0.060%	900.0%
Cadiz	0.002%	0.003%	0.006%	0.019%	0.024%	0.051%	2450.0 <sup>+</sup>
Cordoba	0.016%	0.015%	0.017%	0.021%	0.031%	0.040%	150.0%
Granada	0.004%	0.010%	0.024%	0.038%	0.056%	0.085%	2025.0% <sup>+</sup>
Huelva	0.000%	0.000%	0.005%	0.005%	0.009%	0.027%	440.0%
Jaen	0.008%	0.007%	0.007%	0.010%	0.016%	0.501%	6162.5% <sup>+</sup>
Malaga	0.004%	0.006%	0.013%	0.016%	0.025%	0.057%	1325.0% <sup>+</sup>
Seville	0.010%	0.011%	0.014%	0.036%	0.054%	0.070%	600.0%
Andalusia	0.006%	0.008%	0.013%	0.024%	0.035%	0.087%	1350.0%
Huesca	0.010%	0.010%	0.009%	0.026%	0.034%	0.091%	810.0%
Teruel	0.000%	0.000%	0.000%	0.000%	0.000%	0.045%	
Saragossa	0.000%	0.018%	0.024%	0.037%	0.074%	0.105%	483.3%
Aragon	0.002%	0.014%	0.019%	0.031%	0.059%	0.096%	4700.0%
Cantabria	0.016%	0.021%	0.074%	0.138%	0.186%	0.252%	1475.0% <sup>+</sup>
Avila	0.000%	0.000%	0.000%	0.000%	0.000%	0.120%	
Burgos	0.000%	0.000%	0.000%	0.039%	0.037%	0.113%	189.7%
Leon	0.000%	0.005%	0.020%	0.043%	0.050%	0.132%	2540.0% <sup>+</sup>
Palencia	0.000%	0.000%	0.017%	0.031%	0.029%	0.113%	564.7%
Salamanca	0.000%	0.000%	0.000%	0.008%	0.043%	0.056%	600.0%
Segovia	0.000%	0.017%	0.032%	0.030%	0.043%	0.084%	394.1%
Soria	0.000%	0.000%	0.000%	0.000%	0.025%	0.049%	96.0%
Valladolid	0.010%	0.014%	0.026%	0.037%	0.048%	0.129%	1190.0%
Zamora	0.000%	0.000%	0.000%	0.026%	0.025%	0.084%	223.1%
Castile & Leon	0.002%	0.006%	0.013%	0.029%	0.039%	0.107%	2520.0% <sup>#</sup>
Albacete	0.000%	0.000%	0.005%	0.005%	0.009%	0.050%	900.0%
Ciudad Real	0.000%	0.000%	0.005%	0.005%	0.019%	0.041%	720.0%
Cuenca	0.025%	0.023%	0.021%	0.021%	0.080%	0.089%	256.0%
Guadalajara	0.000%	0.018%	0.017%	0.047%	0.046%	0.074%	311.1%
Toledo	0.022%	0.024%	0.027%	0.036%	0.042%	0.087%	295.5%
Castile-La Mancha	0.009%	0.012%	0.015%	0.022%	0.034%	0.067%	644.4%
Barcelona	0.009%	0.015%	0.027%	0.049%	0.058%	0.103%	1044.4%
Girona	0.003%	0.006%	0.019%	0.030%	0.051%	0.095%	3066.7% <sup>+</sup>
Lleida	0.000%	0.000%	0.012%	0.023%	0.042%	0.120%	900.0%
Tarragona	0.010%	0.013%	0.016%	0.021%	0.035%	0.068%	580.0%
Catalonia	0.008%	0.013%	0.024%	0.043%	0.055%	0.100%	1150.0%
Ceuta	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Community of Madrid	0.013%	0.039%	0.034%	0.062%	0.088%	0.261%	1907.7% <sup>+</sup>
Alicante	0.006%	0.010%	0.024%	0.044%	0.068%	0.111%	1750.0% <sup>+</sup>
Castellon	0.010%	0.019%	0.022%	0.030%	0.045%	0.061%	510.0%
Valencia	0.010%	0.012%	0.019%	0.040%	0.056%	0.095%	850.0%
Community of Valencia	0.008%	0.012%	0.021%	0.041%	0.059%	0.097%	1112.5%
Badajoz	0.009%	0.008%	0.008%	0.041%	0.054%	0.124%	1277.8% <sup>+</sup>
Caceres	0.015%	0.014%	0.013%	0.024%	0.029%	0.051%	240.0%
Extremadura	0.012%	0.010%	0.010%	0.035%	0.045%	0.096%	700.0%
A Coruña	0.009%	0.010%	0.020%	0.028%	0.043%	0.067%	644.4%
Lugo	0.017%	0.016%	0.015%	0.021%	0.020%	0.033%	94.2%
Orense	0.000%	0.009%	0.008%	0.008%	0.036%	0.084%	833.3%
Pontevedra	0.005%	0.004%	0.006%	0.015%	0.038%	0.068%	1260.0% <sup>+</sup>
Galicia	0.007%	0.008%	0.012%	0.019%	0.038%	0.065%	828.6%
Balearic Islands	0.169%	0.163%	0.160%	0.179%	0.186%	0.279%	65.1%
Las Palmas	0.002%	0.002%	0.006%	0.010%	0.035%	0.076%	3700.0% <sup>+</sup>
Santa Cruz de Tenerife	0.005%	0.004%	0.030%	0.031%	0.044%	0.074%	1380.0% <sup>+</sup>
Canary Islands	0.004%	0.003%	0.018%	0.020%	0.040%	0.075%	1775.0%
La Rioja	0.000%	0.009%	0.033%	0.039%	0.038%	0.081%	800.0%
Melilla	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	
Navarre	0.000%	0.000%	0.011%	0.032%	0.027%	0.063%	472.7%
Alava	0.000%	0.009%	0.018%	0.033%	0.063%	0.076%	744.4%
Guipuzcoa	0.000%	0.000%	0.009%	0.015%	0.041%	0.102%	1033.3%
Biscay	0.006%	0.013%	0.027%	0.037%	0.044%	0.095%	1483.3% <sup>+</sup>
Basque Country	0.002%	0.007%	0.018%	0.027%	0.045%	0.096%	4700.0% <sup>#</sup>
Principality of Asturias	0.015%	0.021%	0.036%	0.038%	0.049%	0.060%	300.0%
Region of Murcia	0.000%	0.005%	0.020%	0.084%	0.149%	0.470%	9300.0% <sup>+#</sup>

\* Above average by province.

# Above average by region.

Table B10

Registrations of other EVs in relative terms in the period 2007–2012.

Source: National Traffic Department.

	2007	2008	2009	2010	2011	2012	Variation Rate
Almeria	0.10%	0.12%	0.11%	0.13%	0.13%	0.16%	60.0%
Cadiz	0.20%	0.21%	0.23%	0.23%	0.25%	0.27%	35.0%
Cordoba	0.25%	0.30%	0.35%	0.35%	0.35%	0.34%	36.0%
Granada	0.14%	0.23%	0.24%	0.24%	0.25%	0.26%	85.7%
Huelva	0.15%	0.10%	0.17%	0.26%	0.25%	0.25%	66.7%
Jaen	0.15%	0.17%	0.21%	0.21%	0.23%	0.21%	40.0%
Malaga	0.20%	0.27%	0.35%	0.40%	0.43%	0.54%	170.0%*
Seville	0.16%	0.20%	0.23%	0.26%	0.28%	0.35%	118.7%*
Andalusia	0.17%	0.21%	0.25%	0.27%	0.28%	0.32%	83.7%#
Huesca	0.07%	0.11%	0.11%	0.15%	0.14%	0.16%	128.6%*
Teruel	0.17%	0.16%	0.19%	0.22%	0.20%	0.20%	17.6%
Saragossa	1.38%	1.66%	1.75%	1.77%	1.76%	2.07%	50.0%
Aragon	0.85%	1.04%	1.09%	1.10%	1.08%	1.24%	45.1%
Cantabria	0.24%	0.32%	0.35%	0.34%	0.40%	0.44%	83.3%*#
Avila	0.00%	0.03%	0.03%	0.03%	0.03%	0.03%	0.0%
Burgos	0.19%	0.25%	0.25%	0.29%	0.27%	0.30%	57.9%
Leon	0.07%	0.07%	0.06%	0.11%	0.15%	0.16%	128.6%*
Palencia	0.04%	0.04%	0.12%	0.11%	0.11%	0.10%	150.0%
Salamanca	0.06%	0.20%	0.30%	0.39%	0.42%	0.40%	566.7%*
Segovia	0.11%	0.11%	0.14%	0.13%	0.16%	0.15%	36.4%
Soria	0.00%	0.00%	0.00%	0.05%	0.05%	0.04%	-20.0%
Valladolid	0.47%	0.49%	0.53%	0.69%	0.68%	0.70%	48.9%
Zamora	0.00%	0.00%	0.04%	0.03%	0.03%	0.03%	-25.0%
Castile & Leon	0.14%	0.17%	0.19%	0.24%	0.24%	0.25%	80.2%
Albacete	0.05%	0.08%	0.07%	0.07%	0.07%	0.06%	20.0%
Ciudad Real	0.12%	0.15%	0.18%	0.21%	0.21%	0.20%	66.7%
Cuenca	0.06%	0.05%	0.05%	0.05%	0.04%	0.04%	-33.3%
Guadalajara	0.13%	0.11%	0.10%	0.10%	0.10%	0.13%	0.0%
Toledo	0.08%	0.10%	0.13%	0.12%	0.15%	0.16%	100.0%*
Castile-La Mancha	0.09%	0.10%	0.12%	0.12%	0.13%	0.13%	46.6%
Barcelona	4.52%	4.75%	4.95%	5.06%	5.10%	5.38%	19.1%
Girona	0.74%	0.71%	0.73%	0.78%	0.77%	0.80%	8.1%
Lleida	0.48%	0.47%	0.60%	0.62%	0.71%	0.67%	39.6%
Tarragona	0.31%	0.41%	0.52%	0.65%	0.79%	0.89%	187.1%#
Catalonia	3.06%	3.21%	3.35%	3.43%	3.44%	3.60%	17.6%
Ceuta	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Community of Madrid	0.82%	1.04%	1.18%	1.32%	1.39%	1.51%	84.1%#
Alicante	0.48%	0.68%	0.78%	0.85%	0.88%	0.97%	102.1%*
Castellon	1.01%	1.19%	1.19%	1.38%	1.45%	1.38%	36.6%
Valencia	4.38%	4.82%	5.30%	5.71%	6.12%	8.34%	90.4%
Community of Valencia	2.58%	2.90%	3.18%	3.44%	3.66%	4.81%	86.5%#
Badajoz	0.01%	0.04%	0.04%	0.04%	0.07%	0.07%	600.0%*
Caceres	0.03%	0.06%	0.07%	0.08%	0.08%	0.08%	166.7%*
Extremadura	0.02%	0.05%	0.06%	0.06%	0.08%	0.07%	217.4%*
A Coruña	0.13%	0.18%	0.22%	0.21%	0.20%	0.19%	46.1%
Lugo	0.05%	0.13%	0.16%	0.21%	0.20%	0.23%	360.0%
Orense	0.14%	0.16%	0.21%	0.32%	0.32%	0.33%	135.7%
Pontevedra	0.31%	0.32%	0.35%	0.36%	0.35%	0.32%	3.3%
Galicia	0.19%	0.22%	0.26%	0.28%	0.27%	0.26%	37.2%
Balearic Islands	0.22%	0.37%	0.42%	0.44%	0.48%	0.52%	136.4%*
Las Palmas	0.79%	0.95%	1.12%	1.16%	1.23%	1.31%	65.8%
Santa Cruz de Tenerife	0.25%	0.37%	0.42%	0.44%	0.47%	0.52%	108.0%
Canary Islands	0.53%	0.68%	0.79%	0.82%	0.86%	0.93%	75.1%
La Rioja	0.99%	1.20%	1.27%	1.49%	1.50%	1.35%	36.4%
Melilla	0.37%	0.34%	0.33%	0.63%	0.63%	1.23%	232.4%*
Navarre	1.26%	1.61%	1.71%	1.74%	1.69%	1.71%	35.7%
Alava	0.26%	0.36%	0.34%	0.33%	0.32%	0.34%	30.8%
Guipúzcoa	0.68%	0.72%	0.78%	0.88%	0.93%	1.04%	52.9%
Biscay	0.70%	0.69%	0.89%	0.89%	0.90%	0.90%	28.6%
Basque Country	0.62%	0.64%	0.75%	0.77%	0.78%	0.83%	33.8%
Principality of Asturias	0.12%	0.15%	0.25%	0.25%	0.26%	0.26%	116.7%*#
Region of Murcia	0.14%	0.24%	0.30%	0.32%	0.36%	0.38%	171.4%*#

\* Above average by province.

# Above average by region.

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