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# THE LATEST DEVELOPMENTS AND INITIATIVES OF EVs IN SPAIN

**EV/PHEV TOWN SYMPOSIUM**

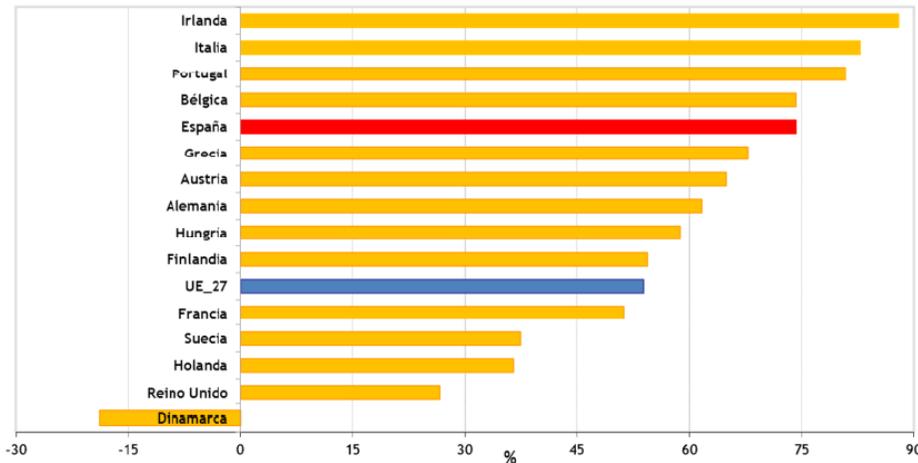
Tokyo, Japan

5<sup>th</sup> May, 2013

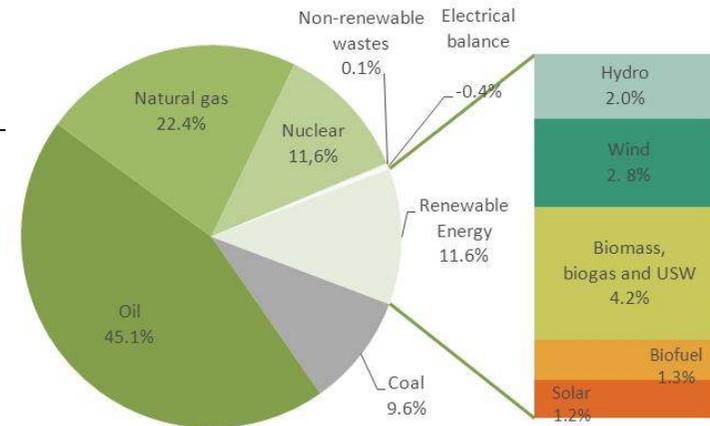
Ignacio Martin  
Operating Agent Task 20  
HEV-IA  
IEA

# ENERGY DEPENDENCE IN SPAIN. ROLE OF THE TRANSPORT SECTOR

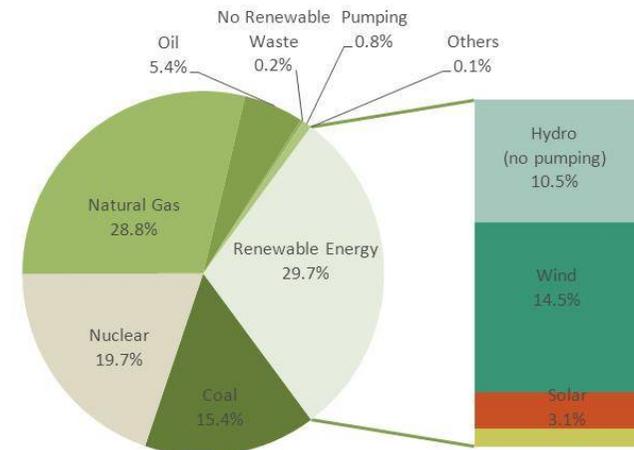
Energy dependence : Spain vs UE 27



- Energy costs amount to 4,5% of the GDP
- Oil products economic balance: 45.000M€, at the end of 2011
- Transport sector accounts for 37,4% of total final energy consumption and 29,5% of total CO<sub>2</sub> equivalent emissions in Spain
- Electricity generation in Spain: 49,4% free of CO<sub>2</sub> and 50% energy performance: for Evs oriented to urban areas, it could be achieved CO<sub>2</sub> savings of close to 60% and primary energy savings of close to 30%



Primary energy consumption in Spain, 2011



Spanish electricity generation mix, 2011

# EVs/PHEVs: INDUSTRIAL OPORTUNITY

## 2012 CAR MANUFACTURING IN SPAIN

- 2nd European manufacturer in cars
- 1st European manufacturer in vans and commercials



# EUROPEAN COMMISSION DIRECTIVE

(COM (2013) 18 /2) DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the deployment of alternative fuels infrastructure:

Establishes a common framework of measures for the deployment of alternative fuels infrastructure in the Union

Sets out minimum requirements on alternative fuels infrastructure build-up and common technical specifications, including recharging points for EVs and refuelling points for natural gas and hydrogen.

Members shall ensure a minimum number of recharging points (attached table), By 31 Dec. 2020. At least ,10% shall be publicly accessible.

## ANNEX II

Minimum number of electric vehicle recharging points in each Member State

Member State	Number of recharging points (in thousands)	Number of publicly accessible recharging points (in thousands)
BE	207	21
BG	69	7
CZ	129	13
DK	54	5
DE	1503	150
EE	12	1
IE	22	2
EL	128	13
ES	824	82
FR	969	97
IT	1255	125
CY	20	2
LV	17	2
LT	41	4
LU	14	1
HU	68	7
MT	10	1
NL	321	32
AT	116	12
PL	460	46
PT	123	12
RO	101	10
SI	26	3
SK	36	4
FI	71	7
SE	145	14
UK	1221	122
HR	38	4

# SPANISH STRATEGY FOR ENERGY EFFICIENCY AND SAVINGS 2008-2012 (E4)



**COMMITMENT 2020 (triple 20)**

**MODAL CHANGE TO MORE EFFICIENT TRANSPORT MODES**

**IMPROVE ENERGY EFFICIENCY OF EACH TRANSPORT MODE**

**MORE EFFICIENT USE OF TRANSPORT MODES**

## European policies:

- Technology development (new technologies and alternative fuels)
- Market tools (taxes, incentives,...)
- Actions to optimise the use of transport modes and infrastructures to promote changes in the behaviour of citizens and companies.

European Parliament Resolution, 11 de marzo de 2008



**SPAIN: E4 (2004-2012) and PAE 2011-2020**

# EVs/PHEVs: NATIONAL TARGETS

Iniciatives	Vehicles Target	At the end of	
Short term: <b>MOVELE</b> <sup>(1)</sup>	2.000	2010	
Medium term: <b>SSIEV</b> <sup>(2)</sup>	250.000	2014	
Long term: <b>RES Directive</b> <sup>(3)</sup>	2.500.000	2020	

(1) Pilot Demonstration Project managed by IDAE

(2) Spanish Strategy to Impulse Electric Vehicle (2010-2014)

(3) 2009/28/CE Directive; Art. 3.4. 2020 Target: 10% RES for transport energy consumption

Spanish Legislation: PANER (2011-2020): 342 ktep/y in 2020

# INTEGRAL PLAN TO IMPULSE EV/PHEV 2010-2014

## ACTION PLAN 2010-2012 (PLAN MOVELE)

- Dedicated budget 590 M€.
- 15 Key measures.

**85% of EVs penetration is aimed to fleets!!**

### PROMOTION OF THE DEMAND

Action 1 : Public support to acquisition of EVs  
RD 648/2011

Action 2 : Trasposition of Directive 2009/33

**Action 3 : Identification and promotion of demand for urban fleets** (Fleet study)

**Action 4 : Promotional actions for EVs in cities: urban advantages** (Guide and Certification for cities)

### RECHARGING INFRASTRUCTURE AND MANAGEMENT OF ENERGY DEMAND

Action 8 : Agreement with utility companies

Action 9 : New super valley tariff

Action 10 : Smart meters (hourly discrimination)

Action 11 : Legal framework for recharging services

**(Supporting plan for infrastructure development)**

### INDUSTRIALIZATION AND R&D

Action 5 : Supporting plan for industrialization of EVs and components

Action 6 : Plans to support TICs linked to EVs

Action 7 : Establishment of priority guidelines for R&D programmes related EVs and recharging infrastructure

### TRANSVERSAL MEASURES

**Action 12 : Development of strategic marketing** (Fleet promotion, Feria Genera, Website, Vuelta ciclista, MOVELE communication tool)

Action 13 : Standardisation of recharging elements

Action 14 : Homologation of vehicle and components

Action 15 : Training programmes for professionals and academies/universities

# TWO MAIN BARRIERS TO MEET THE PLANNED OBJECTIVES

1. "SLIDING" OF THE SUPPLY: Today it's difficult to sell Evs, but it is more difficult to buy them!!

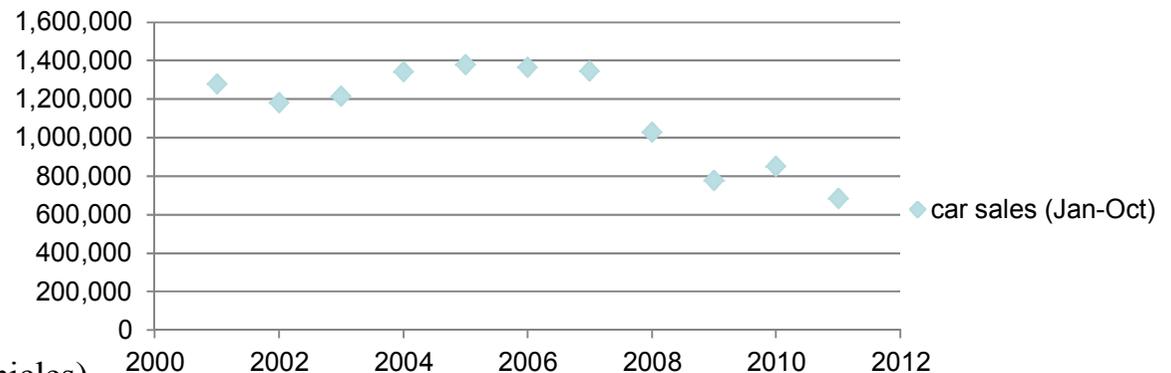
DELAYED ENTRANCE IN THE MARKET: Car manufacturers failed in the announced date of commercialisation (Highly desviation in months registered)

- 54% of VE models expected for 2011/2012 have been delayed with an average of 4 months
- 10 models has been delayed and other 4 models remove dates and don't show now any expectations

REDUCED NUMBER OF UNITS:

- Initial market supply expected for 2011: 13.561 (units of cars and vans)
- Final market supply

## 2.ECONOMIC CRISIS



(Sales in Spain, 2012: 700,000 vehicles)

## EVs/PHEVs VEHICLES ON ROAD IN SPAIN (at the end of 2012)

National Programmes of Incentives (results at 10/12/2012)	EVs acquisitions per category					TOTAL
	Motorbike	Quadricycle	Car	Commercial	Bus	
Agreements IDAE-CCAA (2006-2010; E4)	23	22	20	6	6	77
Strategic projects IDAE (2008-2011; E4)	0	5	7	36	0	48
Piloto MOVELE (2009-2011; E4)	511	145	140	320	0	1.116
Plan MOVELE (RD 648/2011)	504	165	169	65	0	903
Plan MOVELE (RD 417/2012)	1.739	1.050	451	196	0	3.436
<b>TOTAL</b>	<b>2.777</b>	<b>1.387</b>	<b>787</b>	<b>623</b>	<b>6</b>	<b>5.580</b>

Completed

(Acquired in the frame of National programs of incentives)

Incentives for vehicle acquisition (RD 417/2012)						
Type of vehicle	Sale points	Nº applications	Fleet Applications	Public support	Average support	Nº Buyers
M1: Cars	203	451 (13%)	242	2.787.234€ (28%)	6.180 €	254
N1+N2: Commercials	65	196 (6%)	123	1.250.458€ (13%)	6.380 €	99
M2+M3: Buses	0	0 (0%)	0	0€ (0%)	0 €	0
L3e+L5e: Motorbikes	68	1.739 (51%)	1.622	2.948.048€ (29%)	1.695 €	177
L6e+L7e: Quadricycles	94	1.050 (31%)	565	3.013.758€ (30%)	2.870 €	593
<b>Total</b>	<b>430</b>	<b>3.436 (100%)</b>	<b>2552</b>	<b>9.999.498€ (100%)</b>		<b>1123</b>

(74% of total)

**SPANISH NATIONAL BUDGET 2013: 8M€ Has just been approved for incentives to EVs acquisition.**

# NATIONAL SUPPORTING PROGRAMMES FOR INFRASTRUCTURE

**INCENTIVES** in the frame of the Collaboration Agreements IDAE-Regional Governments (Action Plan 2008-2012, E4)

Subject of investment	Maximum eligible cost (€)	Financial support PAE+ (€)
Complete installation of a covered CHP < 40kW	4.000	Up to 40% (public use)/30% (companies) of eligible costs with a maximum of 1.600€/1.200€
Complete installation of a not covered CHP < 40kW	6.500	Up to 40% of eligible costs with a maximum of 2.000€
Complete installation of a CHP ≥ 40kW	50.000	Up to 40% (public use)/30% (companies) of eligible costs with a maximum of 20.000€/15.000€
Centralised control system	50.000	Up to 40% (public use)/30% (companies) of eligible costs with a maximum of 20.000€/15.000€
Communication campaign (recharging networks)	6.000	6.000€

Parking lots in “**living bloks**”: financial support up to 40% of complete installation costs (smart meter not included), with a maximum of 200€ per CHP installed.

# PUBLIC USE CHARGING POINTS OPERATIVE IN SPAIN

Recharging infraestructure	
Cities	89
Stations	288
Total CHP	771
Type of charge	
CHP Single Phase	691
CHP 3-phase	80
Location	
CHP covered	355
CHP not covered	416
Supporting program	
MOVELE	223
Others	548

Updated at the end of 2012

The screenshot shows the website 'Puntos de recarga - IDAE Movele' in a Windows Internet Explorer browser. The main content area features a 'Mapa nacional de recarga' (National charging map) of Spain, populated with red circular icons representing charging points. The map includes labels for major cities and regions like Madrid, Barcelona, and Valencia. The website's sidebar on the left lists various initiatives under 'Puntos de recarga', such as 'Planes MOVELE en las CCAA' and 'Medidas Municipales de VE'. The browser's address bar shows the URL 'http://www.movele.es/index.php/mod.puntos/mem.mapa/relmenu.20'.

www.movele.es

# COLLABORATION AGREEMENT IDAE-AEDIVE

## COLLABORATION AGREEMENT (17 May, 2012):

- AEDIVE (Spanish Association of recharging infrastructure).
- Elaboration of specialised guides, videos and other diffusion material for installators, living blocks managers, architects, town councils, ...
- Study of Observatory for EV's recharging.
- Creation of the Information Center for EV's recharging (CAR).
- Seminars and events



# SPANISH NORMATIVES RELATED INFRASTRUCTURE

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## NORMATIVE FOR INFRASTRUCTURE

- National normative for technical conditions and basic warranties for electric installations for allowing recharging of EVs (ITC 52).
- It will estipulate a certain minimum electrical infrastructure for new buildings.
- It is expected to be approved in the next weeks.
- Regional initiatives linked to ITC 52 (Catalonia).

## RD 647/2011 (23<sup>rd</sup> May, 2011):

- It regulates the functions of the new figure “Manager of charging” (initially defined in RDL 6/2010, in the frame of the Law for the Electric sector 54/1997): a new power market agent which is allowed to sell electricity for EV charging energy services and energy storage.
- Also it establishes the “supervalley tariff”: an special access tariff defined for electricity supply with voltage lower than 1kV and maximum power between 10 and 15 Kw.

# INTEROPERABILITY OF PUBLIC USE INFRASTRUCTURE I

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Definition at national level of an “**Interes Group**” in order to carry out a communication platform for interconnecting different recharging networks for Evs, with a consensus between members at national level, considering also other possible solutions or suggestions at international level:

FITSA: Coordinator

IDAE : Institutional support

AENOR and ODETTE (ANFAC): Standardization agents

MANAGERS OF RECHARGING: Installation and operation of recharging infrastructure.

<b>IBIL</b>	<b>GAS NATURAL FENOSA</b>
<b>IBERDROLA</b>	<b>ENDESA</b>
<b>EON</b>	<b>SOLARDILA</b>
<b>ACCIONA EFICIENCIA ENERGÉTICA, S.L.</b>	

# INTEROPERABILITY OF PUBLIC USE INFRASTRUCTURE II

## MANAGERS OF CHARGING

- Definition of services and communication protocols (internet, security..)
- Definition of protocols for user authorization and for data interchange

## URBAN MOBILITY OPERATORS

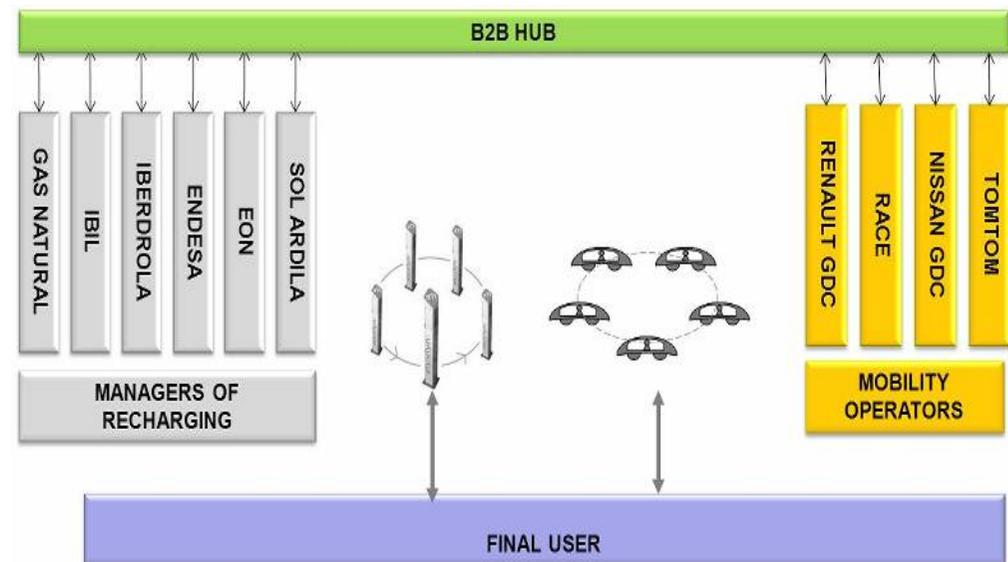
- Definition of services and communication protocols (internet, security..)
- Definition of protocols for information of state of use of the CHP and for reservation of CHP

## STANDARDISATION ISSUES

- Use of defined standards
- Development of new normatives and follow up of their relevant standards

## ACCESIBILITY TO CHARGING POINTS

- Agreements for standardisation of connectors and systems for user identification





**IGNACIO MARTIN**  
**Operating Agent Task 20**  
**HEV-IA**  
**IEA**

**Thank you for your attention**