GOBIERNO DE ESPAÑA

GRUPO INTERMINISTERIAL PARA LA COORDINACIÓN DEL MARCO DE ACCIÓN NACIONAL DE ENERGÍAS ALTERNATIVAS EN EL TRANSPORTE

REPORT ON THE APPLICATION OF THE NATIONAL POLICY FRAMEWORK ON ALTERNATIVE FUELS IN TRANSPORT

DEVELOPING THE MARKET AND ESTABLISHING SUPPLY INFRASTRUCTURE.

IN COMPLIANCE WITH ARTICLE 10 OF DIRECTIVE 2014/94/EU
OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 22 OCTOBER 2014.

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COORDINATED BY THE
SECRETARIAT-GENERAL FOR INDUSTRY AND SMES
CHAIR OF THE INTERMINISTERIAL GROUP

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Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 on the deployment of alternative[1] fuels infrastructure required Member States to adopt a national policy framework developing the market for alternative fuels in the transport sector and deploying the relevant supply infrastructure. Moreover, Article 10(1) of the Directive requires all Member States to provide the Commission with a report on the implementation of their national policy frameworks by 18 November 2019 and every three years thereafter.

To comply with the requirements of this Directive in Spain, the Inter-ministerial Group Coordinating the National Policy Framework on Alternative Fuels [Comisión Delegada del Gobierno para Asuntos Económicos – CDGAE] in Transport was created by a decision of the Government Executive Committee for Economic Affairs dated 30 July 2015. This Inter-ministerial Group is covered by the rules on multi-party bodies set up for analysis, proposal, advice and monitoring duties as laid down in the Public Sector Act (Act 40/2015 of 1 October 2015). According to the abovementioned CDGAE decision of 30 July 2015, the obligations of the Inter-ministerial Group included monitoring and reviewing the targets, objectives and measures proposed in the National Policy Framework. To do this, the Inter-ministerial Group has held meetings every year since the National Policy Framework was approved in order to periodically monitor the implementation of the requirements from Directive 2014/94/EU.

Finally, Spain's National Policy Framework[2] was approved by the Council of Ministers during its meeting on 9 December 2016 as well as Royal Decree 639/2016 of 9 December 2016, which transposed the abovementioned Directive 2014/94/EU.

It is now time to produce the National Policy Framework (NPF) implementation report. Thus, since the NPF was published in 2016, the use of alternative fuels has varied significantly. In the past three years, the evolution of the vehicles, registrations, projects to deploy alternative fuels infrastructure and the measures of the entire administration clearly show society's growing interest in these new more sustainable and environmentally friendly forms of mobility.

The purpose of this report is thus twofold. On the one hand, it analyses the evolution of the use of alternative fuels in transport, describing the vehicles and the supply infrastructures in the different modes of transport (road, maritime, rail and air). On the other hand, it analyses the measures that have been implemented by the various administrations to promote the use of alternative fuels in transport.

[1] Translator's note: The original in Spanish uses the term 'energías alternativas' (literally 'alternative energies'), justifying this choice as follows: Although the title of Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 refers to the deployment of alternative fuels infrastructure, we are using the term 'alternative energies' as it better reflects the scope of application [here the term 'alternative fuels' is given here in bracket in English], since both electricity and hydrogen are energy carriers and not fuels. The term 'fuel' is used for the combustible materials used in propulsion engines. As this justification seems to equate the Spanish term 'energías alternativas' with the English term 'alternative fuels', we have chosen to use the latter, in line with the terminology used in the Directive.

[2] http://www.minetad.gob.es/industria/es-ES/Servicios/Paginas/Marco-Accion-Nacional-energias-alternativas-transporte.aspx

II. ROAD TRANSPORT

II.1. NATURAL GAS AND BIOMETHANE

- As at 31 December 2018, the fleet of natural gas vehicles comprised **16,269 CNG vehicles and 1,208 LNG lorries.** This represents a significant increase compared to 2016, the NFP approval date, as had been estimated. In that regard, it was forecast to move from a CNG fleet comprising mostly urban lorries (rubbish, last-mile distribution, etc.) to see significant increases in passenger cars and urban buses for public transport. The estimates have been met in both segments. Firstly, CNG passenger cars currently have a purchase price equal to that of petrol passenger cars; their range has increased up to 400 to 450 km. Meanwhile, the LNG fleet, consisting almost entirely of lorries, has increased exponentially thanks to the fact that natural gas is currently emerging as the only alternative to diesel, and also because the baseline levels were practically nil (only 18 LNG lorries in 2012). Therefore, in their plans for renewing vehicle stock, fleets of lorries are including LNG as an alternative to meet the increasingly demanding requirements on reducing CO_2 emissions and local pollutants. In addition, service station developers have made considerable investments to build CNG and LNG refuelling points in both urban agglomerations and on main roadways. That said, the recent announcements of possible fossil fuel bans may hurt the development of CNG and LNG.

- There are **70 refuelling stations accessible to the public in Spain**: **30 mixed** (CNG/LNG) stations, **6 LNG-only stations** and **34 CNG-only stations**[3]**.**

- There are **43 refuelling stations accessible to the public that are** under construction or awaiting opening, of which **19 are CNG-only stations** and **24 mixed** LNG/CNG[4].

- The **ECO-GATE project,** co-financed by the **Connecting Europe Facility**[5] and led by Nedgia, is being implemented to build **12 mixed LNG/CNG refuelling points in Spain,** seven in Portugal and two in France. This project also includes two pilots with renewable gases. The first one entails the **incorporation of up to 30% hydrogen at a plant** in Burgos while the second will involve upgrading the Butarque water treatment plant (Madrid) **to inject into the biomethane network.**

- Various **business plans have been announced to deploy** refuelling points by Enagás (through Scale Gas Solutions) and Redexis-Cepsa.

- Spain manufactures three models of CNG-powered passenger cars: **SEAT León** (since 2014), **SEAT Ibiza** (since 2017), **SEAT Arona**[6] (since 2018). **Iveco** makes CNG and LNG models of its Stralis lorry. Furthermore, **Castrosua, Irizar** and **Vectia** make CNG-powered buses. The **sale of long-distance buses with LNG** in Spain began in 2019.

[3] Source: State Secretariat for Energy Geoportal. Data corresponding to December 2018. All the autonomous communities have refuelling points except for Cantabria, Rioja and the Canary Islands.

[4] Source: Natural Gas for Mobility Association of Spain and Portugal [Asociación Ibérica de Gas Natural para la Movilidad – GASNAM]. Data corresponding to April 2019.

[5] Budget: EUR 10 million

[6] SUV

- Launch of **State aid programmes to purchase vehicles: MOVEA, MOVALT and MOVES[7].**
- The **promotion of renewable gases** has been included as an action in the **Climate Change and Energy Transition Bill** as well as in the draft **Integrated National Energy and Climate Plan as well as in the National Air Pollution Control Programme.**
- Work is actively being done to promote biomethane though (1) a **guarantee of origin system,** (2) **pilot projects** in Bens-Coruña, La Galera-Tarragona, Pamplona, Chiclana-Cádiz, Barcelona, Vila Sana-Lleida, etc., (3) its **injection into the gas system** and (4) development of a methodology to account for the effect of biomethane in reducing the CO_2 emissions of heavy-duty vehicles.

II.1.1. FLEET OF VEHICLES AND REGISTRATIONS

According to the data provided by the Directorate-General for Road Transport (DGT), the natural gas-powered vehicle fleet in September 2019 totalled 17,477 units[8], with CNG representing 93% of the total (16,269 vehicles) and LNG the remaining 7% (1,208 vehicles).

In relation to its evolution with regard to previous years, the CNG fleet was mainly urban lorries (rubbish, last-mile distribution, etc.) and significant future growth was forecast in the passenger car and urban bus segments. This forecasted trend has taken place in both segments. Firstly, CNG passenger cars currently have a purchase price equal to that of petrol passenger cars; their range has increased and currently stands at 400 to 450 km. Meanwhile, the LNG fleet, consisting almost entirely of lorries, has increased exponentially thanks to the fact that natural gas is currently emerging as the only alternative to diesel and it was starting from practically nil (only 18 LNG lorries in 2012). Therefore, in their plans for renewing vehicle stock, fleets of lorries are including LNG as an alternative to meet the increasingly demanding requirements on reducing CO_2 emissions and local pollutants. In addition, service station developers have made considerable investments to build CNG and LNG refuelling points in both urban agglomerations and on main roadways. That said, the recent announcements of possible fossil fuel bans may hurt the development of CNG and LNG.

Table II-1. CNG and LNG vehicles on the roads (2012-2019)

CNG	2012	2013	2014	2015	2016	2017	2018	Sept. 2019
Lorries up to 3,500 kg	5	11	15	173	211	269	321	370
Lorries over 3,500 kg	10	56	63	1,324	1,518	1,785	1,787	1,969
Vans	10	88	157	369	525	814	1,438	2,119
Motorcycles	0	0	1	1	1	0	0	0
Passenger cars	4	14	107	308	1,109	2,422	6,452	9,020

[7] MOVES: only for N2- and N3-category vehicles. In this programme, the rules are published by the Ministry for Ecological Transition and the Ministry of Industry, Trade and Tourism, and it is subsequently managed by the autonomous communities.

[8] The official data from the DGT currently include nearly all vehicles adapted at repair garages other than the manufacturers' own garages.

CNG	2012	2013	2014	2015	2016	2017	2018	Sept. 2019
Buses	49	124	168	1,422	1,727	2,029	2,395	2,635
Other	2	8	10	57	168	116	130	156
TOTAL	**80**	**301**	**521**	**3,654**	**5,259**	**7,435**	**12,523**	**16,269**

LNG	2012	2013	2014	2015	2016	2017	2018	Sept. 2019
TOTAL	**18**	**80**	**157**	**235**	**318**	**431**	**960**	**1,208**

Source: Directorate-General for Road Transport based on data existing at June 2019.

Table II-2. Registrations of new CNG and LNG vehicles (2012-2019)

CNG REGISTRATIONS	2012	2013	2014	2015	2016	2017	2018	Sept. 2019
Lorries up to 3,500 kg	5	6	5	39	23	62	62	39
Lorries over 3,500 kg	10	42	4	37	206	338	137	163
Vans	10	78	69	92	139	283	608	600
Motorcycles	0	0	1	0	0	0	0	0
Passenger cars	4	9	92	143	393	1,306	4,067	2,524
Buses	49	75	44	68	264	320	407	219
Other	1	3	1	6	61	5	5	8
TOTAL	**79**	**213**	**216**	**385**	**1,086**	**2,314**	**5,286**	**3,553**

LNG REGISTRATIONS	2012	2013	2014	2015	2016	2017	2018	Sept. 2019
TOTAL	**18**	**63**	**79**	**40**	**91**	**169**	**527**	**243**

Source: Directorate-General for Road Transport based on data existing as at June 2018.

MANUFACTURE OF NATURAL GAS VEHICLES IN SPAIN

The following models of natural gas vehicles are manufactured in Spain:

Table II-3. Natural gas vehicles manufactured in Spain

BRAND	PLANT	MODEL	VERSION	YEAR MANUFACTURING COMMENCED
SEAT	Martorell (Barcelona)	Passenger car: León	León 1.4 – CNG	2014
			León ST 1.4 – CNG	

		Passenger car: Ibiza	CNG	2017
		Passenger car: Arona	CNG	2018
IVECO	Madrid	Lorry over 3,500 kg: Stralis	Stralis LNG (1,600-km range)	2000 (MSW lorries), 2011 (Stralis), 2016 (New long-distance Stralis)
			Stralis CNG	
			Stralis CNG/LNG	
CASTROSUA	Santiago de Compostela	CNG bus		
VECTIA		CNG bus		
IRIZAR	Gipuzkoa	CNG bus		
UROVESA	Santiago de Compostela	Municipal solid waste collection lorries	CNG	2017

Source: Seat, Anfac and Gasnam

The launch of the CNG car-sharing initiative, promoted by SEAT in Madrid, was announced in July 2019 and is planned to be implemented in other Spanish cities such as Barcelona.

SALE OF LNG BUSES

The sale in Spain of LNG buses is an important milestone for sustainable mobility in the passenger transport sector, especially in long-distance journeys. In February 2019, Scania presented the Interlink MD GNL bus in Madrid, powered by liquefied natural gas. It has a range of 1,000 kilometres with LNG. It is the first medium- and long-distance LNG-powered bus from Scania.

II.1.2. REFUELLING INFRASTRUCTURE

EXISTING REFUELLING INFRASTRUCTURE

According to the State Secretariat for Energy's 'Geoportal', 70 refuelling stations are open to the public in Spain[9], of which 30 are mixed (CNG/LNG), 6 are LNG-only and 34 and CNG-only.

Table II-4. LNG and CNG refuelling stations accessible to the public

	June 2016	**October 2017**	**December 2018**	**September 2019**
Mixed LNG/CNG	10	20	29	30
LNG only	5	5	5	6
CNG only	24	29	31	34

[9] Not all of them are freely accessible without consulting the operator. In that regard, for the locations marked with a * you must already be a customer in order to refuel.

	June 2016	October 2017	December 2018	September 2019
TOTAL	**39**	**54**	**65**	**70**

Source: Subdirectorate General for Hydrocarbons (State Secretariat for Energy) Geoportal.

Table II-5. Refuelling stations accessible to the public by autonomous community in September 2019

	CNG only	LNG only	Mixed LNG/CNG	Total Locations
Andalusia	1	0	3	4
Aragon	1	0	2	3
Asturias	1	0	1	2
Castile-La Mancha	2	0	5	7
Castile and Leon	1	2	1	4
Catalonia	9	0	8	17
Valencia	1	2	3	6
Extremadura	0	0	1	1
Galicia	2	1	0	3
Madrid	12	0	3	15
Murcia	2	0	0	2
Navarre	1	0	0	1
Basque Country	1	1	3	5
Spain Total	*34*	*6*	*30*	70

Source: Hydrocarbons Geoportal.

REFUELLING INFRASTRUCTURE UNDER CONSTRUCTION OR AWAITING OPENING

The Natural Gas for Mobility Association of Spain and Portugal (GASNAM) was aware of a further **43 refuelling stations under construction or awaiting opening** to the public as at April 2019 (19 exclusively for CNG and 24 mixed LNG/CNG).

Table II-6. Refuelling stations accessible to the public by autonomous community and municipality under construction or awaiting opening as at April 2019

	Publicly accessible stations pending construction as at April 2019 (municipality/autonomous community)			
	MIXED LNG/CNG	**LNG**	**CNG**	**TOTAL Locations**
Andalusia	5 (Nijareña, Córdoba, 2 in Huelva, Antequera)	0	3 (Córdoba, Granada and Dos Hermanas)	8
Catalonia	3 (El Bruc, Sant Joan de Vilatorra, Capmany)	0	4 (Mollet del Valles, Maçanet, Sarria de Dalt, Lleida)	7
Castile and Leon	5 (Burgos, Carbajosa de la Sagrada, Sancti Spiritus, Valladolid, Tordesilla)	0	1 León	6
Madrid	2 (Pinto, La Serna-A1/Madrid)	0	3 (Fuenlabrada, Vallecas, C/ San Romualdo)	5
Murcia	2 (Molina de Segura, Fuente Alamo)	0	1 (Cartagena)	3
Valencia	1 (San Isidro)	0	2 (Valencia)	3
Castile-La Mancha	2 (Albacete, Azuqueca)	0	1 (Ciudad Real)	3
Extremadura	2 (Mérida, Talavera)	0	0	2
Galicia	0	0	2 (Santiago, Vigo)	2
Basque Country	2 (Lanbarren, Hernani)	0	0	2
Aragon	0	0	1 (Zaragoza-Redexis)	1
Asturias	0	0	1 (Port of Gijón)	1
Spain Total	**24**	**0**	**19**	**43**

Source: Gasnam.

INFRASTRUCTURE UNDER CONSTRUCTION CO-FINANCED BY THE CONNECTING EUROPE FACILITY: ECO-GATE PROJECT

Spanish company Nedgia (part of the Naturgy Group) has led the ECO-GATE project (European Corridors for natural Gas Transport Efficiency), which is co-financed by the Connecting Europe Facility (2016 call for funding) for the amount of EUR 10 million. It is a pilot project to deploy mixed LNG/CNG station in the Atlantic, Mediterranean and North Sea Corridors of the Trans-European Transport Network (TEN-T), particularly in France (2), Portugal (7) and Spain (12; see table)[10].

Two renewable gas pilot projects are also included. The first is being implemented in Burgos and entails the incorporation of up to 30% hydrogen at a plant, while the second is located at the Butarque water treatment plant (Madrid), where an upgrade will be carried out to inject into the biomethane network.

The following natural gas operators are participating: NEDGIA Madrid, Enagás Transporte, Dourogás Natural, Endesa Energía, Galp Energía, Repsol, Naturgy Europe, Inversora Melofe and Molgas Energía. The following technology and service providers are taking part: Cetil Dispensing Technology, Soltel IT Solutions, CIDAUT Foundation, Evarm Innovación, the University of Tras-os-Montes and Alto Douro, IMDEA Energy Foundation, Audigna, Ghenova Ingeniería and Madisa. The following are end users: Correos and San José López. Finally, the following market knowledge and promotion experts are taking part: Gasnam, Port Authority of Gijón, Port Authority of Huelva, the University of Santiago de Compostela and Soulman Insightful Thinking.

Table II-7. Mixed LNG/CNG refuelling stations accessible to the public financed by the ECO-GATE Project

No	Company	Location	Corridor	Date of entry into operation
1	ENDESA	Córdoba	MC	01/02/2019
2	GALP	El Bruc, Barcelona	MC	01/03/2020
3	GALP	Ziordia, Navarre	MC	01/02/2020
4	GNF	Barcelona	MC	01/05/2017
5	MELOFE	Pinto, Madrid	MC	30/11/2019
6	MOLGAS	San Fernando de Henares, Madrid	MC	01/09/2018
7	MOLGAS	Cartagena	MC	01/07/2019
8	MOLGAS	Aranda de Duero	AC	01/06/2019
9	REPSOL	Mérida	AC	01/07/2019
10	REPSOL	Irún-Hernani	AC	01/12/2019
11	REPSOL	Llers, Junquera/Figueres	MC	01/12/2018
12	REPSOL	Albatera	AC	01/12/2019

Source: ECO-GATE project with data as at April 2019

[10] In the end, Germany (and consequently part of the Rhine-Danube Corridor) is not participating in the project.

PUBLICLY ACCESSIBLE REFUELLING INFRASTRUCTURE PROMOTED BY BUSINESS PLANS

- **Redexis-Cepsa agreement: 50 supply stations in 2021 and 80 in 2023**

In June 2019, Redexis and Cepsa signed a framework agreement for the expansion of natural gas vehicles (NGV) both in urban areas as well as in the country's main transport corridors for light-duty and heavy-duty vehicles.

Between 2019 and 2021, Redexis plans to invest EUR 30 million to install and maintain LNG and CNG points in 50 Cepsa service stations, with the latter company being responsible for their supply and sale. Moreover, the aim before the end of 2023 is to reach 80 service stations with NGV supply, with a total investment of EUR 60 million.

- **Enagás**

In 2018, Enagás intensified its commitment to the deployment of NGV supply stations through Scale Gas Solutions, a start-up that came about in the framework of its corporate entrepreneurship and open innovation programme, Enagás Emprende. Thus, in June 2018 it signed an agreement with the Spanish Confederation of Service Station Managers [*Confederación Española de Empresarios de Estaciones de Servicio – CEES*] to work on this deployment together.

EVOLUTION OF THE ESTIMATE OF SUPPLY POINTS IN THE NATIONAL POLICY FRAMEWORK APPROVED IN DECEMBER 2016

Based on the above, there are 64 operational CNG supply points accessible to the public (30 mixed LNG/CNG plus 30 CNG-only), which exceeds the estimate of 46 CNG points set out in the National Policy Framework approved in December 2016.

On the other hand, there are 36 LNG supply points (30 mixed LNG/CNG plus 6 LNG-only), 24 points under construction or awaiting opening and 12 included in the ECO-GATE project, co-financed by the Connecting Europe Facility. It is therefore forecast that the estimate of 44 points in 2025 set out in the National Policy Framework approved in December 2016 will be exceeded.

II.1.3. INITIATIVES DEVELOPED DURING 2016-2019

CONTINUATION OF THE VEHICLE PURCHASE PLANS: MOVEA, MOVALT AND MOVES

The **2016 MOVEA Plan** (Plan for Sustainable Mobility using New Energy Vehicles) was implemented in 2016 by means of Royal Decree 1078/2015 of 27 November 2015. This plan, managed by the Secretariat-General for Industry and SMEs, had a budget of EUR 16.6 million and its aim was to boost the new-energy vehicle market by granting direct aid for the purchase of vehicles and installation of charge points. Thanks to this plan, 203 natural gas vehicles (both CNG and LNG) were financed, with a budget of EUR 1,976,000.

The **2017 MOVEA Plan,** approved by means of Royal Decree 617/2017 of 16 July 2017 (published in the *Official State Gazette* of 23 June 2017) and managed by the Secretariat-General for Industry and SMEs, granted EUR 1,745,600 for the purchase of 307 natural gas vehicles.

In addition, by means of the Institute for Energy Diversification Decision of 14 November 2017 (published in the *Official State Gazette* of 15 November 2017), the State Secretariat for Energy established the **MOVALT Plan Vehicles.** It supported the purchase of 899 vehicles by awarding direct grants in the amount of EUR 8,841,500.

The **MOVES Programme** was approved in February 2019 (Royal Decree 72/2019) to promote the purchase of LNG, LNG or bi-fuel (categories N2 and N3) **heavy-duty vehicles** with aid between EUR 2,000 and EUR 15,000, depending on the type of applicant and vehicle.

CLIMATE CHANGE AND ENERGY TRANSITION BILL AND DRAFT 2021-2030 INTEGRATED NATIONAL ENERGY AND CLIMATE PLAN: MEASURES TO PROMOTE RENEWABLE HYDROGEN

The Climate Change and Energy Transition Bill establishes that the government will promote, by approving specific plans, the penetration of renewable gas, including biogas, biomethane, hydrogen and other fuels produced from raw materials and energy from renewable sources or that will enable the reuse of organic waste or by-products of plant and animal origin.

Moreover, the abovementioned bill urges the adoption of measures for biomethane. In particular, the adoption of (1) annual penetration targets for renewable gases, (2) a certification system and (3) regulations that will allow the injection of these renewable gases into the natural gas network.

PROMOTING BIOMETHANE

Biomethane is currently the only renewable alternative to natural gas. Its development entails the following:

- meeting the European Union climate targets deriving from the Paris Agreement;
- improving the environmental management of agricultural, livestock and agro-industrial waste, sludge from waste water treatment plants (WWTPs) and municipal solid waste (MSW), promoting the circular economy;
- supporting rural development and establishing employment and population in agricultural and stock-breeding environments where many of the biogas plants are located[11].

Along this line, different systems are being developed to upgrade biogas to biomethane to process a wide range of biogas types derived from the recovery of different wastes and processes and its use in mobility solutions.

With the aim of coordinating the work carried out to that effect by Spanish entities and as a result of public-private partnership, in December 2017, the Secretariat of State for Energy's Subdirectorate General of Hydrocarbons created a specific working group in which Gasnam, SEDIGAS and the appropriate public bodies participate.

- **Biomethane guarantee of origin system**

Biomethane guarantees of origin have already been implemented in 10 European Union countries, and therefore it is key for Spain to make progress with its development model.

In this line of work, in 2015, the Spanish Gas Association [Asociación Española del Gas – SEDIGAS] created a working group to promote renewable gas. Within this working group, the definition, characteristics, development and implementation of biomethane guarantees at national level is being promoted, observing the trends and good practices of these actions in Europe (European Renewable Gas Registry – ERGaR). In addition, in 2017, the Natural Gas for Mobility Association of Spain and Portugal [*Asociación Ibérica de Gas Natural para la Movilidad – Gasnam*] established a working group dedicated to renewable gas that analyses the future of guarantees of origin in Spain, among other issues.

[11] The Spanish Biogas Association [Asociación Española de Biogás – AEBIG] estimates that in Spain there are around 50 operational biogas plants, the majority of which dedicate their production to self-consumption.

At European level, Spanish entities participate in the ERGATRACE (European Renewable GAs TRAde Centre) project promoted by the European Biogas Association (EBA) and by the European Renewable Gas Registry (ERGaR). The Horizon 2020 programme was presented in February 2018 with the aim of standardising renewable gas guarantees in the various EU countries.

- **Pilot projects to develop biomethane for mobility**

Spain is a pioneer in the use of biomethane, having injected it into the gas network since 2012, and it has the biggest biomethanisation complex in Europe. This is Valdemingómez Technology Park (Madrid), comprising two biomethanisation plants (Las Dehesas and La Paloma) and one biogas treatment plant (biogas cleaning, concentration and compression).

The projects developed in recent years to obtain biomethane from biogas and its use in road transport include the following:

- ***La Galera (Tarragona): BioCNG and injection into the network***

The industrial **compressed biomethane** production plant of the company Biometagás in La Galera (Tarragona) is set to be launched at the end of 2019[12]. This plant will generate and inject biomethane into the gas network, with a maximum production capacity of 3,000 tonnes of biomethane per year, corresponding to an equivalent electrical power of 2.2 MW. Biomethane will be produced from 100 daily tonnes of organic waste such as olive pomace paste (a by-product obtained from olive centrifugation), slurry and agri-food waste. The biomethane will be compressed at 250 bar and transported in bottles to the gas network to be injected subsequently. This entails an investment of EUR 5 million.

- ***Bens (A Coruña)***

This is a partnership project between Naturgy, the innovation centre EnergyLab and the public company that treats the waste water from the municipalities of A Coruña, Arteixo, Cambre, Culleredo and Oleiros. It enables the generation of biomethane for use in several vehicles, such as those of the company Edar Bens SA, an interurban bus and a van. It has co-financing from the Clima Programme, 2019 call for funds.

- ***Chiclana de la Frontera (Cádiz): All Gas***

The All-Gas project[13], co-financed by the European Union's Seventh Framework Programme with EUR 6 million, started in 2010 to demonstrate the sustainable large-scale production of biofuels based on low-cost microalgae cultures using municipal wastewater. The nitrogen and phosphorus given off by the wastewater are an ideal medium for the growth of microalgae, which can be turned into biogas and then into methane.
Led by FCC Aqualia S.A. and implemented at the El Torno treatment plant in Chiclana de la Frontera (Cádiz). This location was chosen because the solar resource is one of the main ingredients for the growth of microalgae. The project demonstration phase began in December 2017, consisting of testing the biogas in 40 vehicles to check their operation.

- ***Vila-Sana (Lleida): LIFE Methamorphosis***

This pilot plant processes 214 Nm^3/h of biogas (with an approximate methane content of 65%) from the Ecobiogas[14] agricultural biogas plant to produce 150 Nm^3/h of renewable gas with a methane content of 95%. 99.5% of all methane entering the system is recovered. The project is coordinated by Aqualia and the project consortium is made up of organisations such as: Fomento de Construcciones y Contratas (FCC), Naturgy, SEAT, Área Metropolitana de Barcelona (AMB) and the Catalan Energy Institute (ICAEN).

[12] Construction began in August 2017 and is being carried out by the company AGF Procesos Biogás S.L.
[13] ENERGY.2010.3.4-1 – Biofuels from algae project
[14] Owned by the pig farm Porgaporcs. Located 35 kilometres from Lleida. Built by Bright Biomethane.

- ***Totana (Murcia): LIFE STO3RE to increase biogas production from wastewater treatment plant sludge and slurry by 30%***

The prototype built at the Totana WWTP has made it possible to treat representative combinations of sludge from six WWTPs (Totana, Alhama de Murcia, Mazarrón, Puerto Lumbreras, Librilla and Aledo) and slurries from five farms located in this area, which concentrates more than 150 livestock farms and generates 1.35 million tonnes of agro-industrial waste every year. It has made it possible to increase biogas production from sludge and slurries by more than 30%, seeking to come close to 'zero waste'. This way, a circular economy model is promoted based on sludge and slurry management to turn waste into resources. By combining different technologies that include physicochemical and biological processes, it has been possible to eliminate organic micropollutants and pathogens present in sludge and slurries and, at the same time, to obtain biogas that can be reused as an energy source, as well as nitrogen, potassium and phosphorus for use on farms in the area (biofertilizers).

It is led by FACSA (a water treatment company) and formed by the sewerage and wastewater treatment entity of Murcia (ESAMUR[15]), the innovation centre AINIA, the Centre for Soil Science and Applied Biology of the Segura (CEBAS) attached to the Spanish National Research Council (CSIC) and the laboratory IPROMA. It had a budget of EUR 1,957,874 and co-financing from the LIFE European instrument. It began in September 2015 and lasted 40 months.

- ***Fornillos de Apiés landfill (Huesca): VERTEGAS project***

The VERTEGAS project consists of a techno-economic viability study for innovation in waste management by means of managing and classifying waste with selective collection and taking advantage of the biogas that is generated in landfills and waste treatment plans to produce hydrogen. It has a total budget of EUR 73,341 and it has received support from the 2017 call for the Innovative Cluster Programme [*Programa de Agrupaciones Empresariales Innovadoras*] of the Secretariat-General for Industry and SMEs with EUR 47,968. The viability study was carried out – with the aim of being able to replicate at other facilities – at the Fornillos de Apiés treatment plant in Huesca managed by the public company *Gestión de Residuos Huesca (GRHUSA)*. The project partners, belonging to the New Hydrogen Technologies Innovative Cluster [*Agrupación Empresarial Innovadora de las Nuevas Tecnologías del Hidrógeno – AEI-NTH*], are the Aragon Hydrogen Foundation [*Fundación para el Desarrollo de las Nuevas Tecnologías del Hidrógeno en Aragón – FHA*], the Huesca-based company Tafyesa S.L. and the University of Zaragoza.

- ***Navia (Asturias): biogas from slurries for injection into the network and mobility***

Since 2015, Biogastur and Central Lechera Asturiana have been carrying out a pioneering project to minimise the impact of slurries by turning them into biogas to be used in vehicles. They are currently analysing injecting the gas into the network.

- **<u>Injection of biomethane into the gas network</u>**

Moving forward with the technical requirements for the injection of biomethane into the gas network and the adaptation of the associated tolls is essential for the deployment of biomethane in mobility.

[15] Entity responsible for the treatment and reuse of wastewater in Murcia

2018 CALL FOR WASTE AID (PIMA WASTE AND PEMAR): EFFICIENT USE OF BIOGAS

The State Secretariat for the Environment announces aid to promote actions that will make it possible to reduce greenhouse gas (GHG) emissions and make progress towards achieving the targets in Directive 2008/98/EC on waste, Act 22/2011 of 28 July 2011 on waste and contaminated land, the National Framework Plan for Waste Management [*Plan Estatal Marco de Gestión de Residuos – PEMAR*], as well as meeting the targets related to renewable energies. This aid especially promotes the implementation of innovative projects by local bodies.

The 2018 call for aid included a specific line of action for the **efficient use of biogas**, both at facilities for the anaerobic digestion of waste as well as in those for WWTP sludge.

APPROVAL OF TECHNICAL STANDARDS

- ISO 16923: 2016 (CNG) and ISO 16924: 2016 (LNG): Design, construction, operation and maintenance of stations for fuelling LNG/CNG to vehicles
- Certification of persons according to UNE-EN ISO/IEC 17024: LNG tanker drivers who offload at LNG satellite plants.
- UNE EN 16723-1: 2017 Natural gas and biomethane for use in transport and biomethane for injection into the natural gas network. Part 1: Specifications for biomethane for injection in the natural gas network (June 2017) and UNE EN 16723-2 (June 2018) Part 2: Automotive fuels specification.

DEVELOPMENT OF A METHODOLOGY TO CONSIDER RENEWABLE GAS IN THE CALCULATION OF CO_2

In the EU Regulation on CO_2 emissions for lorries and other heavy-duty vehicles, which adopted a 30% reduction for lorry CO_2 emissions by 2030 compared with 2019 levels, there is a review clause for the year 2022 that lays down development of a methodology that takes into account the effect of renewable gas on the reduction of CO_2 emissions considering the entire fuel life-cycle from its production and not only exhaust emissions. The Spanish sector is working actively along this line to implement this measure.

II.2. ELECTRICITY[16]

- **In September 2019 Spain had a fleet of 69,497 electric vehicles**, of which 76% are pure electric vehicles (BEVs), 22% are plug-in hybrids (PHEVs) and only 2% are extended-range electric vehicles (EREVs). Passenger cars account for 55% of these, followed by motorcycles (16%), mopeds (12%), vans and car-based vehicles (6%).

- **State aid schemes:** MOVEA 2016, MOVEA 2017, MOVALT 2018 and MOVES 2019 have supported the purchase of electric vehicles and other new energy vehicles and the deployment of charging infrastructure:
  - **MOVEA 2016:** 1,643 electric vehicles and 42 charge points;
  - **MOVEA 2017:** 1,636 electric vehicles and 26 charge points;
  - **2018 MOVALT Vehicles:** 1,583 electric vehicles and **2018 MOVALT Infrastructure:** pending a decision although there are 310 favourable files.
  - **2019 MOVES Vehicles and Charging Infrastructure:** programme still under way with a budget of EUR 45 million to promote the use of all alternative fuels and charge points.
  - **2019 MOVES One-off projects:** currently under way, with a budget of EUR 15 million to fund innovation projects (electromobility technology developments) and mobility management in cities.

- **Electric models manufactured in Spain:** three models of electric vans are currently manufactured in Spain (Peugeot Partner, Citroen Berlingo and Nissan e-NV200), the Irizar-ie bus, quadricycles (Little Electric Cars) as well as motorcycles and mopeds (Torrot, Scutum, Volta, Rieju, Bultaco and GoingGreen). Moreover, Spanish factories have recently been awarded three passenger car models (Peugeot 2008, Citroen C4 and Opel Corsa EV) and a van (Mercedes eVito). The SEAT factory in Martorell will develop a platform for small electric passenger cars (small BEV) and Renault will manufacture and assemble batteries in Valladolid. In addition, the plug-in electric versions of the Ford Kuga (late 2019), SEAT León and SEAT Formentor (both for 2020) have been awarded.

- At present, **there is no full information about the number of charge points,** although the government is working, through the State Secretariat for Energy, on a European programme to identify charge points. According to the estimates from the sector in Spain, there are currently **around 5,100 public charge points with all charging powers.** Both the electric infrastructure deployment plans that have been announced by companies and public entities, as well as those that have not yet been announced publicly, together with the forecast evolution of the electric vehicle fleet, will entail a significant increase in the number of charge points.

- **Projects to deploy rapid and ultra-fast charge points** in Spain co-financed by the Connecting Europe Facility:

[16] The National Action Framework includes only battery electric vehicles (BEVs), extended-range electric vehicles (EREVs) and plug-in hybrid electric vehicles (PHEVs). Non-plug-in hybrids (HEVs) are therefore excluded.

- **CIRVE:** This will entail the installation of 40 rapid charge points (> 40 kW), of which 25 will be new rapid charge points and 15 will be upgrades to existing points in strategic areas of the Atlantic and Mediterranean Corridors. It has been under way since 2016 and completion is scheduled for December 2020. Thus, in its first two years of implementation, 15 rapid charge points have been installed and five are in the final stage of processing. There is a parallel project in Portugal with other partners to install 18 charge points.
- **eVIA project:** This will entail the installation of 14 ultra-fast charge points (from 150 kW to 350 kW) in Spain (four), Italy (eight) and France (two) for electric vehicles. It will guarantee the connection between Madrid and the border with France via the A-1 and A-2 roads. Completion is scheduled for 2019. (2017 call).
- **IONITY Europ-E project:** envisages the installation of 340 ultra-fast charging stations in 13 Member States. In Spain, it is planned to build 21 ultra-fast charging stations (350 kW), each with two to six chargers and for the charging stations to be located every 120 kilometres along the TEN-T Core Network Corridors mainly on motorways. Three charging stations are currently under construction.
- **Enel Ambra project:** the aim is to install over 1,400 charge points, including fast (22 kW), rapid (43-50 kW) and ultra-fast (> 150 kW) along the stretches of the Atlantic and Mediterranean Corridors that pass through Spain. The implementation phase began in September 2018 and completion is scheduled for the end of 2022.

- **The private sector has announced significant plans to deploy publicly accessible charging infrastructure.** The deployment of charge points with different charging powers both in urban agglomerations and the main roadways in Spain. In that regard, deployment plans have been identified for around 9,000 charge points up to 2023.

- **Initiatives to promote electric mobility:**

  The following initiatives have been added between 2017 and 2019 to the initiatives developed up to 2016 and included in the National Policy Framework (see section II.7.1):

  - **Passing of Royal Decree-Law 15/2018** of 5 October 2018 on urgent measures for energy transition and consumer protection: it deregulates the activity of electric vehicle charging and creates an information register to follow charge point activity.
    In addition, to promote the introduction of charge points, this law allows electricity distributors to be owners of last resort of electric vehicle charging infrastructure, provided that following a competitive procedure it is decided that there is no interest in private initiative, under the terms and conditions legally established by the government.
  - A **draft Royal Decree on electric charging methods** is currently being prepared, which must be approved by the government, as well as a draft Circular on electricity transmission and distribution tariffs methods that must be approved by the National Commission on Markets and Competition [*Comisión Nacional de los Mercados y la Competencia – CNMC*].

These methods call on the CNMC to take into account the energy policy guidelines set out in Order TEC/406/2019 of 5 April 2019 laying down energy policy guidelines for the National Commission on Markets and Competition. The Order thus establishes that the new methods 'should contribute to promoting electric mobility'. These rules will have a direct impact on the promotion of electric mobility, due to affecting the cost of charging electric vehicles, the distributions between fixed costs (linked to charging power) and variable costs (linked to the energy charged), as well as the establishment of different periods with different cost prices.

- Creation of the **Battery Working Group** by the Ministry of Industry, Trade and Tourism, in which over 70 entities participate.

- **Promotion of the IPCEI battery initiative** (Important Projects of Common European Interest): as a result of the work of the EBA (European Battery Alliance), since June 2019 the Government of Spain has promoted the participation of Spanish companies in a European-wide consortium led by Germany to develop batteries for mobility.

- **Climate Change and Energy Transition Bill:** This bill calls on petrol and diesel service stations with an aggregate volume greater than or equal to 10 million litres and with a volume between five and 10 million litres to install at least one electric charging infrastructure with charging power equal to or greater than 22 kW.

- **Draft 2021-2030 Integrated National Energy and Climate Plan:** this plan sets out the targets for cutting greenhouse gas emissions, penetration of renewable energies and energy efficiency related to electric mobility in line with the Climate Change and Renewable Energies Bill. With regard to electric mobility, this plan indicates that the presence of renewables in mobility/transport will reach 22% in 2030, where the electricity from renewable sources used by electric cars will make a very significant contribution.

- **2020-2030 National Air Pollution Control Programme:** this programme sets out measures aimed at meeting the pollutant gas emission reduction targets from Directive (EU) 2106/2284 in synergy with the electric mobility and renewables promotion measures in the Integrated National Energy and Climate Plan.

- **PSA ID and Data Collection for Sustainable fuels in Europe (IDACS):** with the aim of grouping together the information and location of the charge points in Spain, the government is participating, through the State Secretariat for Energy, in the PSA-IDACS initiative, the goal of which is to gather both static (location, charging power, number or type of connectors, etc.) and dynamic (point availability) information on publicly accessible hydrogen and electricity charge points. The plan is to make this information available to the public on an information platform.

- **Publication of the ITC-BT-52 Interpretation Guide in 2017** in order to make it easier for technicians to implement the 2014 ITC-BT-52 guidelines for installing electric vehicle charging infrastructure.

II.2.1. FLEET OF VEHICLES AND REGISTRATIONS

According to data from the Directorate-General for Road Transport (DGT), 69,497 electric vehicles were on Spanish roads in September 2019[17]. Passenger cars account for 55% of these, followed by motorcycles (16%), mopeds (12%), vans and car-based vehicles (6%).

In terms of technology, 76% are pure electric vehicles (BEVs), 22% are plug-in hybrids (PHEVs) and only 2% are extended-range electric vehicles (EREVs).

15,462 electric vehicles were registered in the first eight months of 2019.

Table II-8. Electric vehicles (BEVs, EREVs and PHEVs) on the roads (December 2011-June 2019)

	2011			**2012**			**2013**			**2014**			**2015**		
Type	BEV	REEV	PHEV	BEV	REEV	PHEV	BEV	REEV	PHEV	BEV	REEV	PHEV	BEV	REEV	PHEV
Passenger cars	495	2	18	926	49	82	1,643	65	144	2,525	161	430	3,564	209	960
Motorcycles	1,134	0	52	2,162	0	52	2,880	0	52	3,213	0	42	3,342	0	39
Car-based vehicles, Vans and Pickups	117	0	0	302	0	0	364	0	0	678	0	0	1,027	0	3
Quadricycles	491	0	1	1,633	0	2	2,062	0	2	2,333	0	3	2,508	4	5
Mopeds	1,142	0	0	1,302	0	0	1,450	0	0	1,641	1	0	1,653	0	0
Buses and Coaches	32	0	22	46	0	32	53	0	31	30	6	33	58	7	34
Other vehicles	1,044	0	20	1,124	0	26	1,182	0	28	1,357	0	19	1,700	4	19
Total	**4,455**	**2**	**113**	**7,495**	**49**	**194**	**9,634**	**65**	**257**	**11,777**	**168**	**527**	**13,852**	**224**	**1,060**
	4,570			***7,738***			***9,956***			***12,472***			***15,136***		

	2016			**2017**			**2018**			**Sept. 2019**		
Type	BEV	REEV	PHEV	BEV	REEV	PHEV	BEV	REEV	PHEV	BEV	REEV	PHEV
Passenger cars	5,764	430	2,521	9,686	767	5,798	15,855	1,169	11,538	21,601	1,354	15,299
Motorcycles	3,451	2	51	5,687	2	39	8,549	2	53	11,199	2	53
Car-based vehicles, Vans and Pickups	1,830	0	4	2,514	0	5	3,783	0	5	4,501	0	6
Quadricycles	2,599	5	5	2,718	5	2	2,797	5	3	2,866	5	3
Mopeds	1,987	0	0	2,983	1	0	6,408	1	0	8,112	2	0
Buses and Coaches	68	8	42	82	8	42	100	8	50	132	8	62
Other vehicles	2,209	4	24	2,796	5	30	3,698	8	47	4,233	10	50
Total	**17,908**	**449**	**2,647**	**26,466**	**788**	**5,916**	**41,190**	**1,193**	**11,696**	**52,644**	**1,380**	**15,473**
	21,004			***33,170***			***54,079***			***69,497***		

[17] This figure includes pure electric vehicles (BEVs), extended-range electric vehicles (EREVs) and plug-in hybrid vehicles (PHEVs), but not hybrid vehicles (HEVs, non-plug-in).

Source: Directorate-General for Road Transport

Table II-9. Registrations of new electric vehicles (BEVs, EREVs and PHEVs) (2011-June 2019)

	2011			2012			2013			2014			2015		
Type	BEV	REEV	PHEV	BEV	REEV	PHEV	BEV	REEV	PHEV	BEV	REEV	PHEV	BEV	REEV	PHEV
Passenger cars	384	2	8	440	47	64	806	20	68	1,036	105	325	1,168	48	660
Motorcycles	440	0	22	1,057	0	0	774	0	1	405	0	0	228	0	1
Car-based vehicles, Vans and Pickups	48	0	0	197	0	0	74	0	0	332	0	0	365	0	3
Quadricycles	118	0	0	1,158	0	1	457	0	0	313	0	1	214	4	2
Mopeds	244	0	0	315	0	0	268	0	0	313	1	0	79	0	0
Buses and Coaches	5	0	9	14	0	13	4	0	0	3	6	1	2	1	2
Other vehicles	92	0	9	75	0	7	68	0	1	92	0	0	89	0	0
Total	**1,331**	**2**	**48**	**3,256**	**47**	**85**	**2,451**	**20**	**70**	**2,494**	**112**	**327**	**2,145**	**53**	**668**
	1,381			***3,388***			***2,541***			***2,933***			***2,866***		

	2016			2017			2018			Sept. 2019		
Type	BEV	REEV	PHEV	BEV	REEV	PHEV	BEV	REEV	PHEV	BEV	REEV	PHEV
Passenger cars	2,120	157	1,516	4,140	347	3,351	6,507	410	5,850	5,921	196	3,798
Motorcycles	217	2	2	2,382	0	0	3,162	0	1	2,756	0	0
Car-based vehicles, Vans and Pickups	717	0	0	715	0	1	1,325	0	0	743	0	1
Quadricycles	157	1	0	156	0	0	173	0	1	80	0	0
Mopeds	397	0	0	1,061	1	0	3,533	0	0	1,736	0	0
Buses and Coaches	12	1	9	16	0	0	22	0	8	40	0	12
Other vehicles	111	0	0	153	0	11	346	3	10	173	2	4
Total	**3,731**	**161**	**1,527**	**8,623**	**348**	**3,363**	**15,068**	**413**	**5,870**	**11,449**	**198**	**3,815**
	5,419			***12,334***			***21,351***			***15,462***		

Source: Directorate-General for Road Transport

MANUFACTURE AND SALE OF ELECTRIC VEHICLES

Three models of electric vans are currently manufactured in Spain (Peugeot Partner, Citroen Berlingo and Nissan e-NV200), the Irizar-ie bus, quadricycles (Little Electric Cars) as well as electric motorcycles and mopeds (Torrot, Scutum, Volta, Rieju, Bultaco and GoingGreen).

Moreover, Spanish factories have been awarded three passenger car models (Peugeot 2008, Citroen C4 and Opel Corsa EV) and a van (Mercedes eVito). Furthermore, the SEAT factory in Martorell will develop a platform for small electric passenger cars (small BEV) and Renault will manufacture and assemble batteries in Valladolid.

The plug-in electric versions of the Ford Kuga (late 2019), SEAT León and SEAT Formentor (both for 2020) have also been awarded.

Table II-10. Electric vehicles (except motorcycles) manufactured and/or awarded in Spain as at June 2019.

Pure electric vehicles (BEV):

BRAND	MODEL	MANUFACTURING PLANT	TYPE
PSA Citroën - Peugeot	Partner Electric	Vigo	Commercial
	Berlingo Electric		
	New vans: Opel Combo, Toyota Proace, Peugeot Rifter	*An electrified version will be made but a specific date has not yet been decided. Expected in 2020*	*Commercial*
	Award: Peugeot 2008	*Vigo (starting in 2020)*	*Passenger car*
	Award: Citroën C4	*Madrid (starting in 2021)*	*Passenger car*
Opel	*Award: Corsa EV*	*Figueruelas (Zaragoza) (starting in 2020)*	*Passenger car*
Mercedes	*Award: eVito*	*Vitoria (starting in 2019)*	*Commercial*
Nissan	e-NV200	Barcelona	Commercial
Irizar	ie-bus	Gipuzkoa (Ormaiztegi and Aduna). 3 versions: 10, 12 and 18 m	Urban bus
Little Electric Cars	Little 4 and Little EBOX	Pontevedra	Quadricycle

Plug-in electric vehicles (PHEV):

BRAND	MODEL	STATUS	TYPE
Ford	*Award: Kuga*	*At the end of 2019*	*Passenger car*
SEAT	*Award: León*	*Starting in 2020*	*Passenger car*
	Award: Formentor	*Starting in 2020*	*Passenger car*

Source: ANFAC and AEDIVE.

II.2.2. CHARGING INFRASTRUCTURE[18]

EXISTING RAPID CHARGING INFRASTRUCTURE

Full information on charge points is not currently available, and therefore the government, through the State Secretariat for Energy, is participating in the European project (PSA-IDACS) promoted by the European Commission. The aim of this project is to gather information on hydrogen and electricity charge points, as well as on identifying companies from the electric mobility sector with harmonised criteria at European level.

[18] The number of charge points refers to the number of connectors that can simultaneously supply electricity to electric vehicles at the same charging post or station.

However, the Secretariat-General for Industry and SMEs has collected information from the main rapid charge point operators in Spain, the Electric Vehicle Control Centre [*Centro de Control del Vehículo Eléctrico*] (*Cecovel* from *Red Eléctrica de España*) and the Alternative Fuels in Transport Working Group with autonomous communities and city councils, with a specific alternative mobility plan for which the Secretariat-General for Industry and SMEs acts as secretary. This exercise has resulted in the identification of around 300 rapid charge points (> 43 kW). Given the current difficulty of obtaining information about charge points, this figure does not represent all of them. In that regard, based on the data from the Spanish Association of Car and Truck Manufacturers [*Asociación Española de Fabricantes Automóviles y Camiones – ANFAC*], which has analysed the charging situation in Spain, it is estimated that there are currently around **5,187 public charge points with all charging powers at 3,085 charging stations.**

Number of charge points in 2019[1]:

Power	Up to 3.6 kW	Up to 7 kW	11-22 kW	+ 43 kW	TOTAL
Number of charge points	2,764	682	1,217	522	**5,187**

[1] Based on ANFAC data

With regard to future trends, the electric infrastructure deployment plans that have been announced by companies and public entities, as well as those that have not been announced publicly, together with the forecast evolution of the electric vehicle fleet, will entail a significant increase in the number of charge points. Taking all these factors into account, it is estimated that the number of charge points will be adequate to ensure the electric vehicles can be charged on the road.

On the other hand, electric vehicles can facilitate the management of the electricity grid and enable better integration of renewable energies. Thus, in accordance with the estimates from the Business Association for Electric Vehicle Development and Promotion [*Asociación Empresarial para el Desarrollo e Impulso del Vehículo Eléctrico – AEDIVE*], in a scenario in which the average battery capacity is 50 kWh, where 20% of that battery is available to store electricity (10 kWh) and considering a fleet of EUR 5 million in 2030, there could be storage capacity of 50 GWh.

RAPID AND ULTRA-FAST CHARGING INFRASTRUCTURE PROJECTS CO-FINANCED BY THE Connecting Europe Facility: CLRVE, E-VIA, IONITY, AMBRA

- **CIRVE project ('Iberian Corridors of Rapid Recharging Infrastructure > 40 kW for Electric Vehicles')**

The Iberian Corridors of Rapid Recharging Infrastructure for Electric Vehicles (CIRVE) project has been being developed since December 2016. It is a project co-financed by the European Commission, through the 2015 Connecting Europe Facility (CEF) call. The consortium is made up of eight partners (Endesa, Iberdrola, EDP, IBIL, GIC, Renault, AEDIVE and Portuguese innovation centre CEIIA) and has support from the Spanish government through the Ministry of Industry and the Ministry of Public Works. In Portugal, there is a parallel project with other partners although both share objectives.

The objective is to install fast charge points (> 40 kW) for electric vehicles in strategic areas of the Atlantic and Mediterranean Corridors that pass through Spain and Portugal, as well as carry out actions related to interoperability. Specifically, in Spain there are plans to install 40 points, of which 25 are points in new locations and 15 are adaptations of existing points. Thus, in its first two years of implementation, 15 rapid charge points have been installed and five are in the final stage of processing. This is making it possible to study the business model with real parameters, with a view to installing rapid charging infrastructure along the basic TEN-T network and thus connecting the Iberian Peninsula with the rest of the EU. Completion is scheduled for December 2020.

Figure II-1. Map of charge points under the CIRVE project

Source: AEDIVE.

- **E-VIA FLEX-E project**

E-VIA FLEX-E is a project co-financed by the European Commission through the 2017 CEF Blending Facility call, which aims to install ultra-fast charge points (from 150 kW up to 350 kW) for electric vehicles in the south of European, specifically in Spain, France and Italy. This project is being implemented by a consortium of private companies led by Italian energy company Enel and comprising Spanish charging system manager IBIL, the French-Japanese alliance Renault-Nissan, Austrian energy company Verbund and French energy companies EDF and Enedis. The project kick-off meeting was held on 13 February 2018 and completion is not scheduled until December 2019.

A pilot will be carried out to install charging stations capable of providing the 350-kW service to one vehicle or simultaneous charges to several vehicles with lower power charging standards. In that regard, the pilot project includes the installation and operation of 14 flexible ultra-fast charging infrastructures in the European corridors of the Trans-European Transport Network (TEN-T). The planned distribution of these points is as follows: eight points in Italy, four in Spain (operated by IBIL) and the remaining two in France.

The Spanish company IBIL leads the activity 'Specifications and technical definition of the project' and is currently working on the installation of high-power charge points in four locations on the Spanish network of motorways and highways. IBIL has already opened an initial installation in the Basque County and the other locations are yet to be defined, although it is anticipated that they will be located along the highways of the Madrid-France corridor, distributing the four ultra-fast points along the A-1 and the A-2.

- **EUROP-E project coordinated by the joint venture IONITY**

In 2016, a memorandum of understanding was signed between four car manufacturers – BMW, Daimler-Chrysler, Ford and the Volkswagen group (VW, Audi and Porsche) – to create a joint venture called IONITY, to deploy an ultra-fast charging network to allow long journeys covering Europe's main motorways. Initially, they committed to installing 400 charging stations of up to 350 kW before December 2020.

As a result of this memorandum of understanding, a consortium led by the joint venture IONITY GmbH submitted the EUROP-E[19] (European Ultra-Charge Roll Out Project – Electric) project for the 2017 CEF Blending Facility call and was awarded EUR 39 million to install 340 ultra-fast charging stations in 13 Member States. In Spain, it is planned to build 21 ultra-fast charging stations (350 kW), each with two to six chargers and for the charging stations to be located every 120 kilometres along the TEN-T Core Network Corridors mainly on motorways. Three charging stations are currently under construction.

Figure II-2. Map of ultra-fast charge points under the EUROP-E project coordinated by the joint venture IONITY

Source: INEA/European Commission

- **AMBRA project**

AMBRA is a project co-financed by the European Commission, through the 2017 CEF Blending Facility call, which aims to install high-power charge points (> 40 kW) for electric vehicles in Italy, Spain and Romania within the following corridors of the Trans-European Transport Network (TEN-T): Atlantic, Mediterranean, Rhine-Danube, Rhine-Alpine, Baltic-Adriatic and Scandinavian-Mediterranean. This project, coordinated by Italian energy company Enel, will include the deployment of around 1,400 fast (22 kW), rapid (43-50 kW) and ultra-fast (> 150 kW) points along the stretches of the Atlantic and Mediterranean Corridors that pass through Spain. The implementation phase began in September 2018 and completion is scheduled for the end of 2022.

[19] https://ec.europa.eu/inea/en/connecting-europe-facility/cef-transport/2017-de-tm-0064-w. Budget: EUR 195,526,894; 20% co-financed

PUBLICLY ACCESSIBLE CHARGING INFRASTRUCTURE PROMOTED BY BUSINESS PLANS

Since the deployment of charge points is a fundamental factor to promote this mode of transport, **certain companies have announced important deployment plans and others are examining the possibility of penetrating this segment** of electric mobility.

In total, deployment plans have been identified of **as many as 9,000 charge points** up to 2023.

In this case, the strategies are mainly focused on deploying charge points with various charging powers in:

- main **roads** of Spain;
- urban **agglomerations;**
- **shopping centres, public car parks, restaurants, hotels** and other tertiary-sector facilities**;**
- installation of **slow charge** points in residential and corporate car parks.

PUBLICLY ACCESSIBLE CHARGING INFRASTRUCTURE IN AIRPORT CAR PARKS

As at 31 December 2018, there were 11 slow charge points managed by Aena at the following airports:

- **Madrid-Barajas** (P2 Preferente car park): 2.
- **Palma de Mallorca** (long-stay car park): 7.
- **Santiago de Compostela:** 2.

At the end of 2018, Aena invited tenders for the installation of **152 charge points in Spanish airports, which will be in operation over the course of 2020.** It is anticipated that 132 will be slow charge (up to 11 kW), 19 fast (up to 22 kW) and one rapid (43 kW in AC and 50 kW in DC). The project is divided into the following two lots considering the car park management systems present in the various airports in the network:

- Lot 1 – Adolfo Suárez Madrid-Barajas, Palma de Mallorca, Bilbao, Asturias, Vigo, Zaragoza and Tenerife Norte.
- Lot 2 – Barcelona-El Prat, Alicante-Elche, Girona-Costa Brava, Ibiza, Menorca, Málaga, Sevilla, Valencia, Almería, A Coruña, Aeropuerto Internacional de la Región de Murcia (Corvera), Granada-Jaén, Jerez, Reus, Seve Ballesteros-Santander, Santiago de Compostela, Melilla, Pamplona, San Sebastián, Valladolid, Fuerteventura, Lanzarote, La Palma and Tenerife Sur.

PUBLICLY ACCESSIBLE CHARGING INFRASTRUCTURE IN RAILWAY STATION CAR PARKS

To promote electric vehicles, Adif, the Spanish railway infrastructure administrator, is working to provide charge points in the car parks of its stations, and therefore it has a budget of EUR 400,000 that includes the installation of the following:

- a rapid charging station in both the Málaga-María Zambrano railway station car park, as well as at the attached taxi rank, using power from the high-speed line power network;
- a rapid charging station in the car park of the Santander railway station;
- an anticipated rapid charging station around one station in Madrid, using power from the power network of a suburban rail line.

II.2.3. INITIATIVES DEVELOPED DURING 2016-2019

CONTINUATION OF THE STATE AID PLANS FOR THE PURCHASE OF VEHICLES AND THE INSTALLATION OF CHARGE POINTS: MOVEA, MOVALT VEHICLES AND MOVES

The **2016 MOVEA Plan** (Plan for Sustainable Mobility using New Energy Vehicles) **was implemented in 2016** by means of Royal Decree 1078/2015 of 27 November 2015 on the MOVEA Plan and subsequent legislation. Managed by the Secretariat-General for Industry and SMEs, had a budget of EUR 16.6 million and its aim was to boost the new-energy vehicle market by granting direct aid for the purchase of vehicles and installation of charge points. The following were financed thanks to this plan:

- 1,643 electric vehicles;
- 1,492 electric bicycles;
- 42 charge points, of which 17 are rapid charge.

The 2017 MOVEA Plan was approved in 2017 by means of Royal Decree 617/2017 of 16 June 2017 with a budget of EUR 14.26 million. This plan made it possible to finance:

- 1,636 electric vehicles;
- 26 charge points, of which 12 are rapid charge.

Moreover, **the State Secretariat for Energy approved the MOVALT Plan** (Alternative Mobility Support Plan) via the IDAE Decision of 14 November 2017 (published in the *Official State Gazette* of 15 November 2017) to support the purchase of new energy vehicles and installation of charge points. This plan was structured into two segments:

- **MOVALT Vehicles** with a budget of EUR 20 million:
  - 1,583 electric vehicles;
- **MOVALT Infrastructure** with a budget of EUR 20 million:
  - the award has still not been decided, but aid has been applied for and reserved for 310 files.

The MOVES Programme (Efficient and Sustainable Mobility Incentives Programme) **was approved in February 2019** by means of Royal Decree 72/2019 of 15 February 2019. This plan is endowed with EUR 45 million and is geared towards encouraging the purchase of alternative vehicles, installing electric vehicle charging infrastructure, implementing electric bicycle sharing systems and promoting the development of plans for transport to workplaces.

This programme, the terms of which are established by the Ministry for Ecological Transition and the Ministry of Industry, Commerce and Tourism, is managed by the autonomous communities and the amounts of the aid for purchasing vehicles range from EUR 700 for electric motorcycles and EUR 15,000 for lorries and buses with alternative propulsion. The aid for purchasing light electric vehicles is around EUR 5,000.

In terms of the electric vehicle charge points (public and private) and electric bicycle sharing systems, the aid will be 30% or 40% of the eligible cost, depending on the beneficiary type, with a ceiling of EUR 100,000.

MOVES PROGRAMME: ONE-OFF PROJECT LINE

In July 2019, the Ministry for Ecological Transition published the terms for the MOVES Programme – One-off Projects. This programme supplements the Efficient and Sustainable Mobility Incentives Programme (MOVES) approved by Royal Decree 72/2019 of 15 February 2019 and aims to finance initiatives that promote sustainable mobility. The programme is geared towards both public and private entities, it is endowed with EUR 15 million and divided into two lines of financing:

- **One-off urban environment projects:** i.e. integrated management projects that include changes in the mobility model and in the city configuration, committing to efficiency, sustainability and the increased quality of urban life.

- **One-off innovation projects:** i.e. any projects on technology development and innovative experiences in electromobility that may be used to promote the technological leap to electric vehicles and promote the development of experimental projects by Spanish companies, in order to achieve the technological maturity that will facilitate their commercialisation.

The call for this programme is expected to be published during the month of September.

ROYAL DECREE-LAW 15/2018 OF 5 OCTOBER 2018 ON URGENT MEASURES FOR ENERGY TRANSITION AND CONSUMER PROTECTION: DEREGULATING ELECTRIC CHARGING AND CREATING AN INFORMATION REGISTER TO MONITOR ACTIVITY

Royal Decree-Law 15/2018 seeks to increase the availability of public charge points by means of **doing away with the figure of charge manager envisaged in the Electricity Sector Act 24/2013 of 26 December 2013,** given that this figure was too rigid. Installations must continue to comply with the relevant legislation in the area of industrial safety as well as with the rule stipulating that the autonomous communities will manage a **register with the information regarding charge points.** Furthermore, this information **will be available electronically for the public and will be included in future in the single access point,** harmonising the information with the other European Union countries, creating a large information database on the location and characteristics of the public charge points. The terms and conditions for forwarding this information, as well as the installations that must send it, are pending definition by means of regulatory development that is currently being worked on.

In addition, to promote the introduction of charge points, this law allows electricity distributors to be owners of last resort of electric vehicle charging infrastructure, provided that following a competitive procedure it is decided that there is no interest in private initiative, under the terms and conditions legally established by the government.

Furthermore, **a draft Royal Decree on electric charging methods is currently being prepared, which must be approved by the government, as well as a draft Circular on electricity transmission and distribution tariffs** methods that must be approved by the National Commission on Markets and Competition.

These methods call on the CNMC to take into account the energy policy guidelines set out in Order TEC/406/2019 of 5 April 2019 laying down energy policy guidelines for the National Commission on Markets and Competition. The Order thus establishes that the new methods ‘should contribute to promoting electric mobility’.

These rules will have a direct impact on the promotion of electric mobility, due to affecting the cost of charging electric vehicles, the distributions between fixed costs (linked to charging power) and variable costs (linked to the energy charged), as well as the establishment of different periods with different cost prices.

SPANISH BATTERY WORKING GROUP

In October 2017, the European Commission promoted the European Battery Alliance with the aim of creating a competitive European industry along the entire battery value chain (from extracting the raw materials to the manufacture of batteries and subsequent recycling). It seeks to avoid technological dependence on other countries and make the most of opportunities in terms of employment, growth and investment that are offered by this sector. The main agents in this industry (companies, associations, innovation centres and Member States) take part in this alliance, and Spain is represented by the Secretariat-General for Industry and SMEs.

In 2017, this Secretariat led the formation of a working group with the interested Spanish entities from the battery sector to define the industrial opportunities for this industry. This group currently comprises over 70 entities and the last meeting took place on 14 January 2019 at a conference organised by the Ministry of Industry, Trade and Tourism. During the conference, the companies had the chance to explain their main developments regarding batteries and the main European financing mechanisms to support the sector were presented.

SPANISH PROJECTS TO PARTICIPATE IN IPCEI (IMPORTANT PROJECTS OF COMMON EUROPEAN INTEREST)

One of the instruments that was presented in the context of the Battery Alliance was the IPCEI initiative (Important Projects of Common European Interest). This initiative makes it possible to increase the aid received by the companies that participate in an innovative and integrative European project under the supervision of the European Commission. There are currently two IPCEI projects that are being led by France (closed in June 2019) and Germany. With the aim of participating in the IPCEI led by Germany, in 2019 the Secretariat-General for Industry and SMEs published two calls of interest to identify companies interested in forming part of the consortium. Accordingly, the Government of Spain is actively participating in the IPCEI led by Germany to guarantee the inclusion of Spanish companies.

CLIMATE CHANGE AND ENERGY TRANSITION BILL: MEASURES TO PROMOTE AND ENFORCE THE INSTALLATION OF CHARGE POINTS AT SERVICE STATIONS

The Climate Change and Energy Transition Bill is aimed at ensuring the fulfilment of the Paris Agreement targets, facilitating the full decarbonisation of the Spanish economy and ensuring the rational and considerate use of resources. It is thus established as a regulatory framework that makes it possible to facilitate the gradual adaptation of all sectors to the demands of climate action.

Among the proposed measures on electric mobility, this bill establishes the following:

- the owners of fuel supply installations with an aggregate volume of petrol and diesel in 2018 greater than or equal to 10 million litres or with a volume between five and 10 million litres must install at least one electric charging infrastructure with charging power equal to or greater than 22 kW.

PUBLIC CONSULTATION TO UPDATE THE TECHNICAL BUILDING CODE

The aim is to adapt the Technical Building Code [*Código Técnico de la Edificación – CTE*] to the provisions of Directive (EU) 2018/844 of the European Parliament and of the Council amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency.

By doing so, the conditions are established to develop the minimum infrastructures necessary for the smart charging of electric vehicles in building car parks.

Specifically, new non-residential buildings and non-residential buildings subject to significant alterations with more than 10 parking spaces, must have at least one charge point and conduits for electric cables, for at least one in every five spaces.

Moreover, new residential buildings and residential buildings subject to significant alterations with more than 10 parking spaces must have wiring installations for every parking space.

DRAFT OF THE 2021-2030 INTEGRATED NATIONAL ENERGY AND CLIMATE PLAN (INECP): ELECTROMOBILITY INITIATIVES

The INECP is a document prepared by Spain pursuant to the Governance Regulation approved at European level that will make it possible to determine the degree of joint achievement of the greenhouse gas emission reduction, renewable energy penetration and energy efficiency targets.

Specifically, the following electromobility measures are worth noting out of those included in the Draft National Plan:

- The main driving force for decarbonising the mobility and transport sector will be a modal shift that will, according to the plan, affect 35% of passenger kilometres that are done today in conventional combustion vehicles, by means of sustainable urban mobility plans or transport to work plans.

- Another driving force for decarbonising the sector will be the presence of renewables in mobility, which according to the INECP will total 22% renewable energy in transport by 2030, and where the use of renewable electricity by electric vehicles will make a very significant contribution. This percentage is significantly higher compared to the target stated in the revision of the Renewable Energy Directive, which establishes a general target for renewables in transport of 14% by 2030. To do this, different measures will be considered to renew the fleet of vehicles and support electric vehicles.

PSA E-MOBILITY CODES & DATA COLLECTION (IDACS)

One of the main problems faced by electric mobility is the lack of information on the charge point network throughout Spain. Thus, not only the number of charge points accessible to the public is important; it is also essential to have reliable and real-time information about these points. Therefore, Spain is participating through the State Secretariat for Energy in a European project (Programme Support Action – PSA) to identify charge points. The aim of this project is to identify each charge point and gather both static (location, number or connector type, etc.) and dynamic (point availability) information. The information is due to be included in the current geographical information platform from the Ministry for Ecological Transition (geoportalgasolineras.es) together with information on other fuels, which in turn will be present on the National Traffic and Mobility Access Point (nap.dgt.es), in accordance with the implementing legislation for Directive 2010/40/EU.

PUBLICATION OF THE ITC-BT-52 INTERPRETATION GUIDE

The Secretariat-General for Industry and SMEs published the ITC-BT-52 interpretation guide in November 2017[20]. This non-binding guide derives from Royal Decree 1053/2014 of 12 December 2014 approving a new Complementary Technical Instruction (ITC) BT 52 'Special-Purpose Installations: Electric vehicle charging infrastructure', for the Electrical and Technical Regulations for Low-Voltage Systems, approved by Royal Decree 842/2002 of 2 August 2002. The aim of this guide is to make it easier for technicians to install electric vehicle charging infrastructure.

[20] http://www.f2i2.net/documentos/lsi/rbt/guias/guia_bt_52_nov17R1.pdf

II.3. LIQUEFIED PETROLEUM GAS

- Spain has a **fleet of 61,150[21] LPG vehicles** and **636[22] LPG** refuelling stations spread over all the autonomous communities[23]. The evolution of LPG since 2016 – when the National Policy Framework was approved – has not gone as quickly as expected. It was starting from a market that was much more mature than the other alternative fuels, where consumers were already familiar with LPG and it was already used in passenger cars, mainly intended for taxis and public use in general. Moreover, LPG continues to be a **solution exclusively for light-duty and converted heavy-duty vehicles** as heavy-duty vehicle manufacturers are still not developing dedicated engines. Furthermore, the manufacturers of light-duty vehicles with dedicated engines are reducing their LPG models. In this respect, **in 2019 Opel stopped manufacturing in Spain** its three LPG light-duty vehicle models.

- With regard to the installation of new fuelling points to increase the extensive reach of the network, in Spain only a very small number of developers is making investments and currently at a much slower pace than initially anticipated, partly due to the announcements of possible fossil fuel bans.

- Launch of **State aid programmes to purchase vehicles: MOVEA, MOVALT and MOVES[24].**

- In October 2016, the **Autogas/LPG Cluster** was established to promote sectoral collaboration mechanisms.

- A project has been being developed since October 2016, **co-financed by the Connecting Europe Facility and led by Repsol, to build 46 LPG refuelling points in Spain** (22 in the Atlantic Corridor and 24 in the Mediterranean Corridor). Completion is scheduled for 2019.

- Consolidation of **dual fuel conversions** (diesel-LPG) **in heavy-duty vehicles.** Development of an **LPG-dedicated bus engine** prototype.

- LPG vehicles are identified with the Directorate-General for Road Transport's **ECO Label** and are therefore subject to incentives in the mobility policies of local and regional governments.

- The sector is currently working on: (1) **biopropane as a renewable alternative to LPG,** (2) developing an **LPG-dedicated Otto engine for heavy-duty vehicles**, (3) **direct liquid injection** given the associated reduction in CO2 and particles and (4) use of **richer mixtures** of LPG in dual fuel conversions.

[21] Source: Directorate-General for Road Transport (fleet) and State Secretariat for Energy (supply stations)
[22] The 636 present stations make it possible to handle a fleet of over 200,000 vehicles, a great deal larger than the existing fleet.
[23] Estimate by the LPG Operators Association [Asociación de Operadores de GLP – AOLPG]
[24] MOVES: only for N2- and N3-category vehicles.

II.3.1. FLEET OF VEHICLES AND REGISTRATIONS

According to data from the Directorate-General for Road Transport (DGT), 61,150 electric vehicles were on Spanish roads in September 2019. Passenger cars account for 88% of total LPG vehicles, followed at a considerable distance by vans (10%). The proportion of heavy-duty vehicles is nominal since they are still not sold with LPG-dedicated engines, although Spanish companies are doing dual fuel conversions on lorries over 3,500 kg with good results.

It should be noted that part of the significant increase in the fleet in recent years is due to improved accounting in the DGT's records for vehicles converted to LPG in previous years at repair garages other than the manufacturers' own garages and, therefore, it does not correspond to an increase in the fleet on the road[25]. Moreover, projects are currently being developed to implement biomethane in mobility, and therefore this biofuel could have a prominent role in the transport sector in future.

Table II-11. LPG vehicles on the roads (2012-June 2019)

LPG	2012	2013	2014	2015	2016	2017	2018	Sept. 2019
Lorries up to 3,500 kg	6	25	25	39	76	83	132	358
Vans	17	55	182	413	893	1,543	3,455	6,134
Motorcycles	5	6	14	20	45	50	51	105
Passenger cars	250	895	1,994	4,883	13,749	18,728	37,402	53,539
Buses	4	4	4	103	105	105	96	116
Other	14	40	89	118	255	321	374	898
Total	**296**	**1,025**	**2,308**	**5,576**	**15,123**	**20,830**	**41,510**	**61,150**

Source: Directorate-General for Road Transport

Table II-12. Registrations of new LPG vehicles by type (2012-June 2019)

LPG REGISTRATIONS	2012	2013	2014	2015	2016	2017	2018	Sept. 2019
Lorries up to 3,500 kg	6	19	0	9	2.	5	25	77
Vans	16	36	125	222	208	622	1,856	2,030
Motorcycles	5	2.	8	3	7	5	2.	1
Passenger cars	215	556	1,109	2,339	1,449	4,089	18,625	12,854
Buses	0	0	0	0	0	0	0	0
Other	8	1	0	1	4	7	12	17
TOTAL	**250**	**614**	**1,242**	**2,574**	**1,670**	**4,728**	**20,520**	**14,979**

Source: Directorate-General for Road Transport

[25] The current fleet data from the DGT still do not reflect the total LPG conversions carried out. Work is currently being done to better account for conversions.

MANUFACTURE AND SALE OF LPG VEHICLES IN SPAIN

The three LPG vehicle models (Mokka, Corsa (1.2 and 1.4 versions) and Crossland[26]) that were manufactured in Spain ceased production in 2019.

ADVANCES IN THE CONVERSION OF HEAVY-DUTY VEHICLES TO DUAL FUEL[27]

The Spanish sector is consolidating the conversion of heavy-duty vehicles (mostly lorries) to dual fuel (diesel/LPG). The engine works by using one part diesel and one part LPG as fuel, i.e. part of the diesel is replaced, on average 35%, with LPG, although various Spanish companies do conversions using up to 50% LPG. It can also run in diesel-only mode. The system does not entail irreversible modifications to the diesel engine, and it is possible to make it run on diesel only or in dual form.

COLHD PROJECT CO-FINANCED BY HORIZON 2020: MIXTURES WITH LPG IN A HIGHER PERCENTAGE AND WITH A GREATER RENEWABLE FRACTION (BIOPROPANE)

The COLHD (Commercial vehicles using Optimised Liquid biofuels and HVO Drivetrains) project began in November 2017, co-financed[28] by the Horizon 2020 programme, to develop three prototype vehicles for HGV transport that will run on alternative fuels, such as LPG, in high percentages (> 70% compared to 30-40% currently) and with a fraction of renewable fuel (> 30%). From an environmental point of view, it seeks to demonstrate the viability of renewable fractions of LPG, particularly biopropane (co-product from biofuel production through hydrotreatment), to achieve the CO_2 reduction targets set by the European Commission in the transport sector and to reduce its life-cycle carbon footprint.

The project has been developed by a consortium formed by 16 partners, including companies from the car industry (MAN, IDIADA, IAV GmbH, SIEMENS, BOSCH, EVARM, etc.), the energy industry (such as Repsol and Enagás in Spain or Fordonsgas in Sweden), logistics companies (HAM and Transportes Monfort stand out among the Spanish companies) as well as universities and research centres (the Polytechnic University of Valencia's CMT Institute, the Polytechnic University of Catalonia, the University of Brussels and the University of Finland). This project finished in April 2019 although the developments from Spanish entities are ongoing, to increase the percentage of LPG in dual fuel engines and to include a higher renewable fraction (biopropane).

DEDICATED ENGINE INDUSTRIALISATION PROJECT FOR BUSES FROM THE COMPANY BEGAS MOTOR

The company Begas Motor S.L. is developing a project to introduce on the market LPG-dedicated engines in industrial vehicles based on the following three actions:

- **Development of an LPG-dedicated engine prototype for buses** integrated with the gearbox: in December 2017, testing was done on the engine developed by Begas Motor in Valladolid's fleet of urban buses (AUVASA). This prototype was then presented in different Spanish cities potentially interested in acquiring this kind of technology, including Murcia, Granada, Tarragona and Madrid. A pre-series vehicle is currently being developed with Spanish bus manufacturer UNVI, which is expected to reach the market in late 2019.

[26] In the past, PSA produced the C-Elysee, Volkswagen manufactured the Polo LPG in Pamplona and Seat made the Altea LPG in Martorell.
[27] Fuel is injected simultaneously in dual fuel engines (mixture of 35% LPG + 65% diesel). In contrast, bi-fuel engines (petrol and LPG) can run on LPG only.
[28] H2020-GV-2016-2017 Green Vehicles, Topic: GV-01-2017

- **Approval of the Euro VI LPG-dedicated engine:** this approval is currently ongoing. The engine and gearbox performance results have already been audited by the Foundation for Transport and Energy Research and Development (CIDAUT) and the Polytechnic University of Valencia's CMT Institute, with positive performance and consumption.

- **Industrialisation plan** to assemble engines in Vizcaya.

II.3.2. REFUELLING INFRASTRUCTURE

EXISTING PUBLICLY ACCESSIBLE REFUELLING INFRASTRUCTURE[29]

In September 2019 Spain there were 636[30] publicly accessible LPG refuelling stations in operation, representing 5% of all service stations in Spain. The number of stations accessible to the public has grown by 26% since the approval of the National Policy Framework. Although the LPG refuelling station operators maintain their interest in increasing the extensive reach of the national network, investments in infrastructure are not being made at the pace initially envisaged since the current infrastructure is sufficient to supply a fleet of over 200,000 vehicles.

Table II-13. LPG refuelling stations accessible to the public by autonomous community (June 2016-September 2019)

LPG STATIONS					
Autonomous Community	**June 2016**	**June 2017**	**June 2018**	**December 2018**	**Sept. 2019**
Andalusia	74	80	89	92	96
Aragon	14	14	15	15	15
Asturias	12	12	12	12	13
Balearic Islands	14	15	18	19	19
Canary Islands	11	12	19	20	21
Cantabria	12	14	17	17	19
Castile-La Mancha	26	29	30	34	42
Castile and Leon	34	39	42	41	43
Catalonia	88	91	103	106	107

[29] In relation to the private use infrastructure, AOGLP/GasLicuado estimates that around 500 companies have LPG vehicle fleets and have their own supply points.
[30] Data source: State Secretariat for Energy Geoportal.

Valencia	37	45	49	55	61
Extremadura	8	8	8	8	8
Galicia	30	32	35	36	40
Madrid	56	60	61	65	75
Murcia	9	11	17	19	27
Navarre	12	13	15	15	13
Basque Country	27	28	30	31	33
La Rioja	4	4	4	4	4
TOTAL SPAIN	**468**	**507**	**564**	**589**	**636**

Source: State Secretariat for Energy Geoportal

ACCESSIBLE REFUELLING INFRASTRUCTURE: CEF-REPSOL PROJECT

A project has been being developed since October 2016, led by Repsol[31], to build **46[32] LPG refuelling points in Spain** (22 in the Atlantic Corridor and 24 in the Mediterranean Corridor) and 11 in Portugal (Atlantic Corridor). This project is being co-financed by the Connecting Europe Facility (2015 call) and completion is scheduled for December 2019. Its degree of progress is outlined below:

Year	No of openings in Spain	Locations
2016	3	Maçanet de la Selva (GE), Majadahonda (MA), Gandía (VA)
2017	5	Burgos (BU), 2 Madrid (MA), Valencia (VA), Barcelona (BA)
2018	7	Ripollet (BA), Cornellá de Llobregat (BA), Tarragona (TA), Quart (GE), Sant Sadurní D'Anoia (BA), Lodares de Medinaceli (SO), Algeciras (CA)
Planned in 2019	5 under construction Others: pending permission	Sant Jaume del Domenys (TA), Tortosa (TA), Cambrils (TA), 2 Madrid (MA)

[31] Requested by the company Repsol Butano.
[32] Data up to date as at March 2019.

II.3.3. INITIATIVES DEVELOPED DURING 2016-2019

CONTINUATION OF THE VEHICLE PURCHASE PLANS: MOVEA, MOVALT AND MOVES

The **2016 MOVEA Plan** (Plan for Sustainable Mobility using New Energy Vehicles) **was implemented in 2016** by means of Royal Decree 1078/2015 of 27 November 2015 on the MOVEA Plan and subsequent legislation. Thanks to this plan, **286 LPG vehicles were financed, with a budget of EUR 1,261,100.**

The **2017 MOVEA Plan,** approved by means of Royal Decree 617/2017 of 16 July 2017 (published in the *Official State Gazette* of 23 June 2017) and managed by the Secretariat-General for Industry and SMEs, granted **EUR 429,000** for the purchase of **427 LPG vehicles.** 80% of the beneficiaries were individuals and self-employed persons while the remaining 20% were companies[33]. The main brands of the subsidised vehicles were: Dacia (58% of the total), Opel (17%), Fiat (16.7%), Citroën (5%) and Peugeot (1.4%).

In addition, by means of the Institute for Energy Diversification Decision of 14 November 2017 (published in the *Official State Gazette* of 15 November 2017), the State Secretariat for Energy established the **MOVALT Plan Vehicles.** 17% of the applications validated for this plan were aimed at purchasing LPG vehicles, and **EUR 296,000** of aid was awarded. In particular, it supported the purchase of 378 passenger cars (M1), awarding direct grants in the amount of EUR 237,500 and 117 light vans (N1) for EUR 58,500.

The **MOVES Programme** was approved in February 2019 (Royal Decree 72/2019) to promote the purchase of heavy-duty LGP vehicles (categories N2 and N3) with aid between EUR 2,000 and EUR 15,000, depending on the type of applicant and vehicle.

FORMATION OF THE AUTOGAS/LPG CLUSTER

In October 2016 the Autogas/GLP Cluster was formed and three working groups were launched: institutional relations, communication and RDI. As regards RDI, the cluster is promoting the development of LPG direct injection engines, especially for heavy-duty vehicles, with the aim of transferring the benefits of this carburetion to cars, thus improving fuel economy and reducing CO_2 emissions.

The cluster is formed by Repsol, Cepsa, DISA, Vitogas, AOGLP, Avia, FCA, PSA, Opel, King Long, SsangYong, Evarm, Ircongas, ALD Automotive, Fraikin, Northgate, the Polytechnic University of Valencia, Applus IDIADA and INSIA.

PROMOTION OF BIOPROPANE AS A BIOFUEL FOR TRANSPORT (BIOFUEL CERTIFICATE)

Order ITC/2877/2008 of 9 October 2008 laying down a mechanism to promote the use of biofuels and other renewable fuels for transport purposes, regulates biofuel certificates. In 2019, the State Secretariat for Energy published the Decision of 11 March 2019 to include biopropane in the annex of the abovementioned Order.

[33] Only two autonomous community administrations were beneficiaries.

II.4. HYDROGEN

- At present, the fuel cell vehicle fleet in Spain is linked to demonstration projects.

- Spain has **four hydrogen stations in operation** at 350 bar (in Seville, Huesca, Puertollano-Ciudad Real and Albacete) and it is planned to upgrade the Puertollano station to 700 bar during 2020.

- In June 2019, Enagás, Toyota Spain and Urbaser signed an agreement to **build a hydrogen refuelling station in the northern area of Madrid** (Avenida de Manoteras) at 700 bar, which is planned to provide service to an initial fleet of 12 Toyota Mirai passenger cars that will be used by companies participating in this pioneering initiative in Spain.

- In January 2019, an agreement was signed to analyse the viability of the **Power to Green Hydrogen – Mallorca** reindustrialisation project, which will entail the construction of a **renewable hydrogen production plant through electrolysis** associated with a photovoltaic park. It is anticipated that part of the hydrogen produced will be used by a fleet of municipal buses and there are plans to build a 700-bar **hydrogen station**. It is promoted by Enagás, Acciona, Redexis Gas, CEMEX, the Government of the Autonomous Community of the Balearic Islands and IDAE.

- The **H2 Ports project** began in February 2019. This project is co-financed by the Fuel Cells and Hydrogen Joint Undertaking (FCH JU) and is aimed at demonstrating hydrogen-powered port machinery in the **port of Valencia.** It has a budget of EUR 4 million.

- The **H2-SUN 2HY project** was launched in July 2018, framed within a Repsol and Enagás technological agreement, and is for developing a hydrogen production system based on photovoltaic solar energy, over three years. The budget is EUR 8 million and it is co-financed by the Industrial Technology Development Centre [*Centro para el Desarrollo Tecnológico Industrial – CDTI*].

- Work is currently being done to develop (1) the **injection of hydrogen into the gas network** as well as to define what is considered 'green hydrogen', (2) the associated **guarantee of renewable origin** system, (3) prototypes and conversion of hydrogen vehicles and (4) hydrogen generation with CO_2 and (5) experimental developments of biohydrogen[34].

- The **State aid programmes for purchasing vehicles (MOVEA 2017, MOVALT and MOVES)** include direct grants for fuel cell vehicles (FCV and FCHV).

- The **MOVES – One-off projects programme**, approved in July 2019, has a budget of EUR 15 million to finance innovation projects (developments with fuel cells and hydrogen applied to electric mobility) and mobility management in cities.

- Creation in September 2016 of a **Spanish hydrogen working group led by the Secretariat-General for Industry and SMEs** with entities present across the entire value chain to support the deployment of hydrogen in Spain. The following have been promoted in particular: (1) the creation of consortia to submit projects for different EU financial instruments, (2) coordination with companies, regional and local entities to implement projects, (3) participating in defining topics in the FCH JU and (4) regulatory adaptation regarding the procedures for the environmental impact statements of plants that produce hydrogen through analysis, the technical requirements for commissioning hydrogen stations, etc.

[34] The first industrial bio-hydrogen plant in Spain has been in operation since November 2017, located in Villalonquéjar (Burgos) and managed by Biogasnalia. It generates biogas with more than 50% bio-hydrogen using sludge and fats.

- The promotion of renewable hydrogen has been included in the **Climate Change and Energy Transition Bill** as well as in the draft **Integrated National Energy and Climate Plan** as well as in the **National Air Pollution Control Programme.**

- Thanks to the firm boost from Spain, hydrogen has been identified by the Strategic Forum for Important Projects of Common European Interest (IPCEI) led by the European Commission as one of the nine **chains of strategic value for Europe.** Work is currently being done to define an **action plan** and associated initiatives, among which it is likely that a European IPCEI project will be launched.

- Reactivation in June 2019 of the **Technical Committee on Standardisation for hydrogen technologies,** CTN-181.

- The Government of Spain, through the State Secretariat for Energy, as well as various Spanish entities,[35] signed the **Hydrogen Initiative** during the informal meeting of energy ministers held in September 2018 to boost the great potential of this technology in the decarbonisation of multiple sectors (mobility, industry, energy, residential, etc.) thus meeting the targets of the Paris Agreement. Moreover, in April 2019 Spanish entities[36] signed the **Bucharest Declaration** to promote a smart and sustainable gas infrastructure based on hydrogen and other renewable gases in the framework of the informal meeting of EU energy ministers.

- PSA ID and Data Collection for Sustainable fuels in Europe (IDACS): with the aim of compiling the available information and location of the hydrogen refuelling points for vehicles in Spain, the government is participating, through the State Secretariat for Energy, in the PSA-IDACS initiative, the goal of which is to obtain both static (location, charging power, number or type of connectors, etc.) and dynamic (price) information on these installations. It is anticipated that this information will be made available to the public on the current information platform of the Ministry for Ecological Transition (geoportalgasolineras.es), together with the information on the other fuels.

- Eight Spanish regions and cities have participated in the **FCH JU's Regions & Cities Initiatives.**

- Different Spanish entities have signed **partnership and cooperation agreements** to promote joint actions: (1) Government of the Autonomous Community of Asturias-Enagás, (2) AeH2-CEEES (Spanish Confederation of Service Station Managers), (3) Enagás-Repsol to develop renewable hydrogen technologies based on solar photovoltaics, (4) FHA-CNH2 for technological cooperation, (5) AeH2-Redexis Gas, etc.

- Commitment from different autonomous communities to hydrogen as an energy vector: **Aragon** (3rd Hydrogen Master Plan in Aragon), **Castile-La Mancha** (action plan in preparation and specific aid for vehicles and infrastructure), **Andalusia** (specific aid for vehicles and infrastructure), **Basque Country** (specific aid for vehicles and infrastructure) and the **Balearic Islands** (industrialisation project in Mallorca).

[35] FH Aragón, CNH2, H2B2, AEH2, ARIEMA, Clan Tecnológica and CIEMAT.
[36] AeH2, FHA, Enagás, H2B2.

II.4.1. FLEET

According to data from the Directorate-General for Road Transport, the fleet of hydrogen-powered cars is limited to demonstration projects[37], of which 38 vehicles were authorised to circulate on public roads in 2019. However, there are upcoming plans to add a fleet of hydrogen passenger cars in Madrid associated with the construction project to build a new hydrogen station led by Enagás, Toyota and Urbaser. Moreover, on the island of Tenerife there are plans to put two hydrogen passenger cars into circulation as part of the project being developed with co-financing from the INTERREG Atlantic Area Programme.

Table II-14. Hydrogen vehicles on the roads (2012-2019)

HYDROGEN VEHICLES	2012	2013	2014	2015	2016	2017	2018	Sept. 2019
Lorries up to 3,500 kg	0	0	1	0	0	0	0	0
Vans	0	0	1	0	0	0	0	0
Motorcycles	0	0	1	0	0	0	0	0
Passenger cars	1	2.	2.	2.	4	8	20	26
Buses	0	0	33	8	8	7	8	7
Other	0	0	0	0	1	2.	4	5
Total	**1**	**2.**	**38**	**10**	**13**	**17**	**32**	**38**

Source: Directorate-General for Road Transport

II.4.2. RENEWABLE HYDROGEN REFUELLING AND PRODUCTION INFRASTRUCTURE

EXISTING REFUELLING INFRASTRUCTURE

Spain has four hydrogen stations in different states of operation linked to demonstration projects compared to the six that existed in 2016. The Sanlúcar la Mayor (Seville) hydrogen station, managed by Abengoa, was dismantled in 2017. The Valderespartera (Zaragoza) hydrogen station is also no longer operational. These four hydrogen stations operate at 350 bar although it is anticipated that the one in Puertollano will be upgraded to 700 bar during 2020. Furthermore, there are plans to construct a new 700-bar hydrogen station in Madrid[38] and another in Mallorca[39].

Table II-15. Existing hydrogen refuelling stations as at June 2019

AUTONOMOUS COMMUNITIES	LOCATION (PROVINCE)	YEAR OPENED	ACCESS TYPE	OPERATED BY
Andalusia	Puerto de Sevilla (Seville)	2015	Open to the public	Abengoa
Aragon	Walqa Science and Technology Park, Ctra Zaragoza-Huesca km 75 (Huesca)	2010	Open to the public	Aragon Hydrogen Foundation

[37] Main demonstration projects carried out: CUTE, ECTOS, HyChain, Hércules, Delfín and ExpoAgua.
[38] Project led by Enagás, Toyota and Urbaser.
[39] Project led by Enagás, Acciona, Redexis Gas and Cemex with the participation of the Government of the Balearic Islands, IDEA and the Secretariat-General for Industry and SMEs.

AUTONOMOUS COMMUNITIES	LOCATION (PROVINCE)	YEAR OPENED	ACCESS TYPE	OPERATED BY
Castile-La Mancha	La Torrecica (Albacete)	2012	Restricted use[40]	AJUSA
	Puertollano (Ciudad Real)	2016	Open to the public	CNH2

Source: Prepared by the authors using data provided by the hydrogen station operators.

Table II-16. Technical characteristics of existing hydrogen refuelling stations as at June 2019

LOCATION	SET UP FOR PASSENGER CARS	SET UP FOR BUSES	SET UP FOR OTHER VEHICLES	NO OF REFUELLING POINTS	TYPE OF H_2 PRODUCTION	H_2 SOURCE	DELIVERY	PRESSURE[41] (BAR)
Port of Seville – free zone (Seville)	Yes	Yes	Yes	1	Can be supplied with gas under pressure but also produces gas on-site using renewable electrolysis.	Renewable electrolysis	UNDER pressure	350
Walqa Science and Technology Park (Huesca)	Yes	Yes	Yes	2.	On-site production with electrolysis using solar/wind energy	Renewable electrolysis	UNDER pressure	350 The H2PiyR project – INTERREG is due to be upgraded with 350-bar pressure in 2020.
La Torrecica (Albacete)	Yes	Yes	Yes	1	Supplier	Gas	UNDER pressure	350
Puertollano (Ciudad Real)	Yes	Yes	Yes	1	Can be supplied with gas under pressure and on-site production with electrolysis using solar energy.	Renewable electrolysis/Solar	UNDER pressure	350 Upgrading to 700 bar planned over the course of 2020.

Source: Prepared by the authors using data provided by the hydrogen station operators.

[40] Accessibility is upon request to AJUSA. Although refuelling is permitted for anyone interested, it is necessary to book in advance.
[41] The new international technical standards issued by the Society of Automotive Engineers (SAE) for hydrogen stations require hydrogen to be stored at 700 bar.

PLANNED INFRASTRUCTURE FOR THE GENERATION OF RENEWABLE HYDROGEN USING ELECTROLYSIS AND HYDROGEN STATION IN MALLORCA: POWER TO GREEN HYDROGEN – MALLORCA

With the encouragement of the administration (Secretariat-General for Industry and SMEs, IDAE and the Government of the Autonomous Community of the Balearic Islands), in January 2019 an agreement was signed with the participation of Enagás, Acciona, Redexis Gas and Cemex to reindustrialise the county of Raiguer following the closure of the cement plant located in the town of Lloseta. The approved reindustrialisation projects include the construction of a hydrogen generation plant using proton exchange membrane (PEM) electrolysis of up to 10 MW supplied by an attached photovoltaic park. The renewable hydrogen generated will supply, among other vehicles, a fleet of municipal buses from the Palma de Mallorca municipal transport entity, which will entail the commissioning of a hydrogen station in Palma de Mallorca. The basic engineering is currently being developed and the signing of the MoU is scheduled for the fourth quarter of 2019.

PLANNED INFRASTRUCTURE FOR HYDROGEN REFUELLING: HYDROGEN STATION IN MADRID

In June 2019, Enagás, Toyota Spain and Urbaser signed an agreement to install a hydrogen refuelling station set up for passenger cars that will operate a supply pressure of at 700 bar/Mpa and will be located in the northern area of Madrid[42]. It is anticipated that it will provide service to a fleet of 12 Toyota Mirai that will be used by the companies participating in this pioneering initiative in Spain. In this context, Enagás will facilitate the construction of the hydrogen refuelling station and Toyota Spain will provide the project with a fleet of 12 Mirai units.

INFRASTRUCTURE UNDER CONSTRUCTION FOR RESTRICTED USE REFUELLING AT THE PORT OF VALENCIA: H2 PORTS PROJECT

This project began in February 2019 and is coordinated by the ValenciaPort Foundation and involves the participation of the following Spanish partners[43]: Enagás, CNH2, the Port Authority of Valencia and Mediterranean Shipping Company Terminal Valencia S.A. (MSC). This is an innovative project that will develop solutions to replace certain diesel port machinery[44] with hydrogen. Completion is scheduled for December 2022 and it has a budget of EUR 4 million, financed by the FCH JU.

Specifically, it is going to be tested in two types of machinery in two different terminals, both located in the port of Valencia, over the course of two years, during which time they will be integrated into normal operation.

- A reach stacker in the MSC container terminal. This kind of machine is very flexible and can move both full and empty containers for loading and unloading at different heights. The manufacturer participating in this pilot is Hyster-Yale (project partner).

- A yard truck that is used for wheeled cargo (mainly trailers) on ro-ro ships to test it in the wheeled traffic terminal of the port operated by Valencia Terminal Europe belonging to the Grimaldi group. This pilot is coordinated by the Italian entity ATENA and it is anticipated to collaborate with a machinery manufacturer.

[42] Specifically at the San Antonio S.L. service station located at Avenida de Manoteras, 34.
[43] There are also two partners from Italy, one from Denmark and one from the Netherlands.
[44] It is expected for the machinery to be in operation in 24 months under real conditions (i.e. 2021-2022), and therefore it is estimated that the first tests with hydrogen will begin in the final quarter of 2020.

The pilots of the two pieces of equipment will coincide in time, and therefore it is necessary to develop a mobile supply hydrogen station. The hydrogen will be supplied externally using semi-trailers at 200 bar, unloading into a buffer tank at 40 bar from where the hydrogen station will be supplied. In this hydrogen station, the pressure will be raised to 450-500 bar to carry out the supply (the equipment will go at 350 bar). The project also includes a series of cross-cutting studies focused on legislation, safety, environment and economic analysis of the use of hydrogen in the sea port sector.

PUBLICLY ACCESSIBLE REFUELLING INFRASTRUCTURE UNDER CONSTRUCTION CO-FINANCED BY THE EU: H2PIYR PROJECT

The H2PiyR project, co-financed by the Spain, France, Andorra Cross-Border Cooperation Programme POCTEFA INTERREG V-A, began in 2017. In Spain, this project entails the upgrading of the hydrogen station equipment located in Walqa (Huesca) to continue operating at 350 bar. There are also plans to build another hydrogen station in France (Palmiers) to give continuity to this corridor. Implementation is scheduled for 2019 and operational start-up before December 2020.

SUN 2HY PROJECT FOR THE PRODUCTION OF RENEWABLE HYDROGEN

The H2-SUN 2HY project was launched in July 2018, framed within the technological agreement between Repsol and Enagás, and is for developing a hydrogen production system based on photovoltaic solar energy, over three years.

As a result of this technological agreement, a specific technology will continue to be developed to produce renewable hydrogen from solar photovoltaic energy. The aim is to develop a photoelectrochemical (PEC) water splitting prototype from TRL4 to TRL6. This way, it will be possible to produce hydrogen on the same photovoltaic plant and, therefore, with no connection to the network. Completion is scheduled for 2021. In addition to Repsol and Enagás, there is participation from research centres such as the Catalonia Institute for Energy Research (IREC), the Aragon Hydrogen Foundation, the University of Alicante, etc. This project has been approved by the CDTI.

II.4.3. INITIATIVES DEVELOPED DURING 2016-2019

INCLUSION OF HYDROGEN IN THE STATE PLANS FOR PURCHASING VEHICLES: 2017 MOVEA, MOVALT VEHICLES AND MOVES

For the first time in 2017, the MOVEA Plan, approved by Royal Decree 617/2017 of 16 June 2017 (published in the *Official State Gazette* of 23 June 2017) and managed by the Secretariat-General for Industry and SMEs, included passenger cars with fuel cells among the beneficiaries of the purchasing aid. Moreover, the State Secretariat for Energy, via the IDAE, established the MOVALT Vehicles Plan, also including aid for passenger cars with fuel cells[45].

The MOVES Programme was approved in February 2019 (Royal Decree 72/2019) to promote the purchasing of electric and fuel cell vehicles (FCV, FCHV) with aid of EUR 5,500 for passenger cars and up to EUR 15,000 for heavy-duty vehicles.

[45] The 2017 MOVEA budget for light-duty electric vehicles (this heading includes fuel cell vehicles): EUR 6,270,000.

MOVES PROGRAMME: ONE-OFF PROJECT LINE

In July 2019, the Ministry for Ecological Transition published the terms for the MOVES Programme – One-off Projects. This programme gives continuity to the Efficient and Sustainable Mobility Incentives Programme (MOVES) approved by Royal Decree 72/2019 of 15 February 2019 and aims to finance initiatives that promote sustainable mobility. The programme is geared towards both public and private entities, it is endowed with EUR 15 million and divided into two lines of financing:

- One-off urban environment projects: i.e. integrated management projects that include changes in the mobility model and in the city configuration, committing to efficiency, sustainability and the increased quality of urban life. In relation to hydrogen, it is worth noting the following actions: e) public transport and h) last-mile sustainable mobility.

- One-off innovation projects: i.e. any projects on technology development and innovative experiences that may be used to promote the technological leap and promote the development of experimental projects by Spanish companies, in order to achieve the technological maturity that will facilitate their commercialisation. The eligible actions in one-off innovation projects include 'developments with fuel cells and hydrogen applied to electric mobility'.

SPANISH HYDROGEN WORKING GROUP

In October 2016, the Secretariat-General for Industry and SMEs led the creation of a multidisciplinary working group comprising entities present throughout the hydrogen value chain, with the aim of supporting the deployment of hydrogen in Spain. This group is open to participation from all the Spanish entities present along the value chain[46].

The following has been promoted through this working group:

- the creation of consortia for the implementation of deployment projects that may be co-financed by the Connecting Europe Facility. In February 2017, the draft HyMIC project, led by Enagás, was submitted for the 2016 CEF call with an associated budget of EUR 15.5 million. Although the project was not admitted by the European Commission in the end, the collaboration between the entities that formed it has been maintained and they have continued jointly promoting different hydrogen initiatives in Spain. Thus, work has been being done to incorporate new entities and projects that will make it possible to cover all aspects of the hydrogen value chain, from production to the final consumer, and simultaneously promoting the development of hydrogen infrastructure aligned with the Atlantic and Mediterranean corridors defined in the context of the European Union;

- the adaptation of hydrogen-related legislation such as e.g. the procedures for the environmental impact statements of the plants for producing hydrogen through electrolysis, the requirements for commissioning hydrogen stations, etc.;

- the promotion of standardisation activity both at European level through the European Committee for Standardization (CEN) as well as at national level in the context of the Spanish Association for Standardization (UNE);

[46] The participating entities include the Spanish Hydrogen Association [Asociación Española del Hidrógeno – AeH2], the Spanish Fuel Cell Association [Asociación Española de Pilas de Combustible – APPICE], the Spanish Hydrogen and Fuel Cell Technology Platform [Plataforma Tecnológica Española del Hidrógeno y de las Pilas de Combustible – PTE-HPC], the National Centre for Experimentation in Hydrogen and Fuel Cell Technology [Centro Nacional del Hidrógeno – CNH2], the Aragon Hydrogen Foundation [Fundación del Hidrógeno de Aragón – FHA], the Government of the Autonomous Community of Aragon, the Regional Government of Castile-La Mancha, Enagás, Toyota, Hyundai, Calvera, H2B2, ARIEMA, Clan Tecnológica, Grupo Zoilo Ríos, etc.

- coordination with autonomous communities, local authorities and public fleet management companies interested in mobility with hydrogen. The aim is to work jointly to establish the first fleets of vehicles in which to implement hydrogen;

- Spanish participation in the FCH JU working groups to define topics.

CLIMATE CHANGE AND ENERGY TRANSITION BILL AND DRAFT 2021-2030 INTEGRATED NATIONAL ENERGY AND CLIMATE PLAN: MEASURES TO PROMOTE RENEWABLE HYDROGEN

Article 10 of the Climate Change and Energy Transition Bill establishes that the government will promote, by means of approving specific plans, the penetration of hydrogen produced exclusively with energy from renewable sources.

Measures are also envisaged for renewable gases such as hydrogen. In particular, (1) annual penetration targets for renewable gases, (2) a certification system and (3) regulations that will allow the injection of these renewable gases into the natural gas network. This way, the development of hydrogen by means of electrolysis and consumption in fuel cells or injection into the network would contribute flexibility to the electricity system.

HYDROGEN AS A STRATEGIC VALUE CHAIN FOR EUROPE AND POSSIBLE IPCEI

Hydrogen has been identified by the Strategic Forum for Important Projects of Common European Interest (IPCEI) led by the European Commission (DG Grow) as one of the nine chains of strategic value for Europe. Therefore, work is currently being done at European level to develop a specific action plan that encompasses the entire hydrogen value chain with the participation of interested parties (Member States, regions, industry, research centres, etc.). The Secretariat-General of Industry and SMEs has actively participated in its formulation with the support of the nominated national experts[47].

One of the instruments being evaluated in the framework of the Strategic Forum for Important Projects of Common European Interest is the possibility of starting up a hydrogen IPCEI. This is due to its importance from the political and strategic point of view for Europe, together with the need to make high investments. Thus, the Secretariat-General of Industry and SMEs is actively working to define a possible hydrogen IPCEI.

ACTIVATION OF THE TECHNICAL COMMITTEE ON STANDARDISATION FOR HYDROGEN TECHNOLOGIES, CTN-181

The Secretariat-General of Industry and SMEs, with collaboration from UNE, has led the activation of the Technical Committee on Standardisation for hydrogen technologies, CTN-181 given the requirements arising from Directive 2014/94/EU and in line with the intense work in this area it is being promoted by the European Committee for Standardization (CEN) and the European Commission. The first reunion following its reactivation was held in June 2019.

Along this line, Spanish entities, led by the Aragon Hydrogen Foundation, have taken part in the HYLAW project, co-financed by the FCH JU. This project aimed to identify regulatory processes, legal and administration barriers applicable to the deployment of fuel cells and hydrogen.

[47] Enagás, AeH2 and H2 Technological Platform (H2B2), Aragon Hydrogen Foundation, CNH2, Tecnalia, CIEMAT, IMDEA and FEIQUE.

Following its completion in September 2018, work has continued to implement its recommendations.

SIGNING OF THE HYDROGEN INITIATIVE

The Hydrogen Initiative was signed during the informal meeting of energy ministers on 17 September 2018 in Linz (Austria). This initiative seeks to maximise the great potential of this technology for the decarbonisation of many sectors (mobility, industry, energy, residential, etc.) and to integrate renewable energies, meeting the Paris Agreement targets. As a result of this initiative, the signatories (Member States, business associations, regions, companies, etc.) undertake to make efforts to maximise synergies, through regional and multilateral cooperation, by exchanging technological knowledge, data, results and best practices, to thus accelerate the growth and integration of renewable energies. In the case of Spain, it was signed by both the Government of Spain, through the State Secretariat for Energy, as well as by different entities (AeH2, FHa, CNH2, H2B2, ARIEMA, CIEMAT, Clan Tecnológica, etc.)

Moreover, on 1 April 2019, Spanish entities (AeH2, FHa, ENAGÁS, H2B2) signed a declaration in Bucharest (Romania) concerning a smart and sustainable gas infrastructure based on hydrogen and other renewable gases in the framework of the informal meeting of EU energy ministers.

PARTICIPATION IN THE FUEL CELLS AND HYDROGEN JOINT UNDERTAKING (FCH JU) REGIONS AND CITIES INITIATIVE

Since 2016, the European Commission's Fuel Cells and Hydrogen Joint Undertaking (FCH JU) has been making significant efforts to identify the European cities and regions potentially committed to the use of hydrogen and fuel cells in the interest of achieving their decarbonisation targets. In this sense, it has launched an initiative aimed at regions and cities with the goal of analysing their energy needs to develop sustainable solutions based on hydrogen and to coordinate possible sources of funding.

In order to establish an active collaboration platform to facilitate the initiation of the market, on 23 November 2016, the FCH JU signed a memorandum of understanding with the European cities and regions interested in working on the development of business opportunities. At present, 81 local and regional authorities from 20 countries have joined the MoU, eight of which are Spanish[48] (see table).

As a result of this collaboration platform, a study was carried out financed by the FCH JU with the aim of looking for tools to familiarise regions and cities with the different hydrogen technologies and to develop both business models and projects adapted specifically to their needs. Spanish entities such as H2B2 Electrolysis Technologies S.L., Calvera Maquinaria e Instalaciones, S.L., Aragon Hydrogen Foundation (FHA), ARIEMA Energía y Medioambiente, S.L., the National Centre for Experimentation in Hydrogen and Fuel Cell Technology (CNH2) and the Valencia Port Foundation participated as experts both in the study as well as in the different working groups created. The study results were presented in Spain on 14 February 2018 during a workshop organised in Puertollano by CNH2.

[48] In November 2016, the Spanish Hydrogen and Fuel Cell Technology Platform (PTE-HPC), together with the Spanish Hydrogen Association (AeH2) and in collaboration with the FCH JU, the Industrial Technology Development Centre (CDTI) and the Secretariat-General for Industry and SMEs, organised the work session called 'Hydrogen and fuel cell technologies as a strategy for decarbonisation in regions and cities', with the aim of publicising this new initiative in Spain. Representatives from several autonomous communities took part in the session (Asturias – the Asturian Energy Foundation, Aragon – the Aragon Hydrogen Foundation, Murcia, Catalonia, etc.).

Table II-17. Spanish signatories of the Memorandum of Understanding (MoU) with the FCH JU

SIGNATORY	TYPE
Aragon	Region
Barcelona	City
Cantabria	Region
Castile-La Mancha	Region
Murcia	Region
Port of Valencia	Port Authority
Puertollano	City
Valladolid	City

Source: Fuel Cells and Hydrogen Joint Undertaking (FCH JU).

SECTORAL COOPERATION AGREEMENTS

Since 2016, the hydrogen sector in Spain has worked actively to promote collaboration between the different entities that form it. The following agreements have been established in that regard:

- Collaboration protocol between Asturias y Enagás to develop non-electric renewable energies, signed on 26 March 2019[49].
- Agreement between the Spanish Hydrogen Association (AeH2) and the Spanish Confederation of Service Station Managers (CEES).
- Technological agreement between Repsol and Enagás to continue developing a technology that makes it possible to produce renewable hydrogen from solar photovoltaic energy.
- General protocol for collaborative actions between the National Centre for Experimentation in Hydrogen and Fuel Cell Technology's Consortium for Design, Construction, Equipment and Operation and the Aragon Hydrogen Foundation (FHA) to establish a stable framework for cooperation in the field of hydrogen and fuel cell technologies.

PSA E-MOBILITY CODES & DATA COLLECTION (IDACS)

Spain is participating through the State Secretariat for Energy in a European project (Programme Support Action – PSA) to identify electricity charge points and hydrogen supply points for vehicles. The aim of this project is to identify each supply point and gather both static (location, characteristics) and dynamic (point availability, price) information. The information is due to be included in the current geographical information platform from the Ministry for Ecological Transition (geoportalgasolineras.es) together with information on other fuels, which in turn will be present on the National Traffic and Mobility Access Point (nap.dgt.es), in accordance with the implementing legislation for Directive 2010/40/EU.

[49] https://www.enagas.es/enagas/es/Comunicacion/NotasPrensa/2019_03_26_Acuerdo_Principado_Asturias_Enagas

PROJECTS DEVELOPED BY THE NEW HYDROGEN TECHNOLOGIES INNOVATION CLUSTER (AEI-NTH)

The AEI-NTH, managed by the Aragon Hydrogen Foundation and formed by all the entities that belong to its board, obtained aid in the amount of EUR 174,855[50] from the 2018 call for the support programme for innovation clusters, organised by the Ministry of Industry, Trade and Tourism. The following five projects have been financed:

- BioSOC: Study for the design and remote monitoring system with versatile testing and smart operating functions for reversible solid oxide technology powered by biogas from organic waste.
- AEI TEMAUT: Design of a farm vehicle that can perform different functions such as handle pallets of fruit and citrus fruits on fruit and citrus farms, autonomously and robotically.
- InstunH2-II: Increasing safety in highway tunnels given the hydrogen challenge. This is the continuation of the InstunH2 project, which carried out an initial analysis by identifying aspects related to hydrogen fuel cell vehicles that may have an influence on tunnel safety by carrying out fluid dynamic simulations of these scenarios.
- AEI COMPACT SAI 4.0: Technical feasibility, sustainability and economic viability study on the integration of equipment with long-life uninterruptible power supply systems based on hydrogen fuel cells in different telecommunications applications such as base stations.
- RIEG 4.0: Seeks to reduce energy costs based on automated management of the demand curve.

REGIONAL PROMOTION OF HYDROGEN[51]

- **ARAGON – 3rd Aragonese Hydrogen Masterplan, 2016-2020**

The 3rd Aragonese Hydrogen Masterplan, covering the years 2016 to 2020, is currently in force. It is structured into five lines of work: (1) Hydrogen production: electrolysis, electronic development of power and hydrogen production from waste; (2) storage, transport and distribution: compression by means of hydrides, developmental study of storage systems for market standards and deployment of refuelling infrastructure; (3) applications for hydrogen and fuel cells: PEM stack development for applications in the transport and aeronautics sector, niche applications and mobility systems using hydrogen; (4) technology transfer, protection from economic impact: strengthening of hydrogen entrepreneurship, collaboration programmes in the industrial sector and diversification of Aragonese companies into the hydrogen sector; and (5) training and awareness raising: studies on social perception and the effectiveness of dissemination of the technology, and training geared towards hydrogen technologies. An evaluation was carried out in the second semester of 2018[52], presenting the monitoring indicators as two years had passed since the launch.

Furthermore, Aragon, together with two French regions (Auvergne-Rhône-Alpes and Normandy) and the North Netherlands, coordinates the European Hydrogen Valleys Partnership, approved by the European Commission in April 2019. The aim of the EU regions that are members of this working group is to cooperate with one another to promote projects for investment in infrastructure and emerging value chains related to hydrogen technologies. This collaboration will facilitate the creation of synergies for working on shared projects with a greater scope and improve the adaptability of the initiatives to be developed in the European research and innovation strategy, supplementing the financing with EU instruments to encourage private investment.

[50] Joint budget of EUR 242,500 covering aid from the AEI programme by 72%

[51] A grant was awarded for 2017, granted by the Order of 17 July 2017 of the Aragonese Government's Minister of Economy, Industry and Employment, aimed at financing the actions for the 2017 financial year from the 2016-2020 Aragonese Hydrogen Masterplan. This grant was specifically set out in the regional Ministry of Economy, Industry and Employment's Strategic Grant Plan for the period 2016 to 2019, approved by the Order of 17 November 2015 of the Minister of Economy, Industry and Employment (amended by the Orders of 22 April 2016 and 27 March 2017), and provided for by law in the Autonomous Community of Aragon's budgets for the 2017 financial year approved by means of Act 4/2017 of 10 May 2017.

[52] This evaluation is available on the FHA website.

- **CASTILE-LA MANCHA: Strategy in preparation and deployment aid**

Since 2015, different lines of aid have been launched for the purchase of vehicles and deployment of hydrogen stations. Along this line, a specific strategy is being prepared for hydrogen in sustainable public mobility (urban buses and waste collection trucks) together with the National Centre for Experimentation in Hydrogen and Fuel Cell Technology located in Puertollano.

- **ANDALUSIA: Deployment aid**

Work is being done to define a hydrogen corridor between western Andalusia and Portugal (the Algarve) aimed at tourist flows. In addition, there is aid for both the purchase of vehicles as well as the deployment of hydrogen stations.

- **BASQUE COUNTRY: Vehicle and deployment aid**

Since 2017, the Basque Energy Agency [Ente Vasco de Energía – EVE] has aid for the deployment of hydrogen stations. Furthermore, in 2019 aid has been launched for the purchase of fuel cell vehicles.

- All pumps at Spanish service stations offering diesel can supply blends with up to 7% biodiesel by volume (B7)[53]. Moreover, normal petrol pumps can contain up to 5% bioethanol by volume (E5)[54]. Thus, whenever a vehicle is filled with diesel, (B7) and petrol, biodiesel and bioethanol are being consumed, respectively.
  Furthermore, since 2011 the diesel sold in Spain contains a considerable volume of another biofuel: HVO (Hydrotreated Vegetable Oil).

- Moreover, at **53 service stations** it is possible to refuel using blends with higher bioethanol and biodiesel content, although the introduction of these blends in Spain has not stopped decreasing since 2016 and they can be found in only 0.5% of all service stations. This decrease is a result of the lack of incentives for this alternative fuel in comparison to others (no tax exemptions, not included on DGT labels, etc.), which has led to the fact that in Spain car dealers barely sell dual-fuel vehicles and the reach of the refuelling infrastructure is not sufficiently extensive.

- Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources lays down the obligation to ensure that the share of renewable energy within the final consumption of energy in the transport sector is at least 14% by 2030, and therefore biofuels will make a significant contribution. Furthermore, the Directive includes specific targets for advanced biofuels, which must reach 3.5% by 2030.[55]

- Approval of Royal Decree 235/2018 of 27 April 2018 laying down the calculation methods and reporting requirements with regard to the intensity of greenhouse gas emissions of fuels and energy in transport. This Royal Decree amends Royal Decree 1597/2011 of 4 November 2011 regulating the sustainability criteria for biofuels and bioliquids, the National Sustainability Verification System and the double value of some biofuels for the purpose of their calculation; and laying down an indicative target for selling or consuming advanced biofuels.

- The State Secretariat for the Environment grants aid for the use of waste cooking oils in biodiesel production and for more efficient use of biogas in the context of the PIMA Waste Plan and the National Framework Plan for Waste Management (PEMAR).

- A new association has been set up to promote bioethanol (Bio-E) that seeks to promote its development in Spain to contribute to the decarbonisation of liquid fuels and to rural development with crops appropriate for the local production of bioethanol, reducing field depopulation.

- The promotion of biofuels has been included in the **National Air Pollution Control Programme (NAPCP).**

[53] In the event of higher biodiesel content, the percentage of the same must be stated together with the following notice: 'before using this product, ensure that it is suitable for your vehicle'.

[54] In cases of petrol with more than 5% by volume of bioethanol or more than 2.7% by mass of oxygen, consumers must be informed with the abovementioned notice, and if the percentage is above 10%, the percentage of bioethanol it contains must be stated in addition to the above notice.

[55] Other legislation: Order TEC/1420/2018 of 27 December 2018 developing the detailed aspects of the National Sustainability Verification System and the issuing of the sustainability verification report laid down in Royal Decree 1597/2011 of 4 November 2011.
Order TEC/1420/2018 of 27 December 2018 developing the detailed aspects of the National Sustainability Verification System and the issuing of the sustainability verification report laid down in Royal Decree 1597/2011 of 4 November 2011.

II.5.1. FLEET OF VEHICLES AND REGISTRATIONS

Generally, all diesel vehicles marketed in Spain are guaranteed to run on a blend of up to 7% of biodiesel by volume (B7). Meanwhile, vehicles with petrol engines manufactured before 2000 are usually only guaranteed to run on a blend of up to 5% bioethanol by volume (E5) while those manufactured as of 2000 are compatible with petrol containing up to 10% bioethanol by volume (E10). In addition, many manufacturers offer vehicles that can use fuel containing a higher proportion of biodiesel or bioethanol, so it is always necessary to consult the manufacturer's technical specifications.

Currently, there are no official figures for the number of vehicles compatible with blends with higher concentrations than E5 or B7, or registrations of such vehicles. Furthermore, all diesel vehicles can use high proportions of HVO (Hydrotreated Vegetable Oil).

DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 11 DECEMBER 2018 ON THE PROMOTION OF THE USE OF ENERGY FROM RENEWABLE SOURCES.

The new RED II Directive lays down the obligation to ensure that the share of renewable energy within the final consumption of energy in the transport sector is at least 14% by 2030, and therefore biofuels will make a significant contribution. Furthermore, the Directive includes specific targets for advanced biofuels, which must reach 3.5% by 2030. Advanced biofuels are made from the raw materials set out in Part A of Annex IX and include various types of waste and scrap. A significant contribution is also expected from biofuels produced from the other waste outlined in Part B of Annex IX of the Directive (waste cooking oils and animal by-products classified as category 1 and 2).

II.5.2. REFUELLING INFRASTRUCTURE

All normal diesel pumps at Spanish service stations can supply blends with up to 7% biodiesel by volume (B7), so whenever a vehicle is filled with diesel, some biodiesel is being consumed. Furthermore, since 2011 the diesel sold in Spain contains a considerable volume of another biofuel: HVO (Hydrotreated Vegetable Oil).

Moreover, 47[56] service stations are offering blends containing a higher biodiesel content. Similarly, all kinds of petrol sold in Spain for automotive use can contain up to 5% bioethanol by volume, so whenever a vehicle is filled with petrol, some bioethanol is being consumed. Moreover, six[57] service stations are offering petrol blends containing up to 85% bioethanol by volume. As the table below shows, the number of refuelling stations with blends with high biofuel content has not stopped decreasing since 2016. In this sense, there is a very small presence of service stations in Spain that supply blends with a high biofuel content, accounting for around 0.5% of the total.

[56] Source: State Secretariat for Energy Geoportal. The reliability of the data on biofuel supply infrastructure is limited. Therefore, the data shown in the table must be considered as the best estimation of the existing service stations that currently sell biodiesel and bioethanol and forward the sales prices of these products to the Directorate-General for Energy Policy and Mines in accordance with Order ITC/2308/2007.

[57] Source: State Secretariat for Energy Geoportal. The reliability of the data on biofuel supply infrastructure is limited. Therefore, the data shown in the table must be considered as the best estimation of the existing service stations that currently sell biodiesel and bioethanol and forward the sales prices of these products to the Directorate-General for Energy Policy and Mines in accordance with Order ITC/2308/2007.

Table II-18. Refuelling stations with high biofuel blends accessible to the public (June 2016-September 2019)

Refuelling infrastructure	June 2016	June 2017	December 2018	September 2019
Biodiesel	87	70	55	47
Bioethanol	13	14	8	6
TOTAL	**100**	**84**	**63**	**53**

Source: State Secretariat for Energy Geoportal, based on the refuelling points that forward the sales prices of these products to the Directorate-General for Energy Policy and Mines in accordance with Order ITC/2308/2007.

II.5.3. INITIATIVES DEVELOPED DURING 2016-2019

ROYAL DECREE 235/2018 OF 27 APRIL 2018

Royal Decree 235/2018 of 27 April 2018 laying down the calculation methods and reporting requirements with regard to the intensity of greenhouse gas emissions of fuels and energy in transport was approved in 2018. It amends Royal Decree 1597/2011 of 4 November 2011 regulating the sustainability criteria for biofuels and bioliquids, the National Sustainability Verification System and the double value of some biofuels for the purpose of their calculation; and laying down an indicative target for selling or consuming advanced biofuels.

The following are some of the prominent measures to **promote advanced biofuels**[58] included in this Royal Decree:

- **Establishment of an indicative target of 0.1%**[59] **in advanced biofuel energy content by 2020,** for entities obliged to demonstrate the fulfilment of targets for the sale or consumption of biofuels for transport purposes.

- **Application of double counting for certain biofuels:** aims to promote the **use of waste** (from the agri-food industry, fishing and aquaculture, etc.) **and other raw materials from the circular economy.** For example, straw, animal manure and sewage sludge, effluents from palm oil mills and empty palm fruit clusters, resin oil tar, grape pomace and wine lees, nutshells, capturing and using carbon for transport purposes if the energy source is renewable, bacteria, waste cooking oil, certain animal fats, etc.

[58] Advanced biofuels are those defined in Article 2(18) of Royal Decree 1597/2011 of 4 November 2011.
[59] Percentage of advanced biofuel sales or consumption out of all the petrol and diesel sold or consumed for transport purposes, in energy content, including biofuels.

2018 CALL FOR WASTE AID (PIMA WASTE AND PEMAR): PROJECT TO USE OILS FOR BIOFUELS

The State Secretariat for the Environment announces aid to promote actions that will make it possible to reduce greenhouse gas (GHG) emissions and make progress towards achieving the targets in Directive 2008/98/EC on waste, Act 22/2011 of 28 July 2011 on waste and contaminated land, the National Framework Plan for Waste Management [Plan Estatal Marco de Gestión de Residuos – PEMAR], as well as meeting the targets related to renewable energies. This aid especially promotes the implementation of innovative projects by local bodies to achieve EU targets.

The call for the year 2018 included a specific line of action for the separate collection of waste cooking oil[60] for the production of biofuel.

ESTABLISHMENT OF A NEW BIOETHANOL BUSINESS ASSOCIATION: BIO-E

A new association has been set up to promote bioethanol (Bio-E) that seeks to promote its development in Spain to contribute to the decarbonisation of liquid fuels and to rural development with indigenous crops for the local production of bioethanol, reducing field depopulation.

It aims to promote bioethanol produced using crops or waste, replacing petrol. In this regard, it provides farmers with a new demand for farm products. This creates an incentive for the rural economy, preventing rural population drift.

VALENCIA: AID FOR THE INSTALLATION OR ADAPTATION OF BIOFUEL PUMPS

By means of the Decision of 9 May 2017 of the chair of the Valencian Institute of Business Competitiveness [Instituto Valenciano de Competitividad Empresarial – IVACE] applications were invited for aid relating to renewable energy and biofuels for the year 2017 (*Official Gazette of the Generalitat of Valencia* 8042 of 18 May 2017). The different lines of action include aid to install or adapt biofuel pumps. Co-financed by the ERDF.

ANDALUSIA: AID FOR THE PURCHASE OF E85 VEHICLES

The Andalusian Energy Agency [Agencia Andaluza de la Energía] has aid for M1 vehicles (passenger cars) that consume bioethanol in blends higher than 85% provided that their emissions are lower than 120 g CO_2/km.

[60] Waste cooking oil is considered an animal by-product not intended for human consumption in accordance with Regulation (EC) No 1069/2009 and Regulation (EU) No 142/2011.

II.6. SHARED NATIONAL MEASURES FOR THE DIFFERENT ALTERNATIVE FUELS

SUPPORT PROGRAMMES FOR THE PURCHASE OF NEW ENERGY VEHICLES AND THE INSTALLATION OF CHARGE POINTS

Over recent years, the government has approved various programmes to support the purchase of new energy vehicles and their infrastructure:

- **MOVEA 2016:** the MOVEA Plan for Sustainable Mobility using New Energy Vehicles was approved by means of Royal Decree 1078/2015 of 27 November 2015 on the MOVEA Plan and subsequent legislation. This plan, managed by the Secretariat-General for Industry and SMEs, had a budget of EUR 16.6 million and made it possible to finance a total of 2,132 vehicles and 42 charge points.

- **MOVEA 2017:** approved by means of Royal Decree 617/2017 of 16 June 2017, had a budget of EUR 14.26 million and financed a total of 2,370 vehicles and 26 charge points.

- **MOVALT 2018:** the Alternative Mobility Support Plan, approved by means of the IDAE Decision of 14 November 2017 (published in the *Official State Gazette* of 15 November 2017), aimed to support the purchase of new energy vehicles and installation of charge points. This plan was divided into two programmes:

  - MOVALT Vehicles: with a budget of EUR 20 million, made it possible to finance 2,977 vehicles.
  - MOVALT Infrastructure: has a budget of EUR 20 million and the call for applications is pending. However, it is estimated that it will make it possible to finance around 310 charge points.

- **MOVES 2019:** The MOVES Programme (Efficient and Sustainable Mobility Incentives Programme) was approved in February 2019 by means of Royal Decree 72/2019 of 15 February 2019. This plan, which will be managed by the autonomous communities, is endowed with EUR 45 million and divided into four programmes:

  1) acquisition of new energy vehicles;
  2) installation of recharging infrastructure for electric vehicles;
  3) implementation of electric bicycle sharing systems;
  4) development of transport to workplace plans.

- **MOVES ONE-OFF PROJECTS 2019:** in July 2019, the Ministry for Ecological Transition published the terms for the MOVES Programme – One-off Projects. This programme provides continuity to the 2019 MOVES Programme and is aimed at both public and private entities. It is endowed with EUR 15 million and divided into two funding lines:

  - One-off urban environment projects: i.e. integrated management projects that include changes in the mobility model and in the city configuration, committing to efficiency, sustainability and the increased quality of urban life.

  - One-off innovation projects: i.e. any projects on technology development and innovative experiences in electromobility that may be used to promote the technological leap to electric vehicles and promote the development of experimental projects by Spanish companies, in order to achieve the technological maturity that will facilitate their commercialisation.

CLIMATE CHANGE AND ENERGY TRANSITION BILL

The Climate Change and Energy Transition Bill is aimed at ensuring the fulfilment of the Paris Agreement targets, facilitating the full decarbonisation of the Spanish economy and ensuring the rational and considerate use of resources. It is thus established as a regulatory framework that makes it possible to facilitate the gradual adaptation of all sectors to the demands of climate action.

The main measures proposed with regard to sustainable mobility are:

- Achieving a fleet of passenger cars and light-duty commercial vehicles with no direct CO_2 emissions by 2050.
- Owners of fuel supply installations with an aggregate volume of petrol and diesel in 2018 greater than or equal to 10 million litres or with a volume between five and 10 million litres must install at least one electric charging infrastructure with charging power equal to or greater than 22 kW.
- New passenger cars and light-duty commercial vehicles, excluding those registered as historic vehicles not intended for non-commercial use, must gradually reduce their emissions so that no later than 2040, they will be vehicles with emissions of 0 g CO_2/km.
- Municipalities with over 50,000 inhabitants and island territories must promote measures to reduce emissions derived from mobility. To do this, it will be necessary to establish low-emission zones no later than 2023; to facilitate journeys on foot, by bicycle or other means of active transport; to facilitate the use and improve the public transport network; to electrify the public transport network and other fuels with no greenhouse gas emissions, such as biomethane; and to promote the use of private means of electric transport, including charge points.
- In relation to maritime transport, measures will be adopted to gradually reduce the emissions generated by the consumption of fossil fuels by boats and auxiliary attachments when berthed at ports, so that ports under the jurisdiction of the State should reach zero direct emissions by 2050.
- In terms of air transport, it establishes that the government must set annual supply targets for advanced biofuels and other renewable fuels from non-biological sources in air transport.

DRAFT OF THE 2021-2030 INTEGRATED NATIONAL ENERGY AND CLIMATE PLAN (INECP)

The INECP is a document that supplements the Climate Change and Ecological Transition Bill that defines targets for greenhouse gas emissions, renewable energy penetration and energy efficiency.

The measures of the 2021-2030 Integrated National Energy and Climate Plan can achieve a decrease in total gross GHG emissions, from 327.4 $MtCO_2$-eq predicted for the year 2020 to 226.7 $MtCO_2$-eq in 2030. The sectors of the economy that reduce emissions most, in absolute terms, during that period are electricity generation (44 $MtCO_2$-eq) and secondly mobility and transport (28 $MtCO_2$-eq).

In this sense, the main driving force for decarbonising the mobility and transport sector is a modal shift that will, according to the plan, affect 35% of passenger kilometres that are done today in conventional combustion vehicles, by means of sustainable urban mobility plans or transport to work plans. Another driver of decarbonisation of the sector will be the presence of renewables in mobility and transport that reaches 22% through electrification and the use of advanced biofuels. The target is higher than the one set out in the revised Renewable Energy Directive of 14% renewable energy in transport by 2030. To do this, different measures are considered to renew the fleet of vehicles and support electric vehicles.

In addition, the INECP contains a list of actions that include developing plans to promote renewable gases such as biomethane and 100% renewable hydrogen.

PARTICIPATION IN PROGRAMMES TO SUPPORT THE IMPLEMENTATION OF DIRECTIVE 2014/94/EU (PSA IDACS AND PSA FPC)

The European Commission makes programme support actions (PSAs) available to Member States to support the implementation of directives, under the Connecting Europe Facility (CEF), the aim of which is to lead the implementation of different obligations set out in the European directives through a consortium of Member States. The State Secretariat for Energy's Directorate-General for Energy Policy and Mines is participating in two PSA projects related to Directive 2014/94/EU.

To ensure compliance with Article 7(3) of Directive 2014/94/EU and in order to facilitate the comparison of prices among different fuels, on 13 April 2018, the Alternative Fuel Infrastructure Committee approved a shared methodology for this comparison, express as currency/100 km (€/km). Against this background, the European Commission promoted a PSA through which the countries that are members of the consortium will prepare a harmonised methodology to compare prices of the different fuels and that must, ultimately, appear at service stations. Spain is participating in this initiative through the State Secretariat for Energy.

Moreover, this same State Secretariat works on the PSA (IDACS or ID and Data Collection for Sustainable Fuels in Europe) with the aim of gathering information about the publicly accessible electric charging and hydrogen infrastructure and making it available to the public through the National Access Point (nap.dgt.es) as well as the Ministry for Ecological Transition's information platform (Petrol Station Geoportal).

2017-2020 STATE PLAN ON SCIENTIFIC AND TECHNICAL RESEARCH AND INNOVATION

The 2017-2020 State Plan on Scientific and Technical Research and Innovation is the central government's main instrument for development and the achievement of the Spanish Strategy and Europe 2020 Strategy. This plan includes the State aid intended for RDI and is divided into four State programmes. As regards mobility, this plan defines the following priority RDI activities:

- Research on and application of new advanced materials for transport, road surfaces and construction of infrastructure, including the development of technologies linked to the circular economy (eco-design, reuse, recovery, re-manufacturing and recycling).
- The development and large-scale deployment of technologies, services and fuels to develop a sustainable transport model based on: alternative fuels, their applications in the transport sector (land, maritime, air and rail) and the setting up of the relevant infrastructure.
- The development of smart transport routes and systems that will improve the management and operation of transport networks including their infrastructures and territory accessibility.
- The design and manufacture of autonomous vehicles and remotely manned systems, including the testing of technologies and components for more efficient, cleaner, safer, more connected and autonomous vehicles, and the development of (active and passive) safety and connectivity systems linked to different degrees of vehicle automation.
- The development of hydrogen technologies, which include aspects linked to the production, storage and distribution of hydrogen, and to portable and stationary uses of hydrogen for mobility, paying special attention to researching and developing fuel cells as one of the key aspects of the orientation of the RDI in this field.

In relation to the promotion of alternative fuels in transport, the aid from the State Plan on Scientific and Technical Research and Innovation has been channelled through the calls for the 2016 and 2017 Challenge-Collaboration [Reto-Colaboración] programmes with a total budget of EUR 771,000 and EUR 2,975,000, respectively.

In addition, the Industrial Technology Development Centre (CDTI) attached to the Ministry of Science, Innovation and Universities has promoted the innovation and technological development of alternative fuels by channelling financing and support to R&D projects with an amount of over EUR 33 million between 2016 and 2018.

CDIT CONTRIBUTION (€)		Type of Aid		
MODE OF TRANSPORT ENERGY TYPE		Loan	Grant	Overall total
2016 Total		**5,694,572**	**2,326,726**	**8,021,298**
Air	Electricity		124,222	124,222
Road	Efficiency	1,785,769		1,785,769
	Electricity	1,694,758	1,337,005	3,031,763
	Natural gas	1,142,096		1,142,096
Rail	Efficiency		301,080	301,080
Maritime	Electricity		564,420	564,420
Multimodal	Biofuels	1,071,949		1,071,949
2017 Total		**7,223,547**	**1,170,801**	**8,394,348**
Road	Efficiency	1,151,043		1,151,043
	Electricity	3,002,893	549,520	3,552,414
	Liquefied Petroleum Gas	813,633		813,633
Rail	Efficiency	199,022		199,022
	Electricity	402,886	269,819	672,705
Maritime	Efficiency	796,805		796,805
Multimodal	Biofuels		351,462	351,462
	Fuel cell/hydrogen	857,264		857,264
2018 Total		**13,315,578**	**3,820,350**	**17,135,928**
Air	Efficiency	397,588	203,609	601,197
	Electricity	7,117,564		7,117,564
	Fuel cell/hydrogen		394,796	394,796
Road	Efficiency		168,639	168,639
	Electricity	4,368,060	1,293,164	5,661,223
	Natural gas	614,411		614,411
Rail	Electricity		488,546	488,546
Maritime	Electricity	322,776		322,776
Multimodal	Biofuels		589,378	589,378
	Electricity	495,178		495,178
	Fuel cell/hydrogen		682,218	682,218
2016-2018 Overall total		**26,233,696**	**7,317,877**	**33,551,573**

2017-2019 NATIONAL AIR QUALITY PLAN (PLAN AIRE II)

Plan prepared by the central government in implementation of Royal Decree 102/2011 on improving air quality. The plan continues the 2013-2016 Plan Aire and, in turn, this plan is continued by the National Air Pollution Control Programme. This Plan Aire II analyses polluting gases, such as nitrogen dioxide, sulphur dioxide or other particulates, and includes a series of measures to cut emissions of these gases. The main measures for mobility included in the Plan Aire II are:

- promoting the purchase of new energy and efficient vehicles;
- promoting the establishment of private consortia for submitting projects co-financed by the CEF Transport programme;
- renewing heavy-duty vehicle fleets;
- aid programme for modal shift actions and more efficient use of modes of transport;
- reducing emissions from aircraft in Spanish airspace;
- fostering the supply of electricity at 400 Hz to aircraft at airports;
- promoting the use of alternative fuels in maritime transport.

NATIONAL AIR POLLUTION CONTROL PROGRAMME (NAPCP)

The National Air Pollution Control Programme is an obligation arising from Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants. This Directive sets out emission reduction commitments for certain atmospheric emissions and envisages the adoption, by Member States, of a national air pollution control programme. In terms of mobility, the NAPCP, approved by Agreement of the Council of Ministers on 27 September 2019, proposes the following policies and measures to reduce atmospheric pollutants:

- increasing the use of advanced biofuels in transport;
- promoting more efficient modes of transport: collective transport, rail, development of PMUs;
- more efficient use of the means of transport; For example, it is proposed to analyse the impact of increasing the mass limits and maximum permitted dimensions to make it possible to increase the average load of these vehicles, with the consequent reduction of the number of vehicles and atmospheric pollutant emissions;
- renewing the vehicle fleet, promoting the purchase of more efficient vehicles;
- promoting electric vehicles;
- developing the network of alternative fuel recharge points.

INTER-MINISTRY COMMISSION FOR THE INCORPORATION OF ECOLOGICAL CRITERIA IN PUBLIC PROCUREMENT AND PUBLIC PROCUREMENT PLAN (ORDER PCI/86/2019)

Royal Decree 6/2018 of 12 January 2018 created the Inter-Ministry Commission for the incorporation of ecological criteria in public procurement with the aim of ensuring the coordination of the central government, its public bodies and common services and the Social Security management entities, in the incorporation and use of ecological criteria in public procurement. This commission is formed of 13 members and the State Secretariat for the Environment is responsible for the secretary duties.

One of the Commission's main duties was to prepare an Ecological Public Procurement Plan. This plan was finally published by means of Order PCI/86/2019 in January 2019 and set out the preference of purchase, hire, renting or other forms of use for vehicles classified in the Directorate-General for Road Transport's Vehicle Register as 'zero emission' or 'eco'.

This measure will contribute to achieving the objectives in Directive (EU) 2019/1161 of the European Parliament and of the Council of 20 June 2019 amending Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles. For the case of clean light-duty vehicles, the Directive establishes a public procurement target for Spain of 36.3%.

2016-2019 CLIMATE PROJECTS

The Climate Projects are initiatives carried out in non-ETS sectors (agriculture, transport, residential and waste) to encourage low-carbon activities. The certified reductions in carbon achieved by the approved projects are purchased by the Carbon Fund for a Sustainable Economy (FES-C02), thus contributing to their financial viability. This programme has been in force since 2012 and has financed 28 projects in the area of transport, which in turn have made it possible to reduce more than 108,000 tonnes of CO_2 equivalent thanks to the financial contribution of over EUR 1.2 million. The majority are projects to replace vehicle fleets powered by conventional fossil fuels (diesel and petrol) with electric vehicles and, to a lesser extent, projects to promote the use of biomethane by vehicles and connecting vessels to the national port network. The 2019 Climate Projects initiative has already been announced for 2019 and is pending decision.

Table II-19. 2016-2018 Climate project summary

Year	No of Projects	Estimated reductions (tCO_2e)	Estimated budget (€)
2018	12	58,447	685,992
2017	8	14,457	169,682
2016	8	35,372	415,161

Source: Spanish Climate Change Office.

GENERAL GUIDELINES ON THE NEW 2030 SPANISH INDUSTRIAL POLICY AND ITS SECTORAL AGENDAS

The General Guidelines on the new 2030 Spanish industrial policy were presented on 22 February 2019, framed within the government's Agenda for Change and aligned with the Sustainable Development Goals. They include proposals concerning industry based on five priority vectors: improving productivity and competitiveness, increasing the weight of industry in the national GDP, the sustainability and decarbonisation of the economy, digitalisation and aligning the Spanish industrial policy with the policy promoted by the EU.

The Sectoral Agendas have been prepared in the framework of these guidelines, with specific measures for each industry. In this sense, three Sectoral Agendas (Automotive, Shipping and Capital Goods) [61] set out specific measures to promote alternative fuels in transport.

2019-2025 STRATEGIC PLAN ON INTEGRAL SUPPORT FOR THE AUTOMOTIVE SECTOR

This is a roadmap for the process to transition towards a new sustainable mobility model. This document was presented in March 2019 by the Ministry of Industry, Trade and Tourism. It is in line with the objectives of the INECP and set out in the Fair Transition Strategy in the framework of the government's Agenda for Change.

[61] http://www.minetad.gob.es/industria/es-ES/Servicios/Paginas/agendas-sectoriales.aspx

It provides for the creation of a Sustainable Mobility Committee to coordinate measures that will lead to more sustainable mobility, reviewing the taxation of vehicles, promoting investments in R&D for the production in Spain of more sustainable models and new support plans and measures for the penetration of zero- and low-emission vehicles. This National Sustainable Mobility Committee is planned to have its headquarters in Zaragoza in the context of the Mobility City project.

UNE EN 16942 FUEL LABELLING

The new European regulations on fuel and vehicle labelling required by Directive 2014/94/EU entered into force on 12 October 2018, and are aimed at improving consumer information due to the wide variety of fuels available. The Secretariat-General for Industry and SMEs organised a dissemination session where 13 labels of each fuel type were presented: from oil products (petrol, diesel and liquefied petroleum gas), to biofuels and natural gas, hydrogen and blends. From October, these labels must appear on both the pumps and nozzles at all service stations as well as on new vehicles.

REINDUSTRIALISATION ACTION AID PROGRAMME – REINDUS

The Reindustrialisation and Industrial Competitiveness Strengthening Programme is a financial support instrument aimed at promoting industrial development through business improvement and the efficiency of the productive sectors. The programme pays special attention to those companies that incorporate advanced technologies in their products and processes.

The programme enables the financing of four kinds of fundable actions:

- **Creation of industrial establishments:** starting a new production activity anywhere in the national territory.
- **Transfer:** changing the location of a previous production activity to any place in the national territory.
- **Improvements and/or modifications of production lines:** making investments to purchase equipment, which will make it possible to modernise existing production lines, or will generate the implementation of new production lines.
- **Productive implementation of 'Connected Industry 4.0' technologies:** making investments to acquire tangible fixed assets in industrial establishments.

The eligible expenses include, inter alia: civil engineering, construction, acquiring equipment and materials, own personnel expenses and external collaborations necessary for the design and/or redesign of processes, etc.

A budget of EUR 400 million is available for the 2019 call for applications.

Call year	2016	2017	2018	2019
Amount allocated	EUR 757,573,075	EUR 606,368,488	EUR 400,000,000	EUR 400,000,000

DRAFT MINISTERIAL ORDER ON FINANCIAL SUPPORT TO INDUSTRIAL RDI PROJECTS IN THE FIELD OF THE MANUFACTURING INDUSTRY

The Directorate-General for Industry and SMEs is working on granting financial support in 2019 to develop industrial research projects and experimental development projects in the field of the manufacturing industry.

II.7. STATE MEASURE SUMMARY TABLES

II.7.1. STATUS OF THE NATIONAL MEASURES SET OUT IN THE NATIONAL POLICY FRAMEWORK APPROVED IN DECEMBER 2016.

Type	No of	Name of the measure set out in the National Policy Framework approved in Dec. 2016	Current status of the measures
MARKET	**ACQUISITION OF NEW ENERGY VEHICLES**		
	MK-1	MOVEA Plan Acquisition	In force through MOVEA, MOVALT and MOVES.
	MK-2	CERSA agreement to improve financing terms for NEV purchases	Completed.
	MK-3	Climate projects	In force through its 2017 and 2018 calls for applications.
	MK-4	Environment action plans	Completed.
	RAISING THE PROFILE OF ALTERNATIVE FUELS		
	DC-1	MOVEA website	In force through www.vea.gob.es
	DC-2	Zero, Eco, C and B labels	In force. Unchanged since 2016.
	DC-3	Participation in the European Alternative Fuels Observatory	In force. Unchanged since 2016.
	DC-4	Practical courses on driving NEVs	Completed.
	DC-5	Courses for the haulage industry on NEVS	Completed.
INFRASTRUCTURE	IFR-1	MOVEA Plan Infrastructure	In force through MOVEA, MOVALT and MOVES.
	IFR-2	Promoting participation in the INTERREG programme	In force.
	IFR-3	Promoting participation in projects of common interest within the TEN-T networks	In force. New consortia have been promoted (ECO-GATE, Ambra, IBIL, etc.)
	IFR-4	Financial support for municipal authorities for installing supply infrastructure	In force.
	IFR-5	Installation of electric vehicle charge points at railway stations and airports	In force.
	IFR-6	Spanish-Portuguese-French electric vehicle promotion initiative	Completed.
	IFR-7	Obligation to install charging infrastructure under Complementary Technical Instruction BT52	In force.
INDUSTRIALISATION	FIDi-1	Innovation cluster programme	Operational in 2017 and currently working on new calls for applications.
	FIDi-2	RDI lines linked to alternative fuels	In force.
	FIDi-3	Incentives for participation in Joint Technology Initiatives and PPPs at European level	In force.
	FIDi-4	National Smart Cities Network	Completed.
	FIDi-5	Promoting Technology Platforms for NEV development	In force.
	FIDi-6	Promoting research centres and infrastructure for NEV development	In force.
	FIDi-7	Reindustrialisation and industrial competitiveness programme	In force.
REGULATORY FRAMEWORK	**LEGISLATION**		
	NR-1	Charge managers. Analysis of how the defined role meets market requirements	Completed.
	NR-2	Super-off-peak electricity tariff[62]	In force.
	NR-3	Electric vehicle charging infrastructure, Complementary Technical Instruction BT-52	In force.

[62] The tariff structure is currently being revised

	NR-4	Analysis of tolls for charge points	The existing tolls have not been changed[63].
	NR-5	Authorisation to install charge points in residential buildings	Completed.
	NR-6	Exemption from limits for chauffeur-driven car hire permits	Completed.
	NR-7	Registration of vehicles authorised with higher gross vehicle weight ratings	Completed.
	NR-8	Permission to use high-occupancy vehicle (HOV) lanes	In force.
	NR-9	Mandatory biofuel targets	In force.
	NR-10	Inclusion of environmental criteria in the tendering of public transport services	Completed.
	NR-11	Inclusion of NEVs in the catalogue of vehicles for the Public Authority Fleet Replacement Agreement	Completed.
	NR-12	Participation in technical committees on standardisation (ISO, CEN/CENELEC and AENOR).	In force.
	TAX INCENTIVES		
	IF-1	Road tax rebates	In force.
	IF-2	Car registration tax rebates	In force.
	IF-3	Personal income tax reduction applicable to benefits in-kind	In force.

In force: 25	Completed: 12	No result: 1

II.7.2. NEW NATIONAL MEASURES APPROVED DURING 2016-2019

Below is a table summarising the measures linked to the promotion of alternative fuels in road transport that have been implemented following the approval of the National Policy Framework. Details of the cross-cutting mobility measures common to the different alternative fuels are shown in section II.6. Moreover, the new specific measures for each of the alternative fuels appear respectively in sections II.1.3 (natural gas), II.2.3 (electricity), II.3.3 (liquefied petroleum gas), II.4.3 (hydrogen) and II.5.3 (biofuels).

Type	**New measures**
CROSS-CUTTING (See details in section II.6)	Programmes to support the purchase of vehicles, charging infrastructure and one-off projects: MOVEA, MOVALT and MOVES (Details included in the specific sections for each alternative fuel)
	Climate Change and Energy Transition Bill
	Draft of the 2021-2030 Integrated National Energy and Climate Plan (INECP)
	Price comparison PSA (Programme Support Action)
	2017-2020 State Plan on Scientific and Technical Research and Innovation
	2017-2019 National Air Quality Plan (Plan Aire II)

[63] The government approved the energy policy guidelines, laid down by Order TEC/406/2019 of 5 April 2019 laying down guidelines for energy policy for the National Commission on Markets and Competition. In these energy policy guidelines, the government set out that 'the methodology for establishing the tolls and, in particular, the design of the time periods, should contribute to promoting electric mobility and the electrification of energy end uses.

	National Air Pollution Control Programme (NAPCP)
	Inter-Ministry Commission for the Incorporation of Ecological Criteria and Public Procurement Plan (Order PCI/86/2019)
	2016-2019 Climate projects
	General Guidelines on the new 2030 Spanish industrial policy and its Sectoral Agendas
	Strategic Plan on Integral Support for the Automotive Sector
	Application of the UNE-16942 fuel labelling standard
	2017-2019 REINDUS calls for applications
	Draft Ministerial Order on financial support to industrial RDI projects in the field of the manufacturing industry
NATURAL GAS (See details in section II.1.3)	Climate Change and Energy Transition Bill and Draft 2021-2030 Integrated National Energy and Climate Plan: measures for renewable gases
	Promotion of renewable natural gas (biomethane)
	2018 Call for applications for Waste aid (PIMA Waste and PEMAR): biogas use
	Approval of technical standards
	Development of a methodology to consider renewable gas in the calculation of CO_2 emissions
ELECTRICITY (See details in section II.2.3)	Royal Decree-Law 15/2018 of 5 October 2018 on urgent measures for energy transition and consumer protection
	Creation of the Spanish Battery Working Group
	Spanish participation in the IPCEI (Important Projects of Common European Interest) on batteries, led by Germany
	Climate Change and Energy Transition Bill: electromobility measures
	Public consultation to update the Technical Building Code
	Draft of the 2021-2030 Integrated National Energy and Climate Plan (INECP): electromobility measures
	PSA to identify charge points (e-Mobility codes & data collection) – IDACS
	Publication of the ITC-BT-52 interpretation guide
LPG (See details in section II.3.3)	Formation of the Autogas/LPG Cluster
	Promotion of biopropane as a biofuel for transport (biofuel certificate)
Hydrogen (See details in section II.4.3)	Creation of Spanish Hydrogen Working Group
	Climate Change and Energy Transition Bill and INECP 2021-2030: measures to promote renewable hydrogen
	Inclusion of hydrogen as a strategic value chain and possible IPCEI
	Reactivation of the Technical Committee on Standardisation for hydrogen technologies, CTN-181
	Signing of the Hydrogen Initiative
	Participation in the Fuel Cells and Hydrogen Joint Undertaking (FCH JU) Regions and Cities Initiative
	Promotion of Sectoral Cooperation Agreements
	Financing of projects developed by the New Hydrogen Technologies Innovation Cluster (AEI-NTH)
Biofuels (See details in section II.4.3)	Royal Decree 235/2018 of 27 April 2018 laying down the calculation methods and reporting requirements with regard to the intensity of greenhouse gas emissions of fuels and energy in transport
	2018 Call for Applications for Waste aid (PIMA Waste and PEMAR)
	Creation of the Spanish Bioethanol Association (Bio-E)

II.8. 2017-2019 REGIONAL AND LOCAL MOBILITY MEASURES FOR THE VARIOUS 2017-2019 ALTERNATIVE FUELS

II.8.1. REGIONAL MEASURES

Below is a summary of the regional measures to promote sustainable mobility that have been identified by the Secretariat-General for Industry and SMEs and validated by the autonomous communities in the context of the Alternative Fuels in Transport Working Group with autonomous communities and city councils identified with a specific alternative mobility plan. Each of the following measures is outlined in the Annex.

		AUTONOMOUS COMMUNITY	Measure	Year	Type* VG: Grant for vehicles IG: Grant for infrastructure L: Law P: Plan O: Other measures	Electricity	CNG	LNG	Hydrogen	LPG
1	M.1.1	Andalusia	Line of grants (80% ERDF and 20% Andalusian Government): Smart networks to promote the transformation of the cities of the Autonomous Community of Andalusia (2017-2020)	2017	VG/IG	X	X	X	X	X
2.	M.1.2		Climate Change and Energy Transition Act, which aims to combat climate change and progress towards a new energy model in Andalusia	2018	L	X	X	X	X	X
3	M.1.3		Bill on promoting sustainable mobility, which aims to reduce the environmental impact of transport, contribute to combating climate change, energy saving and efficiency, and reduce atmospheric and noise pollution	2019	L	X	X	X	X	X

4	M.1.4		MOVES Grant – Andalusia	2019	VG/IG	X	X	X	X	X
5	M.2.1		Aragonese Hydrogen Masterplan	2016	P				X	
6	M.2.2	**Aragon**	ORDER EIE/922/2018 of 28 May 2018 inviting companies from the automotive sector to express an interest in accessing a line of aid for carrying out business projects with experimental development and/or research in Aragon	2018	O	X				
7	M.3.1		Grant for the installation of charge points for electric vehicles and refuelling facilities for natural gas and LPG	2017	IG	X	X	X	X	X
8	M.3.2	**Asturias**	Establishment of a Regional Committee for the Promotion of Electric Mobility to promote the roll-out of a core network of rapid charge points for vehicles in Asturias through support for 61 charge points (11 rapid charge and 50 normal charge).	2017	O	X				
9	M.3.3		Transport and Mobility Act	2018	L	X	X	X	X	X
10	M.3.4		Grant in 2018 for the purchase of new energy vehicles and the installation of charge points for electric vehicles and for natural gas refuelling facilities	2018	VG/IG	X	X	X		

11	M.3.5		Establishment of a Regional Committee for the Promotion of Natural Gas Vehicles (NGVs) to promote the deployment of a basic network of charge points for NGVs.	2018	O		X	X		
12	M.3.6		MOVES Plan – Asturias	2019	VG/IG	X	X	X	X	X
13	M.4.1		Award of EUR 300,000 for the installation of charge points in 17 municipalities of Gran Canaria	2018	IG	X				
14	M.4.2		Award of EUR 79,000 for a photovoltaic charging installation for electric vehicles in its central car park	2018	IG	X				
15	M.4.3		Aid for the installation of charge points in different parts of the Canary Islands	2017-2018	IG	X				
16	M.4.4		Line of grants to promote the deployment of ten rapid charge points for electric vehicles in Tenerife	2018	IG	X				
17	M.4.5	**Canary Islands**	Reduction of the Canary Islands general indirect tax (IGIC) to 0% for the purchase of hybrid and electric vehicles, as well as public transport vehicles powered by liquefied gas and natural gas	2019	O	X	X	X	X	X
18	M.5.1	**Cantabria**	Grant in 2017, 2018 and 2019 for the installation of rapid and fast charging systems for electric vehicle batteries	2017 2018 2019	IG	X				
19	M.6.1	**Castile-La Mancha**	Aid for the purchase of new efficient vehicles powered by alternative fuels and conversion to power systems based on LPG, CNG, LNG or hydrogen	2018 2019	VG		X	X	X	X

20	M.7.1	**Castile and Leon**	Grant for the purchase of new vehicles where the propulsion system is wholly or partially based on electricity, or where the propulsion system is based on internal combustion engines that can use alternative fossil fuels	2018	VG	X				
21	M.7.2		Proposal for a new automatic reduction of income tax for the purchase of electric vehicles	2019	O	X				
22	M.7.3		MOVES Programme aid – Castile and Leon	2019	VG/IG	X	X	X	X	X
23	M.8.1	**Catalonia**	Climate Change Act	2017	L	X				
24	M.8.2		Grants for the purchase of vehicles for use as taxis	2018	VG	X	X	X		X
25	M.8.3		Aid for installations of publicly accessible rapid charging for electric vehicles requested by public administrations (local authorities)	2018	IG	X				
26	M.8.4		MOVES Programme aid – Catalonia	2019	VG/IG	X	X	X	X	X
27	M.9.1	**Madrid**	Aid to the self-employed and SMEs to modernise the van and light van fleet with highly energy-efficient models that consume less fuel and emit less CO_2 and NOx	2017	VG	X	X	X	X	X

28	M.9.2		Incentives to modernise the fleet of vehicles intended to be taxis, with highly energy-efficient models that consume less fuel and emit less CO_2 and NOx	2017	IG	X	X	X	X	X
29	M.9.3		Establishment of the Regional Electric Vehicle Committee	2017	O	X				
30	M.9.4		Grants to natural persons who are self-employed and SMEs for the purchase of efficient commercial, ancillary and service vehicles	2018	VG	X	X	X	X	X
31	M.9.5		2018 PIAM (Madrid Taxi Incentive Plan) Programme of aid for the purchase of new energy vehicles for use as taxis	2018	VG	X	X	X	X	X
32	M.9.6		Grants intended for the deployment of charging infrastructure (conventional, fast, rapid and ultra-fast charging) for electric vehicles	2018	IG	X				
33	M.9.7		Aid to natural persons for the purchase of M1 vehicles powered by LPG, LNG, CNG or bi-fuel (petrol and gas), BEVs, EREVs, PHEVs and fuel cell vehicles, and exclusively electric motorcycles (L-category)	2018	IG	X	X	X	X	X
34	M.9.8		MOVES Programme aid – Madrid	2019	VG/IG	X	X	X	X	X
35	M.10.1		2017-2030 Plan to promote electric vehicles and deploy charging infrastructure in Valencia	2017-2030	P	X				
36	M.10.2	**Valencia**	2017, 2018 and 2019: Aid for public or private companies and bodies for the installation of charging facilities for electric vehicles	2017 2018 2019	IG	X				

37	M.10.3		2017, 2018 and 2019: Aid for the purchase of electric vehicles or vehicles powered by alternative fuels	2017 2018 2019	VG	X	X	X	X	
38	M.10.4		Establishment of an Electric Mobility Committee of the Autonomous Community of Valencia to encourage public and business participation in proposing legislative measures and in decision-making with regard to electric mobility	2017	O	X				
39	M.10.5		MOVES Programme aid – Valencia	2019	VG/IG	X	X	X	X	X
40	M.11.1	**Extremadura**	Strategy towards the 2030 horizon to promote electric vehicles	2018-2030	P	X				
41	M.11.2		Draft decree laying down the regulatory framework for public grants intended for initiatives to promote electric mobility in Extremadura	2019	L	X				
42	M.12.1	**Galicia**	MOVES Programme aid – Galicia	2019	VG/IG	X	X	X	X	X
43	M.13.1	**Balearic Islands**	Aid for the promotion of charging infrastructure for electric vehicles	2018	IG	X				
44	M.13.2		Aid for the installation of rapid charging facilities for public use in the various counties (8) of the Balearic Islands	2018	IG	X				
45	M.13.3		Aid to promote the installation of rapid and fast electric vehicle charge points for public use and for the adaptation of current management systems for charge points	2018	IG	X				

46	M.13.4		Aid to promote the installation of new public charging points for electric vehicles in the framework of the Balearic Islands tourist tax	2018	IG	X				
47	M.13.5		Aid to promote low-emission electric, plug-in hybrid, CNG- and LPG-powered vehicles for hire and taxis	2018	VG	X	X			X
48	M.13.6		Climate Change Act that includes measures aimed at mitigation of and adaptation to climate change in the Balearic Islands, as well as transition to a sustainable, decarbonised and efficient energy model	2019	L	X	X	X	X	X
49	M.13.7		MOVES Programme aid – Balearic Islands	2019	VG/IG	X	X	X	X	X
50	M.14.1		15% discount on the purchase of new electric vehicles	2017	O	X				
51	M.14.2	**Rioja**	Grant for 2018 for town councils with fewer than 25,000 inhabitants for the installation of fast charging points for public use	2018	IG	X				
52	M.15.1	**Melilla**	MOVES Plan – Melilla	2019	VG/IG	X	X	X	X	X
53	M.16.1	**Navarre**	Regional Act 16/2017 of 27 December 2017 which amends various taxes and other tax measures, and lays down tax deductions for investments in the installation of charge points and in pure and plug-in hybrid electric vehicles	2017	L	X				

54	M.16.2		2017 aid to local authorities with fewer than 20,000 inhabitants for the purchase of pure electric vehicles and the installation of charge points	2017	VG/IG	X				
55	M.16.3		Initiative to promote electric, autonomous and connected vehicles in Navarre	2017	P	X				
56	M.16.4		Navarre Horizon 2030 Energy Plan	2018	P	X				
57	M.16.5		Regional Bill amending the Taxis Act that lays down that municipalities with a population greater than 20,000 inhabitants must ensure that vehicles given taxi licences from 1 January 2022...	2018	L	X	X	X	X	X
58	M.16.6		Bill laying down a regulatory, institutional and enabling framework to facilitate mitigation of and adaptation to climate change, and transition towards a low-carbon energy model	2019	L	X	X	X	X	X
59	M.17.1	**Basque Country**	Basque Country 2030 Masterplan for Sustainable Transport	2017	P	X	X	X		

60	M.17.2		Aid for the purchase of electric mopeds, electric or hybrid heavy-duty vehicles and electric and natural gas equipment Aid for the conversion of light-duty vehicles to NG/LPG and heavy-duty vehicles to NG Aid for core installations in shared garages, for electric charging points and for refuelling with alternative fuels	2018	VG/IG	X	X	X	X	X
61	M.17.3		Aid programme for investments in efficient and alternative vehicles (PAVEA)	2019	VG	X	X	X	X	X
62	M.17.4		Programme of aid for investment in efficient transport and mobility	2019	VG	X	X	X	X	X
63	M.17.5		2018-2020 Comprehensive Electric Mobility Plan	2018-2020	VG/IG	X				
64	M.17.6		Promotion of electric charging at points for public use	2019	IG	X				
65	M.17.7		Basque Public Administration Energy Sustainability Act	2019	L	X	X	X	X	X
66	M.17.8		Basque Country Climate Change Bill	2019	L	X	X	X	X	X
67	M.17.9		MOVES Programme aid – the Basque Country	2019	VG/IG	X	X	X	X	X
68	M.18.1	**Murcia**	Renewal Plan for the Automobile Fleet of the Autonomous Community of Murcia of 8 November 2018	2018	L	X	X	X	X	X

69	M.18.2		Preparation of the Document to Promote Low-carbon Mobility	2019	P	X	X	X	X	X
70	M.18.3		MOVES Programme aid – Murcia	2019	VG/IG	X	X	X	X	X

II.8.2. LOCAL MEASURES

Below is a summary of the local measures to promote sustainable mobility that have been identified by the Secretariat-General for Industry and SMEs in the context of the Alternative Fuels in Transport Working Group with autonomous communities and city councils identified with a specific alternative mobility plan. Each of the following measures is outlined in the Annex.

		Council	**Measure**	**Year**	**Type* VG: Grant for vehicles: IG: Grant for infrastructure; L: Law; P: Plan; O: Other measures**	**Electricity**	**CNG**	**LNG**	**Hydrogen**	**LPG**
1	M.1.1		2018-2024 Strategy for Electric Mobility	2018	P	X				
2.	M.1.2	Barcelona	Committee against air pollution and Mobility Pact	2019	O	X	X	X	X	X
3	M.2.1		City of Madrid Air Quality Plan and Madrid Climate Change Plan (Plan A)	2017	P	X	X	X	X	X
4	M.2.2		Call for applications for 2018 TAXIFREE grants for ECO and ZERO taxis	2018	VG	X	X	X	X	X
5	M.2.3	Madrid	Granting of permission to use charge points for electric vehicles by means of a cooperation agreement	2018	O	X				

6	M.2.4		TAXIFREE grants programme for ECO and ZERO taxis	2018	VG	X	X	X	X	X
7	M.3.1	Málaga	Málaga Special Plan for Sustainable Urban Mobility	2019	P	X	X	X		
8	M.4.1	Seville	Action plan for climate and sustainable energy (PACES 2017) for the city of Seville	2017	P	X	X	X	X	X
9	M.4.2		Andalusian Air Quality Strategy	2018	P	X	X	X	X	X
10	M.4.3		Sustainable Urban Mobility Plan for the city of Seville	2019	P	X	X	X	X	X
11	M.5.1	Valencia	Action Plan for Climate and Sustainable Energy (PACES 2017) for the city of Valencia	2017	P	X	X	X		X
12	M.6.1	Valladolid	Comprehensive Plan for Sustainable and Safe Urban Mobility for the City of Valladolid	2017	P	X	X	X	X	X
13	M.7.1	Zaragoza	Amendment of the 2013-2023 plan to replace the urban bus transport concession fleet with hybrid buses	2017	VG					X
14	M.7.2		Exemption from parking fees for electric vehicles of all types in certain zones of the city of Zaragoza	2017	O	X				
15	M.7.3		Discounts on the motor vehicle tax	2018	O	X	X	X	X	X

16	M.7.4		Cooperation Agreement between the City Council and the Provincial Taxi Association to modernise taxis	2018-2019	VG	X				
17	M.7.5		Zaragoza Climate Change, Air Quality and Health Strategy (ECAZ 3.0)	2019	P	X	X	X	X	X

II.9. FLEET AND CHARGING/REFUELLING INFRASTRUCTURE ESTIMATES IN COMPLIANCE WITH ARTICLE 10 OF DIRECTIVE 2014/94/EU

With the aim of guaranteeing the deployment of alternative fuels in transport, Article 10(1) and Annex I of Directive 2014/94/EU lay down the obligation to evaluate the quantitative estimates made by each Member State in the national policy frameworks. The level of attainment of these estimates is shown below:

1. Level of attainment of the fleet targets compared to estimates made in the 2016 NPF

Road transport	**Current fleet**[64]	**Current estimate of the fleet for 2020**	**Estimates of the fleet made in the NPF in 2016 for 2020**
Electric vehicles[65]	69,497	150,000	150,000
CNG vehicles	16,269	23,000	17,200
LNG vehicles	1,208	2,000	800
Hydrogen vehicles	38	50	500
LPG vehicles	61,150[66]	65,000	200,000-250,000

2. New energy vehicle fleet estimates (2020, 2025 and 2030)

Fleet of new energy vehicles	**2016**	**2017**	**2018**	**Provisional Sept. 2019**	**2020**	**2025**	**2030**
Electric vehicles	21,004	33,170	54,079	*69,497*	150,000	800,000	5,000,000[67]
CNG vehicles	5,259	7,437	12,523	*16,269*	23,000	100,000	200,000
LNG vehicles	318	431	960	*1,208*	2,000	7,000	25,000
Hydrogen vehicles	13	17	32	*38*	50	200	1,000
LPG vehicles	14,123	20,830	41,510	*61,150*[68]	100,000	200,000	500,000

3. Alternative fuel infrastructure estimates

Alternative fuel infrastructure	**2016**	**2017**	**2018**	***Provisional Sept. 2019***	**2020**	**2025**
Electric charging points	4,547	4,700	*5,187*	*5,187*	10,000	17,000
CNG stations	34	49	60	*64*	150	200
LNG stations	15	25	34	*36*	85	110
Hydrogen stations	6	5	4	*4*	6	15
LPG stations	468	564	589	*636*	650	750

64 Source: Directorate-General for Road Transport

65 BEV, EREV and PHEV vehicles are included as well as the 'other vehicles' category according to the DGT classification (construction and agricultural vehicles, forklift trucks registered for driving on public highways, etc.).

66 The current fleet data from the DGT still do not reflect all the LPG conversions carried out. Work is currently being done to better account for conversions.

67 Estimated forecast in the 2021-2030 Integrated National Energy and Climate Plan (INECP)

68 The current fleet data from the DGT still do not reflect all the LPG conversions carried out. Work is currently being done to better account for conversions.

4. Number of vehicles per charging/refuelling point (roads)

Energy	2016	2017	2018	Provisional Sept. 2019	2020	2025
Electricity	5	7	10	13	15	47
CNG	155	152	209	254	153	500
LNG	21	17	28	34	24	64
Hydrogen	2.	3	8	10	8	13
LPG	30	37	70	96	154	267

5. Level of attainment of road infrastructure

Road transport infrastructure	Supply points in 2018	Supply points currently in the pipeline	Estimates of charging/refuelling points made in the NPF approved in 2016 for 2020/2025
Electric charging	5,187[69]	eVia Project IONIT Project Ambra Project CIRVE Project Private company plans AENA deployment plan Estimates of charge points derived from the Climate Change and Energy Transition Bill	The 2016 NPF stipulated that there would be a sufficient number of charge points to ensure the circulation of the electric vehicle fleet in 2020, in accordance with Article 4 of Directive 2014/94/EU. In addition, the market is developing the necessary investment plans to continue complying in 2020.
CNG refuelling stations[70]	60 (= 29 mixed + 31 CNG only)	-Points currently **under construction or awaiting opening:** 24 mixed LNG/CNG and 19 CNG only[71]. **ECO-GATE** Project: 12 mixed LNG/CNG. -**Redexis-Cepsa** Agreement: 50 stations in 2021 and 80 in 2023. -**Enagás** (through Scale Gas Solutions) and **Repsol** deployment plans.	46
LNG refuelling stations	34 (= 29 mixed + 5 CNG only)		44 (for 2025)
Hydrogen stations	4	-GreenHydrogen Project **Mallorca** (Enagás, Acciona, Redexis, Cemex, Balearic Islands Government, IDAE and SG Industry and SMEs) -Hydrogen station project in **Madrid** (Enagás, Toyota and Urbaser) -A possible **IPCEI** for H_2 deployment is being considered -Mobile hydrogen projects	20 The market is developing positively in 2019. Thus, although two hydrogen stations that supplied at an insufficient pressure for passenger cars of 300 bar have been closed, there is currently new hydrogen station infrastructure in the pipeline, which will contribute to developing the market.

[69] Source: ANFAC data.
[70] There are several CNG supply nozzles at each refuelling station.
[71] Source: GASNAM

LPG refuelling stations	589	The LPG refuelling station operators maintain their interest in increasing the extensive reach of the national network, although investments in infrastructure are not being made at the pace initially envisaged since the current infrastructure is sufficient to supply the forecasted fleet.	800-1,000

6. Share of the vehicle fleet by fuel

	2016 Fleet	2016 Share	2017 Fleet	2017 Share	2018 Fleet	2018 Share
Petrol	13,641,959	43.10%	14,030,385	43.22%	14,563,270	43.80%
Diesel	17,968,013	56.77%	18,367,474	56.59%	18,574,542	55.87%
Electric	21,004	0.07%	33,170	0.10%	54,079	0.16%
CNG	5,259	0.02%	7,437	0.02%	12,523	0.04%
LNG	318	0.00%	431	0.00%	960	0.00%
Hydrogen	13	0.00%	17	0.00%	28	0.00%
LPG	15,123	0.05%	20,830	0.06%	41,510	0.12%
Total	**31,651,689**		**32,459,744**		**33,246,912**	

III. SEA TRANSPORT

The state-owned port system is made up of 28 port authorities responsible for managing 43 ports of general interest.

Of these 43 ports of general interest, 12 maritime ports (A Coruña, Bahía de Algeciras, Palma de Mallorca, Barcelona, Bilbao, Cartagena (including Escombreras dock), Gijón, Huelva, Las Palmas, Santa Cruz de Tenerife (including Granadilla), Tarragona and Valencia) and an inland port (Seville) belong to the Trans-European Transport Network (TEN-T).

Figure III.1. Map of ports of general interest and membership of the Trans-European Transport Network (TEN-T)

Source: National Ports Authority (based on Regulation (EU) No 1315/2013 on the TEN-T).

Table III-1. State-owned ports system and membership of the Trans-European Transport Network (TEN-T)

PORT AUTHORITY	PORT	CORE TEN-T NETWORK		COMPREHENSIVE TEN-T NETWORK (SEA PORTS)	NON-TEN-T PORTS
		SEA PORTS	INLAND PORTS		
A Coruña	A Coruña	A Coruña			
Alicante	Alicante			Alicante	
Almería	Almería Carboneras			Almería Carboneras	
Avilés	Avilés			Avilés	
Bahía de Algeciras	Bahía de Algeciras Tarifa	Bahía de Algeciras[72]			
Bahía de Cádiz	Bahía de Cádiz			Bahía de Cádiz	
Balearic Islands	Alcudia Ibiza La Savina Mahón Palma de Mallorca	Palma de Mallorca		Ibiza La Savina Mahón	Alcudia
Barcelona	Barcelona	Barcelona			
Bilbao	Bilbao	Bilbao			
Cartagena	Cartagena	Cartagena			
Castellón	Castellón			Castellón	
Ceuta	Ceuta			Ceuta	
Ferrol-San Cibrao	Ferrol-San Cibrao			Ferrol-San Cibrao	
Gijon	Gijon	Gijon			
Huelva	Huelva	Huelva			
Las Palmas	Arrecife Las Palmas Puerto Rosario	Las Palmas		Arrecife Puerto Rosario	
Málaga	Málaga			Málaga	
Marín y Ría de Pontevedra	Marín-Pontevedra				Marín-Pontevedra
Melilla	Melilla			Melilla	
Motril	Motril			Motril	
Pasajes	Pasajes			Pasajes	
Santa Cruz de Tenerife	La Estaca Los Cristianos Santa Cruz de La Palma Santa Cruz de Tenerife San Sebastián de La Gomera	Santa Cruz de Tenerife		La Estaca Los Cristianos Santa Cruz de La Palma San Sebastián de La Gomera	
Santander	Santander			Santander	
Seville	Seville		Seville		
Tarragona	Tarragona	Tarragona			
Valencia	Gandía Sagunto Valencia	Valencia		Sagunto	Gandía
Vigo	Vigo			Vigo	
Vilagarcía de Arousa	Vilagarcía de Arousa				Vilagarcía de Arousa
TOTAL	**43**	**12**	**1**	**25**	**4**

Source: National Ports Authority (based on Regulation (EU) No 1315/2013 on the TEN-T). Information to March 2019

[72] Includes the Tarifa port facilities

III.1. NATURAL GAS

Since the approval in December 2016 of the National Policy Framework on Alternative Fuels in Transport, the development of the market in LNG as a marine fuel in Spain has progressed well, thanks in part to continued institutional backing. It is worth mentioning the following main measures and milestones:

- The entry into force of Royal Decree 335/2018 of 25 May 2018 amending several royal decrees regulating the natural gas sector. This provides for a **new structure of tolls payable for loading LNG onto vessels with a specific category of 0 to 5,000 m3.**

- Publication of Order TEC/1367/2018 of 20 December 2019 establishing the tolls and fees associated with third party access to gas installations and the remuneration of regulated activities for 2019. This sets out the **tolls payable for loading LNG onto vessels for small volumes,** less than 2,000 m^3 and between 2,000 and 5,000 m^3. These values are **60% to 70% lower than previously.**

- Publication on **2 August 2019 of the draft Circular by the Spanish Markets and Competition Commission (CNMC) setting out the methodology for calculating tolls for transport, local networks and regasification of natural gas,** which proposes some new loading tolls for LNG with significant discounts compared to those published in the Order. These reductions are especially significant for small vessels, and for volumes less than 2,000 m^3 they represent a saving of up to 89% on the current toll. These savings are smaller for larger vessels.

- Collaboration with INCUAL (*Instituto Nacional de las Cualificaciones*, the Spanish Institute for Qualifications) in the development of an **official qualification with regard to LNG supply activities,** including the port environment. Creation of an expert group to perform analysis of the competencies required for those qualifications.

- Preparation of **model specifications of particular requirements for the service of supplying fuels** (including LNG), which have become defined as port services pursuant to Regulation (EU) 2017/352 of 15 February 2017 establishing a framework for the provision of port services and common rules on the financial transparency of ports.

- Approval of **harbour duty reductions** applicable to consumer vessels, to LNG as cargo intended for bunkering and to terminals for LNG supply, by certain port authorities. These reductions entail a reduction in duties of between 10% and 40%.

- Publication of Royal Decree 873/2017 of 29 September 2017 regulating the granting of **aid to the shipbuilding sector** with regard to research, development and innovation.

- Publication of Act 6/2018 of 3 July 2018 on the Budget for 2018, which includes an item of €40 million intended for **State guarantees for the conversion of low-emission vessels.**

- Approval of the **Plan for Green Public Procurement by Central Government,** its regional bodies and the social security management organs (2018-2025), for the incorporation of green criteria in the procurement of goods and services, including those related to transport.

- Launch of the **LNGHIVE2 institutional strategy** in support of investment in the development of the market for the supply of LNG as a marine fuel.

- **Commissioning of the first national vessel with a gas-powered auxiliary engine,** the Ro-Pax ferry *Abel Matutes*, which currently covers the Huelva-Canary Islands line.

- **Commissioning of the Hypatia de Alejandría,** the first ferry powered by LNG to sail in the Mediterranean.

- **Commissioning of the Nápoles,** the first ferry powered by dual gas engines and incorporated into the routes between Huelva and the Canary Islands after the fitting of its new engines.

- First **supply of LNG as a fuel directly from a regasification plant** to the consumer vessel (PTS (pipeline-to-ship) mode), at the Cartagena regasification plant.

- First **pilot test of LNG supply in the STS (ship-to-ship) mode** in southern Europe (the port of Bilbao) performed by the supply vessel *Oizmendi*, the first multi-fuel supply vessel in service (currently operating in the port of Huelva).

- Start of the **first commercial operations supplying LNG to cruisers in the STS mode** in Spain (the ports of Tenerife and Barcelona).

- **Adaptation of the Barcelona and Bilbao** plants for the supply of LNG (PTS mode) and bunkering of supply vessels.

- First pilot test of **transporting an ISO container of LNG** in a complete road, train and ship chain for the supply of LNG from the Huelva regasification plant to the final supply in Melilla.

- Start of commercial operations for the **regular supply of LNG as a fuel to ferries (TTS (truck -to-ship) mode)** in the ports of Barcelona, Valencia and Huelva.

III.1.1 CURRENT SITUATION OF THE FLEET OF LNG VESSELS

WORLDWIDE FLEET OF LNG VESSELS

As of 1 July 2019, there is a total of 164[73] LNG-powered vessels worldwide. To this we must add a total of 154[74] confirmed vessels on the order books, which will join the fleet between now and 2026.

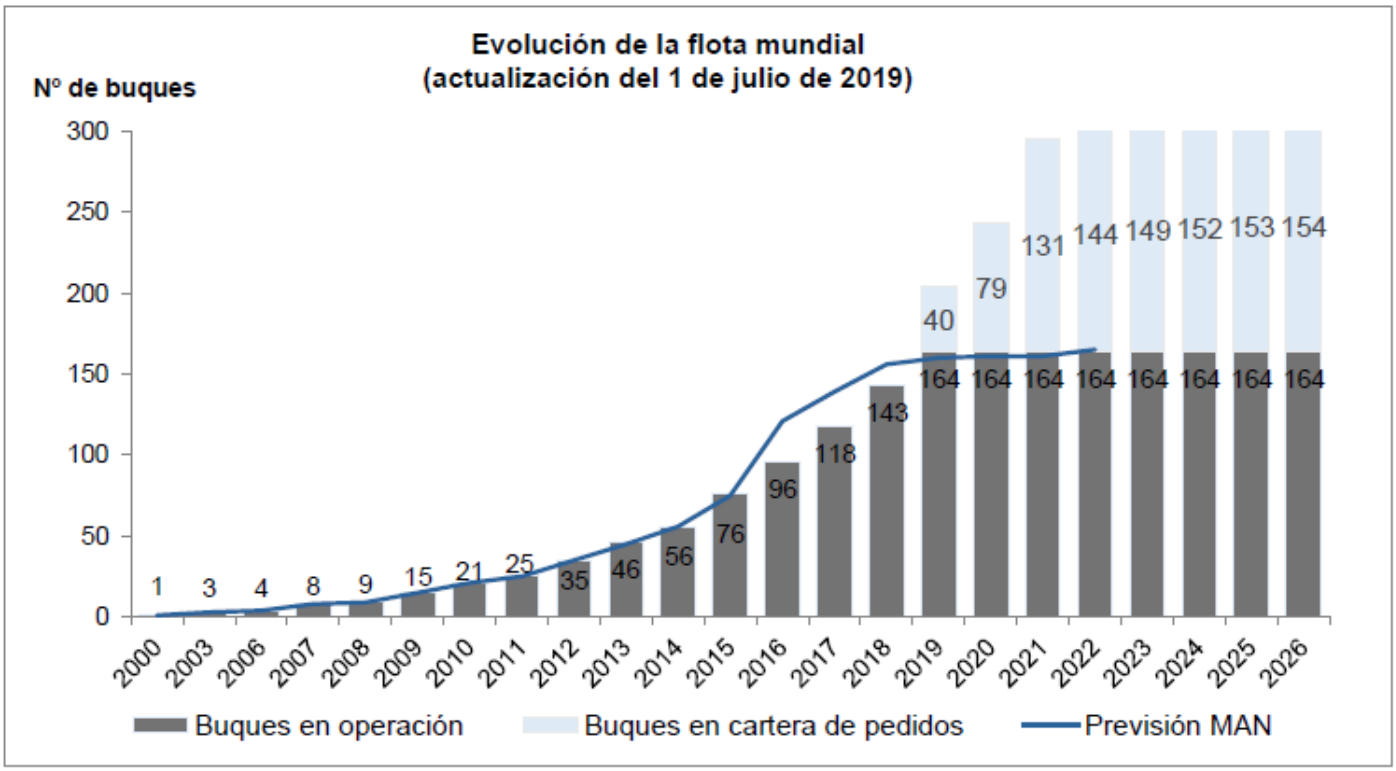
The current fleet is concentrated primarily in the Baltic Sea and the North Sea, since these were the first areas to be included in the Sulphur Emission Control Area (SECA) Regulation[75]. However, shipyard orders are dominated by vessels operating in the rest of Europe, and those that will operate worldwide are also gaining significance.

The development of the worldwide fleet highlights the fact that ferries and platform supply vessels are the types of vessel in which a greater propensity to run on LNG is seen. However, in the future cruisers and container ships will gain significance. In the Spanish sphere of influence it is expected that the most significant types of vessel will be precisely ferries, cruisers and container ships.

[73] Source: DNV GL (https://afi.dnvgl.com/Statistics?repId=1).
[74] Vessels for transporting LNG as cargo are excluded from this count.
[75] The Sulphur Emission Control Areas (SECAs) are areas in which sulphur emissions are controlled. They are defined in Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL).

On the other hand, the estimate of the fleet powered by LNG forecast for 2022 on 1 July 2019 has grown by 86.6% compared to the forecast in the National Policy Framework, from 165 to 308 vessels (according to data from the same source). This is indicative of faster development than that initially predicted.

Figure III-2 Development of the worldwide fleet of vessels powered by LNG (in operation and confirmed orders)



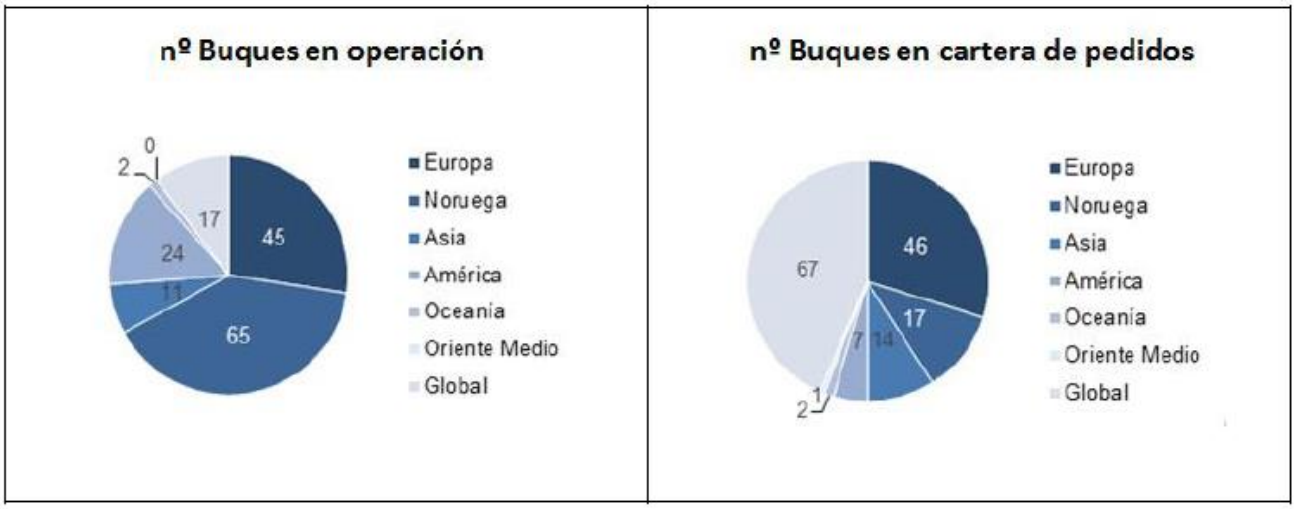
Development of the worldwide fleet
(updated on 1 July 2019)

No of vessels

Vessels in operation Vessels on order books NPF Forecast

Source: DNV GL. On the basis of information existing in June 2019.

Figure III-3. Geographical distribution of the worldwide fleet of LNG-powered vessels

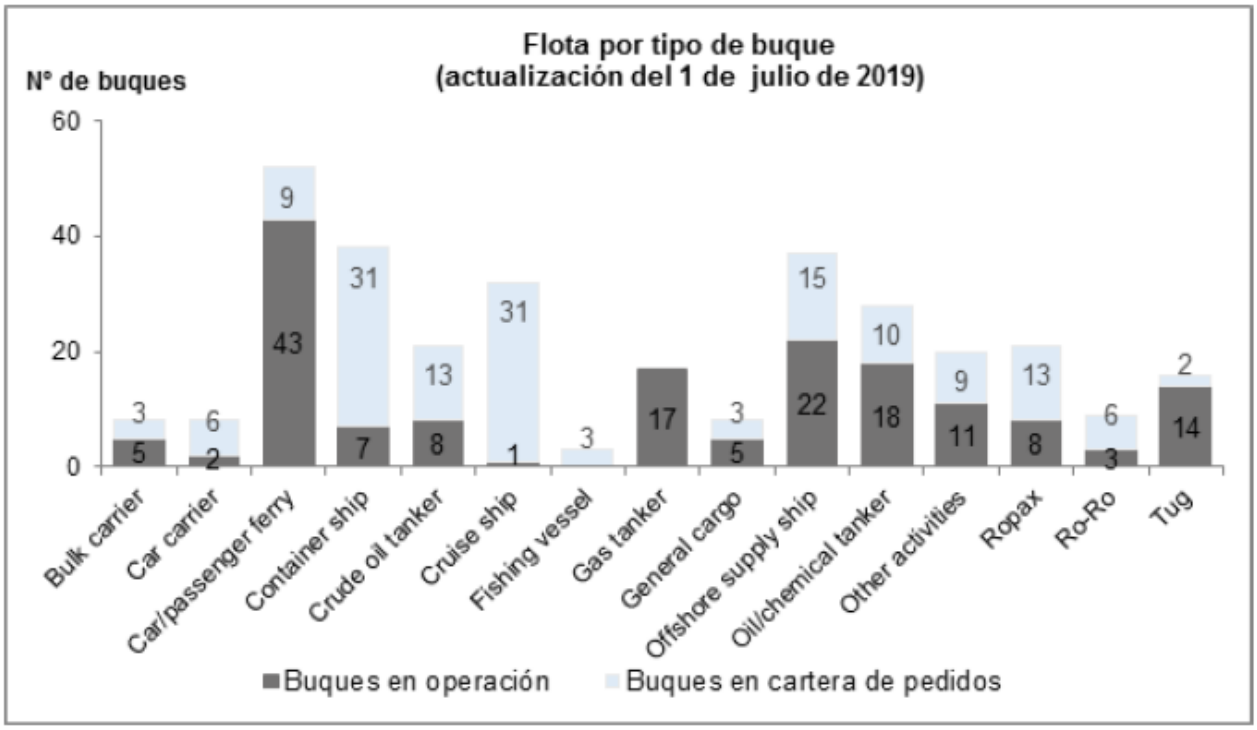


No Vessels in operation
No Vessels on order books

Europe
Norway
Asia
America
Oceania
Middle East
Global

Source: DNV GL (updated on 1 July 2019).

Figure III-4. Distribution of the worldwide LNG-powered fleet by vessel type



No of vessels

Fleet by vessel type
(updated on 1 July 2019)

■ Vessels in operation
■ Vessels on order books

Bulk carrier
Car carrier
Car/passenger ferry
Container ship
Crude oil tanker
Cruise ship
Fishing vessel
Gas tanker
General cargo
Offshore supply vessel
Oil/chemical tanker
Other activities
Ro-Pax
Ro-Ro
Tug

Source: DNV GL (updated on 1 July 2019).

SPANISH FLEET OF LNG VESSELS

The LNG-powered fleet controlled by Spanish shipowners under Spanish or foreign flags currently comprises three vessels. The Ro-Pax vessel *Abel Matutes,* that currently covers the Valencia-Palma de Mallorca line, was the first of the Spanish fleet to be converted, although it was only fitted with a gas-powered auxiliary engine (not the main engines). It has been refuelled regularly by TTS (truck-to-ship) since March 2017.

Subsequently, in February 2019, the ferry *Hypatia de Alejandría* made its first commercial voyage between Barcelona and Palma de Mallorca. This was the first passenger ferry powered by LNG to sail in the Mediterranean. This vessel, built in the Cantiere Navale Visentini shipyard, has two dual propulsion engines using natural gas or traditional liquid fuel, each with a power of 20,600 kW. It is 186.5 m in length and has capacity for 810 people, 2,180 linear metres of cargo and 150 cars. It can reach a speed of 24 knots.

In March 2019 the engines of the ferry *Nápoles* were refitted in the Gibdock shipyards in Gibraltar: it was the first passenger and cargo ferry powered by dual gas engines to be included in the routes between Huelva and the Canary Islands. The vessel, with capacity for 1,600 people, 1,430 linear metres of cargo and 53 passenger cars, can reach a speed of 23 knots. It has a 425 m^3 LNG tank that gives it a range of 1,200 miles. This initiative forms part of a project by Balearia that is 20% funded through the Connecting Europe Facility (CEF), and is the first of the six ferries that the shipping company plans to convert.

In addition to these three vessels that are currently in operation, another eight vessels are being built or converted, and will expand the national LNG-powered fleet between now and 2025:

- Building of a new ferry-type vessel for Balearia (*Marie Curie*), sister ship to the *Hypatia de Alejandría.* This is currently under construction in the Cantiere Navale Visentini shipyard and will start sailing in the next few months.

- Building of a new LNG-powered tug in the port of Bilbao for Remolcadores Ibaizabal (Ibaizabal Tugs), a pilot initiative forming part of the CORE LNGas Hive project. The tug will be equipped with a dual propulsion engine, using natural gas or traditional liquid fuel. Conceptual engineering design has been completed, and procurement of the main equipment required is being undertaken. It is predicted that it could be operational in March 2020.

- Building of a new fast ferry for Balearia (*Eleanor Roosevelt*), that will be able to reach a speed of 35 knots, with a maximum speed of over 40 knots. It will incorporate four dual propulsion engines using natural gas or traditional liquid fuel, each with a power of 8,800 kW, as well as four generators for electricity generation, two powered by gas and the other two by diesel. It will be 123 m in length and have capacity for 1,200 people, 500 linear metres of cargo and 250 cars. It is expected to be commissioned in the summer of 2020.

- Conversion of four Balearia ferries currently operating in the Mediterranean area to use LNG. Following the fitting of new engines to the ferry *Nápoles,* which is currently in service, new engines will progressively be fitted to the vessels *Abel Matutes*, *Sicilia*, *Bahama Mama* and *Martín i Soler.* Dual engines powered by LNG and fuel will be mounted, in addition to a tank for storing 440 m^3 of LNG which will provide a range of 1,200 miles. The project, 20% funded through the CEF mechanism, will be completed at the end of 2021. It is expected that these vessels will be providing service both in the waters of the Mediterranean and in the Atlantic and the Strait of Gibraltar.

- Conversion of one Balearia ferry to use LNG. This is the ferry *Hedy Lamarr*, conversion of which will be similar to those mentioned before, although in this case it will be 100% privately funded. The planned date for its commissioning is unknown.

Table III-2. Development of the Spanish fleet of LNG-powered vessels (2016-July 2019)

FLEET OF LNG-POWERED VESSELS	2016	2017	2018	JUNE 2019	2020	2021
No of vessels	0	1 (auxiliary)	1 (auxiliary)	3	9	10

Source: National Ports Authority

In any case, given the international dimension of shipping, analysis of the fleet must be done as a whole since a significant proportion of the international fleet will foreseeably use the supply points located in Spanish ports of general interest for bunkering, as already occurs with conventional fuels.

BUILDING OF VESSELS POWERED BY LNG AND LNG SUPPLY VESSELS IN SPANISH SHIPYARDS

Spanish shipyards continue to be well-positioned for the building of vessels powered by LNG as well as LNG supply vessels. Vessels built in Spain that were delivered during the period 2016-2018 and those that are currently under construction are detailed below:

- **Armón Shipyard:** a new fast ferry-type vessel for the Balearia shipping company (delivery is expected in the summer of 2020).

- **Barreras Shipyard:** two cruise ships for Havila Kystruten (delivery is expected in 2021).

- **CNN La Naval:**

  - the dual propulsion ferry *Texelstroom* (delivered in July 2016) for the Dutch shipping company Royal N.V. Texels Eigen Stoomboot Onderneming (TESO).

  - The cable-layer *Living Stone* (delivered in October 2017) for the Dutch DEME Tideway shipping company.

- **Gondán Shipyards:** three dual propulsion tugs named *Dux* (delivered in May 2017), *Pax* (delivered in July 2017) and *Audax* (delivered in August 2017) for the Norwegian shipping company Østensjø Rederi.

- **Murueta Shipyards:**

  - Conversion of the supply vessel *Oizmendi* for Ibaizabal, with two 300 m^3 tanks, each to incorporate the supply of LNG. This was performed within the framework of the CORE LNGas Hive Project, co-financed by the CEF mechanism and completed in January 2018. It is now giving service in the port of Huelva.

  - A new LNG-powered tug for Remolcadores Ibaizabal. This was included in the CORE LNGas Hive Project, co-financed by the CEF and delivery is expected in March 2020.

  - **Zamakona Shipyards:** A new multiproduct supply vessel, *Bunker Breeze*, for Suardíaz Energy Shipping. This was performed within the framework of the CORE LNGas Hive Project, co-financed by the CEF mechanism and completed in October 2018. It is currently operating in Algeciras. It has capacity for accommodating ten cargo tanks of conventional fuels and four of LNG, although the latter have not yet been installed (the vessel is prepared and technically designed to accommodate the LNG tanks when the necessary trade agreements are achieved).

The Spanish shipyards won these contracts following intensive work on RDI, resulting in natural gas technology that set them apart from the competition. Some of the projects have been awarded public financing by the Directorate-General of Industry and SMEs under the cross-cutting aid scheme for shipbuilding approved by the European Commission.

LNG BUNKERING OPERATIONS PERFORMED IN SPAIN

During the period 2016-2018, LNG bunkering operations have been performed on vessels in eight Spanish ports (Algeciras, Barcelona, Bilbao, Cartagena, Gijón, Santander, Tenerife and Valencia), either for propulsion or for auxiliary engines.

From the one-off bunkering performed using tanker lorries in the past, in 2017 regular bunkering began to be performed on the vessels *Abel Matutes* (in the TTS mode) for refuelling its auxiliary engine, and *Aida Perla* (in CTS (container-to-ship) mode), for immediate consumption by its auxiliary engine. In this latter case, the vessel does not have a storage tank on board, so instead the supply container carries out the role of fuel storage for the vessel, remaining at the dock throughout the vessel's stay at port.

Consequently, following the 7 supply operations carried out between 2012 and 2015 in Spanish ports, during the period 2016-2018 a total of 113 operations were entered into the accounts.

The Spanish company Molgas has participated in two LNG supply operations on the vessel *Aida Perla* in the port of Marseille by means of tanker lorries loaded with LNG in Spanish plants.

It is worth pointing out that in 2017, for the first time in Europe, the supply of LNG as a fuel was carried out directly from a regasification plant to the consumer vessel (PTS (pipeline-to-ship) mode), specifically from the Cartagena regasification plant.

Another important milestone was the first pilot test of LNG bunkering in the STS mode in southern Europe, specifically in the port of Bilbao, carried out by the vessel *Oizmendi* on 3 February 2018. During the operation within the framework of the CORE LNGas Hive Project, approximately 90 m^3 of LNG were transferred to the cement carrier *Ireland* which was berthed at port.

In addition, as an example of the progress of this market, on 18 December 2018 a supply operation with LNG in the STS mode was successfully carried out on the first cruise ship in the world to be powered by LNG. The operation, that took four hours, was carried out by the supply vessel *Cardissa.* The cruise ship *Aida Nova* was bunkered with a total of 2,500 m^3 for its operation between the Atlantic islands.

The main characteristics of the refuelling operations carried out in the facilities of the Spanish port authorities between 2016 and 2018 are shown below. These supply operations have entailed a real demand of 6,434 m^3 of LNG, which equates to some 42.5 GWh supplied to vessels. Of all this, only 21% has supplied the Spanish fleet, so demand for LNG from vessels flying other flags has predominated. This highlights the importance of approaching shipping needs from an international dimension.

Table III-3. LNG bunkering operations performed on vessels during 2016-2018

DATES	No OF OPERATIONS	PORT	VESSEL	TYPE	SIZE (LENGTH X BEAM IN M)	GROSS TONNAGE (GT)	LNG LOAD CAPACITY (M^3)	SELLER	AUTHORISED CARRIER	BUNKERING (M^3)	NUMBER OF TANKS	BUNKERING TIME (H)	REGASIFICATION PLANT FROM WHICH LNG WAS SOURCED	OBSERVATIONS
Jan 17 to Dec 18	82	Barcelona Valencia	*Abel Matutes*	Ferry	190 x 26	29,670	30	Naturgy	Molgas Energía	from 7 to 25	1	1.5	Barcelona Cartagena Sagunto	Auxiliary engine consumption
Mar 17 to Mar 18	15	Algeciras Bilbao Santander	*Ireland*	Cement carrier	110 x 14	4,284	130	Molgas Energía	Molgas Energía	from 59 to 89	2	5	Huelva Bilbao	
Mar 17	1	Gijon	*Pax*	Tug	40 x 16	1066	33	Repsol	Molgas Energía	29	1	2	Bilbao	
April 17	1	Cartagena	*Damia Desgagnés*	Asphalt ship	135 x 23	11,978	620	Repsol	-	370	(PTS)	5	Cartagena	Bunkering direct from plant
May 17	2	Gijon	*Dux*	Tug	40 x 16	1066	33	Repsol	Molgas Energía	from 22 to 26	1	2	Bilbao	
Aug 17	1	Gijon	*Audax*	Tug	40 x 16	1066	33	Repsol	Molgas Energía	32	1	2	Bilbao	

DATES	No OF OPERATIONS	PORT	VESSEL	TYPE	SIZE (LENGTH X BEAM IN M)	GROSS TONNAGE (GT)	LNG LOAD CAPACITY (M^3)	SELLER	AUTHORISED CARRIER	BUNKERING (M^3)	NUMBER OF TANKS	BUNKERING TIME (H)	REGASIFICATION PLANT FROM WHICH LNG WAS SOURCED	OBSERVATIONS
Oct 17	1	Cartagena	*Myksund*	Transport			////	Repsol	Molgas Energía	85	2	5	Cartagena	
Oct 17 to Feb 18	8	Barcelona Marseille	*Aida Perla*	Cruise ship	300 x 38	125,572	0	Molgas Energía	Molgas Energía	from 1 to 6	(CTS)	12	Barcelona	Immediate consumption by auxiliary engine
Feb 18	1	Bilbao	*Ireland*	Cement carrier	110 x 14	4,284	130	Molgas Energía	Itsas Gas	86	(STS)	6	Bilbao	Bunkering from the vessel *Oizmendi*
Mar 18	1	Cartagena	*Mia Desgagnes*	Oil tanker	135 x 23	11,837	625	Repsol	Molgas Energía	440	10	32	Cartagena	
May 18	1	Cartagena	*Fure Vinga*	Cargo	150 x 23	12,770	540	Naturgy	Molgas Energía	257	6	13	Cartagena	
Dec 18	1	Tenerife	*Aida Nova*	Cruise ship	337 x 42	183,200	3,520	Shell	Shell	2,500	(STS)	4	Rotterdam	Bunkering from the vessel *Cardissa*

Source: National Ports Authority based on information provided by Tenerife Port Authority, BBG, Molgas, Naturgy, Repsol, Shell.

Operations already carried out in 2019 need to be added to those above (information available to June). STS bunkering to the cruise ship *Aida Nova* has continued, with a total of 14 operations in the ports of Tenerife and Barcelona in which around 29,500 m^3 of LNG has been supplied (the first operations with the *Cardissa* and currently with the *Coral Methane*). In TTS mode, a total of 60 bunkering operations have been carried out to the Balearia ferry *Hypatia de Alejandría* in the ports of Barcelona and Valencia, and the first supply operation in the port of Huelva, to another Balearia vessel, the *Nápoles*. In the port of Valencia a bunkering operation has been carried out to the *Abel Matutes,* which is in a trial phase following the recent fitting of its new engine. In total, 62 TTS operations have been carried out, in which around 3,060 m^3 of LNG has been supplied.

In other words, in just the first half of 2019, approximately 32,500 m^3 of LNG has been supplied to vessels in Spanish ports, compared to 6,434 m^3 in the whole period 2015-2018.

III.1.2. CURRENT SITUATION OF THE INFRASTRUCTURE AND EQUIPMENT FOR SUPPLYING LNG TO SHIPS

TTS (TRUCK-TO-SHIP) Y CTS (CONTAINER-TO- SHIP) MODES

The fleet of tanker lorries for transferring LNG between the regasification plants and the satellite plants has increased slightly,[76] from 250 units in 2016 to 265 in March 2019. This fleet enables LNG bunkering to be carried out to vessels in the TTS and CTS modes.

The number of cryogenic containers for CTS operations has gone from 27 units in 2016 to 14 units in March 2019. This reduction has been due to the increase in other purposes (other uses).

Table III-4. Fleet of tanker lorries and containers available for TTS and CTS bunkering in 2019

COMPANY	No TANKER LORRIES	No CRYOGENIC CONTAINERS
HAM	60	4
MOLGAS	107	10
NAFTRAN	30	0
ESK	44	0
BIENETRANS	5	0
DITRANCO	1	0
BUTANPALMA	3	0
SUARDIAZ	4	0
LTG	11	0
TOTAL	**265**	**14**

Source: Enagás, in consultation with the various economic operators (March 2019).

On the other hand, in the framework of the LNGHIVE2 strategy mentioned in the section on strategic measures, funds were granted in 2018 for construction of a supply system by means of multiple tanker lorries simultaneously in the port of Gijón (MTTS, multiple truck-to-ship mode). This portable system will be mounted on a 40-foot ISO-container, and will allow filling of up to 500 m^3 from tanker lorries without interruption, at a flow of 240 m^3/h by means of simultaneous supply from up to 6 tankers. The initiative, which will enable reduction of the operating time, is part of the European LNGHIVE2 VESSELS DEMAND project, and is expected to come into service in April 2020.

In the framework of the same strategy, specifically in the LNGHIVE2 INFRASTRUCTURE AND LOGISTICS project, funds have been raised for the construction of a bunkering system through three tanker lorries simultaneously in the port of Huelva (MTTS mode). This portable system will enable the achievement of a supply flow of 200 m^3/h for bunkering up to 500 m^3 to vessels, in optimal conditions by means of simultaneous bunkering from up to 3 tanker trucks. It is expected to come into service in December 2019.

[76]Source: Enagás, in consultation with the various economic operators.

STS (SHIP TO SHIP) Y PTS (PIPELINE TO SHIP) MODES

Throughout the period 2016-2018 there have been advances in the development of supply points in these modes, primarily with regard to the pilot initiatives included in the CORE LNGas Hive project and the roll-out provided for in the LNGHIVE2 strategy.

Table III-5. Developments related to supply points in the STS and PTS modes

ONGOING INITIATIVE	DEVELOPER	BUDGET	STATUS	OBSERVATIONS
EPM2 CORE LNGas Hive activity: Port of Barcelona. **Building of a barge for bunkering LNG** with a capacity of 300 m^3 (STS bunkering).	Barcelona Port Authority, Suardíaz, Bureau Veritas Iberia, Cepsa, HAM	€2,754,000 50% CEF financed. Of the remaining 50%, a total of €46,708 are Spanish public funds (Barcelona Port Authority).	Operational since October 2018.	Building of a multiproduct supply vessel, with the possibility of bunkering LNG by means of one 300 m^3 tank (expandable to four 300 m^3 tanks). This was commissioned by Suardíaz Energy Shipping and is currently operated by CEPSA in Algeciras. The *Bunker Breeze* was delivered in October 2018, with capacity for accommodating 10 cargo tanks for conventional fuels and 4 for LNG tanks, although the latter were not installed due to the lack of trade agreements. However, the vessel is prepared and designed to accommodate these tanks as soon as the appropriate agreements are reached.
EPA2 CORE LNGas Hive activity: Port of Bilbao. **Conversion of a barge for bunkering LNG** with a capacity of 600 m^3 (STS bunkering).	EVE, ITSAS GAS	€5,573,000 50% CEF financed. Of the remaining 50%, a total of €40,000 are Spanish public funds (EVE).	Operational since January 2018.	The compatibility tests were carried out in February 2018, as well as the first STS bunkering (3 February 2018). The vessel has been operating in the port of Huelva since March 2018, and its conversion was certified in May 2018 by Bureau Veritas.
LNGHIVE2 INFRASTRUCTURE AND LOGISTIC SOLUTIONS project: includes the **building of a multiproduct LNG bunkering vessel** for operation in the Strait (STS bunkering).	Marflet	€15,792,000, 10% CEF financed. The remaining 90% are private funds.	Planned — completion expected in February 2021.	Multiproduct vessel for transport and supply of LNG (2,000 ,^{3}), MDO (marine diesel oil) (1,000 m^3) and HFO (heavy fuel oil) (4,000 m^3). It will have two dual propulsion engines, powered by either LNG or MGO (MARINE GAS OIL). It will operate in the area of the Strait of Gibraltar, and will be able to provide bunkering services in the ports of Barcelona, Valencia, Algeciras, Huelva, Tenerife and La Coruña, thus strengthening the Spanish logistics chain.
EPM1 CORE LNGas Hive activity: **Port of Barcelona. Installation of dedicated hoses on an existing jetty** from the regasification plant for bunkering LNG to vessels of up to 80,000 m^3 (PTS bunkering).	Enagás, Barcelona Port Authority	€1,525,000 50% CEF financed. Of the remaining 50%, a total of €38,125 are Spanish public funds (Barcelona Port Authority).	Operational since October 2018.	Adaptation of a jetty for bunkering LNG to ships and lighters, with the installation of new mooring systems, pipelines, cryogenic arms and return to plant. It has been completed and is available on the market, awaiting compatibility tests.

ONGOING INITIATIVE	DEVELOPER	BUDGET	STATUS	OBSERVATIONS
EPM4 CORE LNGas Hive activity: **Port of Cartagena. Adaptation of the jetty of the regasification plant** in Escombreras for a refuelling service to vessels (PTS bunkering).	Enagás, Cartagena Port Authority	€2,730,000 50% CEF financed. Of the remaining 50%, a total of €136,500 are Spanish public funds (Cartagena Port Authority).	Ongoing — Completion expected in July 2019	In April 2017, for the first time in Europe, a PTS operation was carried out on this jetty, supplying LNG to the asphalt ship *Damia Desgagnés* which was in transit from a Turkish shipyard to Canada. For that purpose, a back-up line that was necessary for the operation was installed. Once the engineering and the procurement of materials had been completed, the conversion began in July 2018.
EPM5 CORE LNGas Hive activity: **Port of Valencia. Building of a mixed gas plant for vehicles and vessels** (PTS bunkering).	Molgas, Fundación Valenciaport, Valencia Port Authority	€2,910,620 50% CEF financed. Of the remaining 50%, a total of €24,500 are Spanish public funds (Valencia Port Authority).	Ongoing — completion expected in December 2019	The plant will have two storage tanks of 200 m^3 each, and directly supply vessels in PTS mode. The necessary administrative procedures for beginning construction have been completed, and approval of the building permit is expected from the city council imminently in order in order for work to begin. It will have capacity to directly bunker ferries berthed at the Espigón del Muelle Turia.
EPA1 CORE LNGas Hive activity: **Port of Bilbao. Adaptation of the large jetty of the regasification plant** for refuelling ships or barges (PTS bunkering).	EVE, ITSAS GAS	€700,000, 50% CEF financed. Of the remaining 50%, a total of €290,000 are Spanish public funds (EVE).	Operational since January 2018.	Compatibility tests were carried out with the supply vessel *Oizmendi* in February 2018; the pilot is currently in the monitoring phase.
EPA4 CORE LNGas Hive activity: **Port of Ferrol. Adaptation of the large jetty of the regasification plant** for refuelling vessels (PTS bunkering).	Reganosa	€1,200,000, 50% CEF financed. The remaining 50% are private funds.	Ongoing — completion expected in March 2020	Once the basic engineering has been completed, the Engineering, Procurement and Construction (EPC) contract is expected to be awarded in March 2019. The administrative procedure for the permits is in progress.
LNGHIVE2 INFRASTRUCTURE AND LOGISTIC SOLUTIONS project: **Port of Huelva. Adaptation of an existing jetty** for refuelling all kinds of vessels (PTS bunkering).	Enagás	€1,689,585 20% CEF financed. The remaining 80% are private funds.	Planned — completion expected in December 2019.	Following implementation of the basic engineering in the framework of the CORE LNGas Hive project, execution of this initiative will be carried out in the deployment phase. Procurement of the equipment needed to carry out the adaptation was begun in March 2019.
LNGHIVE2 INFRASTRUCTURE AND LOGISTIC SOLUTIONS project: **Port of Sagunto. Adaptation of a jetty of the regasification plant** for refuelling vessels (PTS bunkering).	SAGGAS	€1,003,500 20% CEF financed. The remaining 80% are private funds.	Planned — completion expected in December 2021.	Following implementation of the basic engineering in the framework of the CORE LNGas Hive project, execution of this initiative will be carried out in the deployment phase. Defence and mooring systems compatible with a broad range of supply vessels will be installed, as well as a system for transferring LNG via 8" flexible hoses with a capacity of 771 m^3/h.
EV1 CORE LNGas Hive activity: **Port of Ferrol. Design of a jetty for refuelling vessels** in the regasification plant, 2nd berth (PTS bunkering).	Reganosa, Ferrol Port Authority	€100,000 50% CEF financed. Of the budget established for the study, a total of €20,000 are Spanish public funds (Ferrol Port Authority).	Planned - completion expected in December 2020.	This study will enable us to ensure the viability of a second berthing point at the Mugardos regasification plant. The bathymetric survey was carried out in the last quarter of 2018 by the Port Authority, and awarding of the engineering contract is expected in the second quarter of 2019.

Source: National Ports Authority, in consultation with the initiative leaders (March 2019).

AVAILABILITY OF SUPPLY POINTS

In view of the above, all Spanish ports of general interest are currently in a position to supply LNG by means of tanks, subject to market conditions. That supply is complemented by the adaptation of two terminals for the supply of LNG as a fuel which are already operational in the ports of Barcelona and Bilbao, and a supply vessel that is operational in the port of Huelva. In addition, another supply vessel currently operates with a base in Spanish ports (specifically the *Coral Methane* in the port of Barcelona), although that availability is subject to market conditions and agreements at any time. The new developments planned, including the adaptation before 2020 of all the remaining plants in the system for supplying LNG as a fuel (Cartagena, Ferrol, Huelva and Sagunto), will shortly be added to this existing supply. In addition, the development of a supply point for vessels and lorries in the port of Valencia, the MTTS equipment in the ports of Gijón and Huelva and an additional supply vessel that will operate in the area of the Strait of Gibraltar will be added to this supply (these are all firm projects with European aid granted). Finally, we report that European aid has been requested for the development of a fixed (PTS) supply point for ferries in the port of Santander, with capacity for 1,000 m^3, also within the framework of the LNGHIVE2 strategy.

Table III-6. LNG supply points in Spanish ports (in existence and currently under development)[1]

MODE OF SUPPLY	EXISTING	UNDER DEVELOPMENT
TTS/MTTS	All ports of general interest	■ MTTS in Gijón (operational in 2020) ■ MTTS in Huelva (operational in 2019)
CTS	Possibility of supply in the 43 ports of general interest	
STS	■ Barcelona ■ Huelva	■ Bahía de Algeciras (operational in 2021)
PTS	■ Barcelona ■ Bilbao	■ Cartagena (operational in 2019) ■ Ferrol (operational in 2020) ■ Huelva (operational in 2019) ■ Sagunto (operational in 2021) ■ Valencia (operational in 2019) ■ Santander (operational in 2023)

[1] **Subject to market conditions and obtaining a licence**

Source: National Ports Authority

III.1.3. INITIATIVES DEVELOPED DURING 2016-2019

Following ratification by the International Maritime Organization (IMO) of implementation from 2020 of the limit of 0.5% sulphur in marine fuel, and given the short period available for shipping companies to adopt strategies to comply with this, 2018 and 2019 are key years for decision-making.

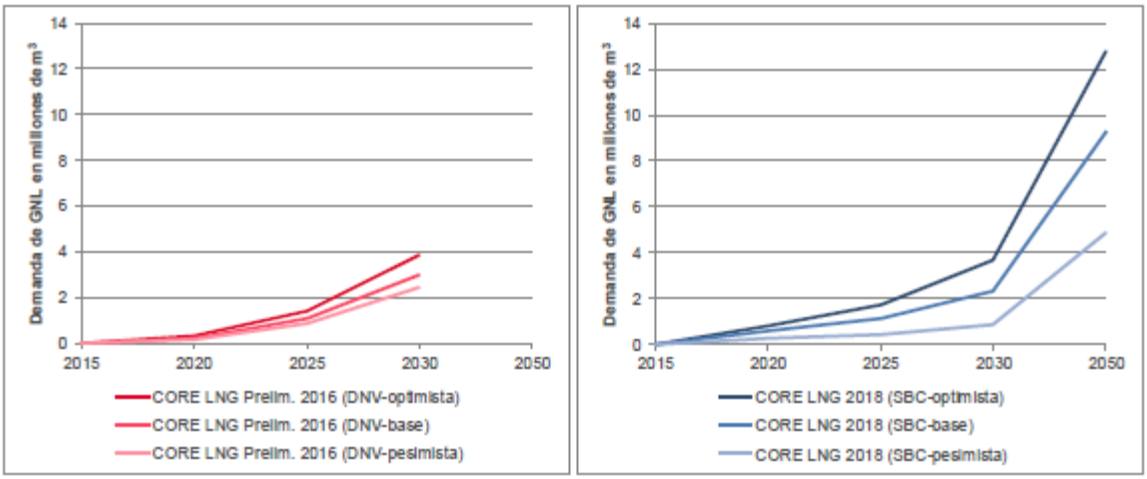
We should highlight the huge investment the Spanish shipping company Balearia has made in LNG as an alternative fuel, with a plan underway to convert a large part of its fleet that operates in Spanish ports. The French shipping company Brittany Ferries has also announced the building of a new ferry powered by LNG which will operate between the United Kingdom and northern Spain.

Consequently, initial predictions for 2018 were surpassed by confirmations of new vessels powered by LNG in the fleet that makes stops in Spanish ports. According to the number of vessels on order and relevant information compiled from the market, there are solid commercial opportunities in the short term for bunkering LNG to vessels from Spanish regasification plants, some of these already formalised with trading companies.

Nevertheless, given the international nature of maritime transport, any analysis of the fleet should be approached from a global perspective; for that reason, studies in demand carried out to plan supply points are based on a particular forecast of the volume of LNG that will be demanded at each port, which is characterised by particular unit volumes that will foreseeably be required in each bunkering operation to vessels, regardless of the flag of the receiving vessel.

Hence, according to the latest updates carried out in the framework of the CORE LNGas Hive project in this regard, the potential in Spain for 2020 would be between 226,000 m^3 and 1,740,000 m^3, depending on the trend scenario considered. We observe that the demand required by the fleet of vessels already confirmed for operation in 2020 is within that range.

Figure III-5. Summary of the results of studies into potential domestic demand for LNG in shipping



LNG demand in millions of m^3

CORE LNG 2018 (SBC-optimistic)
CORE LNG 2018 (SBC-base)
CORE LNG 2018 (SBC-pessimistic)

LNG demand in millions of m^3

CORE LNG Preliminary 2016 (DNV-optimistic)
CORE LNG Preliminary 2016 (DNV-base)
CORE LNG Preliminary 2016 (DNV-pessimistic)

Source: CORE LNGas Hive project, DNV-GL[77] and Shipping Business Consultants (SBC)[78]

As the graphs above show, the uncertainty surrounding the trend in demand for LNG at Spanish ports still prevails, taking into account the various potentially critical factors influencing this demand (fluctuations in the prices of the various alternative fuels, the cost of investment in each technological option, the regulatory framework, penetration into heavy consumption segments such as container ships, etc.).

[77] Preliminary Forecasts. DNV GL (July 2016).
[78] LNG Logistic supply study: WP2 Feasible supply chains and WP3 Optimal supply chains. Shipping Business Consultants (June 2018)

On the other hand, the current scenario of energy transition towards a neutral balance of greenhouse gas emissions in 2050, driven by the European Commission in its strategic vision of a climatically neutral Europe between now and 2050, as well as the indicative strategy of the IMO for the progressive decarbonisation of marine transport, bring important challenges for which technology does not yet have a definitive answer. These challenges will affect the development of LNG, as well as other alternative fuels.

However, LNG is currently the only non-experimental fuel available that significantly reduces the environmental impact of maritime shipping. Without prejudice to the need for technological neutrality, this justifies the current promotion of the use of this fuel and the development of the associated market, including the obligation for ports to develop supply points to safeguard the shipping of vessels powered by LNG in the core Trans-European Network for Transport (TEN-T), as set out in Directive 94/2014/EU.

To that end, within the scope of the CORE LNGas Hive project, the LNGHIVE2 strategy is being formulated. This strategy seeks to define an indicative investment plan for the development of these supply points under market conditions, which is appropriate to meet the demand. The strategy is based on a tool for simulating costs which enables design of the optimal logistics chain for a specific demand and calculation of the associated costs, thus providing a knowledge of the market that is essential for determining the required deployment.

With regard to the degree of achievement of Spain's quantitative objectives and targets, we can state that the Spanish ports comply with the objectives and targets set out in the National Policy Framework since they can guarantee supply in any port under the current conditions of market development, at least through the TTS mode. However, it is necessary to continue adjusting supply to the trend in demand; to that end, supply continues to be developed with new modes of bunkering and the adaptation of infrastructure.

SITUATION OF THE PLANNED SUPPORT MEASURES

Information on the status of the measures in the National Policy Framework to support the use of LNG as fuel for maritime transport is included below, with reference to the specific initiatives that make them up. They all apply nationally, covering both maritime and inland ports of the core TEN-T network.

POLICY LEVERS

The CORE LNGas Hive — Core Network Corridors and Liquefied Natural Gas Project, which is funded by the European Commission through the CEF (2014-EU-TM-0732-S) continues to represent the main policy lever from an institutional point of view that is aimed at promoting the development of LNG as a marine fuel.

This project is designed and structured to meet the requirements of Directive 2014/94/EU, with reference to both the deployment of supply points and the development of the associated market, and it is coordinated to meet the requirements for developing this National Policy Framework, monitoring its implementation and conducting future revisions. The state of progress of the main initiatives that make up this policy lever from an institutional perspective is described below. In addition, the Project is an instrument for coordination with the industry, including the development of 11 pilot initiatives and 7 feasibility studies related to the supply and demand for LNG at port; these will enable analysis of the technical, environmental and economic feasibility of various solutions prior to roll-out.

Table III-7. Strategic initiatives

ONGOING INITIATIVE	DEVELOPER	BUDGET	STATUS	OBSERVATIONS
ET0 CORE LNGas Hive activity: **Identification of barriers and obstacles impeding development of the market**	DGMM, PDE (PUERTOS DEL ESTADO, NATIONAL PORTS AUTHORITY)	€210,000 50% CEF financed. The remaining 50% are Spanish public funds (PDE, DGMM).	Under way	The project's structures in themselves constitute a tool for identifying and discussing the possible barriers to development of the market.
ET2-ET3-ET4 CORE LNGas Hive activities: **Consolidated demand studies by corridor** (Mediterranean, Atlantic, Gibraltar and peripheral regions).	Enagás, PDE, Barcelona Port Authority, Cartagena Port Authority, Valencia Port Authority, Renfe, REN, Reganosa, INEGA, Bilbao Port Authority, Santander Port Authority, Gijón Port Authority, Bahía de Algeciras Port Authority, Melilla Port Authority, Tenerife Port Authority, Huelva Port Authority, Cepsa	€1,800,000 50% CEF financed. Of the remaining 50%, a total of €348,445 are Spanish public funds	Completed	The activity includes some demand studies and analysis of the logistics chains for supply, which was completed by developing a tool to simulate the logistical costs for the supply of LNG as a marine fuel in order to make it available to the market observatory.
ET5 CORE LNGas Hive activity: **Analysis of social perception and communication plan.**	Enagás	€300,000 50% CEF financed. The remaining 50% are private funds.	Under way	A study of social perception was carried out in order to establish what messages to deliver on the route; it produced an LNG-powered articulated lorry in 2017, with the aim of improving the image of LNG as a motor fuel. In 2018, the need to develop an action plan was identified; this will be carried out in the course of 2019.
WP4.1 CORE LNGas Hive activity: **Observatory on developing the LNG market** in the shipping sector.	PDE, DGMM	€150,000 50% CEF financed. The remaining 50% are Spanish public funds (PDE, DGMM).	Under way	The work to commission the observatory has begun with the drawing-up of the working methodology and the draft objectives. This tool, the objective of which is to support the preparation of the National Policy Framework implementation reports, will provide statistical data on the trend in supply and demand.
WP4.3 CORE LNGas Hive activity: **Analysis of the impact of the feasibility studies** carried out in the framework of the project	PDE, Enagás	€100,000 50% CEF financed. About 25% of the budget is from Spanish public funds (PDE).	Planned (awaiting the start of its implementation) — completion expected in 2020	The work will be started in 2019, once the feasibility studies have been completed; its results will be analysed in terms of feasibility and impact on the objectives of Directive 2014/94/EU.
WP4.4 CORE LNGas Hive activity: **Analysis of the impact of the pilot initiatives** carried out in the framework of the project	PDE, Enagás	€100,000 50% CEF financed. About 25% of the budget is from Spanish public funds (PDE).	Planned (awaiting the start of its implementation) — completion expected in 2020	The work will be started in 2019: the pilot initiatives will be implemented, and their impact on the objectives of Directive 2014/94/EU will be analysed.

ONGOING INITIATIVE	DEVELOPER	BUDGET	STATUS	OBSERVATIONS
WP4.5 CORE LNGas Hive activity: **Plan for dissemination of the project results.**	Enagás, Polytechnic University of Madrid (*Universidad Politécnica de Madrid*)	€160,000 50% CEF financed. Of the remaining 50%, a total of €25,000 are Spanish public funds (Polytechnic University of Madrid)	Under way	Continuous performance of the activity throughout the life of the Project by publishing bulletins, videos and news items, participation in events, organisation of workshops, etc.

Source: National Ports Authority, in consultation with the initiative leaders (March 2019).

In addition, the Project includes an initiative (WP.4.1) related to the definition of the LNGHIVE2 strategy, which is included as a measure to boost the participation of Spanish institutions in projects to develop the bunkering supply, as will be seen below. The aim of the strategy, which, as has been said above, includes an indicative plan for investments related to the roll-out of the LNG supply market in Spanish ports, is to stimulate private investment by giving institutional support to projects that are both viable from the point of view of the market, and aligned with the priorities of the Trans-European Transport Network. The intention is thus to maximise the capture of public aid that might contribute to triggering decisions to invest.

TAX INCENTIVES

The consolidated version of the National Ports and Merchant Navy Act in itself represents a good tax incentive mechanism for the consumption and supply of marine LNG since it includes general reductions in duties and the possibility of applying specific reductions to LNG consumption and supply activities at ports; these are put into practice each year with the approval of the national budgets.

Table III-8. Taxation initiatives

ONGOING INITIATIVE	DEVELOPER	STATUS	OBSERVATIONS
Royal Legislative Decree 2/2011 of 5 September 2011 approving the consolidated version of the National Ports and Merchant Navy Act, which establishes a **discount of 50% on the total tax due for access and berthing in Zone I and/or Zone II** for vessels that are powered by LNG or which use LNG in their auxiliary engines.	PDE-MFOM	Operational since 2015	National Ports and Merchant Navy Act (consolidated version published as Royal Legislative Decree 2/2011 of 5 September 2011), as amended by the seventeenth final provision of the 2015 Budget Act (Act 36/2014 of 26 December 2014), incorporates that reduction on a permanent basis.
Additional reduction of the port duty applicable for vessels powered by LNG	Certain port authorities	In force with the 2018 Budget Act (extended in the 2019 Budget Act)	■ How it applies is set out in the Budget Act for each year. ■ Between 10% and 40%, depending on the Port Authority.

ONGOING INITIATIVE	DEVELOPER	STATUS	OBSERVATIONS
Additional reduction of the port duty applicable to LNG **cargo** for bunkering	Certain port authorities	In force with the 2018 Budget Act (extended in the 2019 Budget Act)	■ How it applies is set out in the Budget Act for each year. ■ Between 15% and 40%, depending on the Port Authority.
Rebate on the occupation rate applicable to terminals for LNG bunkering	Certain port authorities	In force with the 2018 Budget Act (extended in the 2019 Budget Act)	■ How it applies is set out in the Budget Act for each year. ■ Up to 30%, depending on the Port Authority.

Source: National Ports Authority (March 2019).

ADAPTATION AND DEVELOPMENT OF INFRASTRUCTURE AND EQUIPMENT FOR BUNKERING AND CONSUMPTION OF LNG AT PORTS

In addition to the developments mentioned above with regard to STS and PTS supply points (Table III-5), initiatives were developed throughout the same 2016-2018 period related to promoting the consumption of LNG at ports.

Table III.-9. Initiatives related to promoting the consumption of LNG at ports

ONGOING INITIATIVE	DEVELOPER	BUDGET	STATUS	OBSERVATIONS
Cleanport Project: **Conversion of the Ro-Pax vessel Abel Matutes** (one gas-powered auxiliary engine) that covers the Barcelona-Palma de Mallorca line.	Gas Natural Fenosa, Balearia, Barcelona Port Authority, Balearics Port Authority, DGMM	€4,185,579 50% CEF financed. Of the remaining 50%, a total of €40,850 are Spanish public funds (Barcelona Port Authority, Balearics Port Authority, DGGM).	In service since January 2017.	The first LNG bunkering to the vessel was carried out on 29 January 2017 in the Port of Barcelona. TTS bunkering has been carried out weekly since March.
Building of two new ferry-type vessels (Cantiere Navale Visentini shipyard) with dual propulsion engines, using natural gas or traditional liquid fuel.	Balearia (private sector)	€180,000,000	In service since January 2019.	The *Hypatia de Alejandría* is the first passenger ferry powered by LNG to sail in the Mediterranean. With a length of 186.5 m and capacity for 810 people, 2,180 linear metres of cargo and 150 cars, it can reach a speed of 24 knots with the help of two dual-propulsion engines with a power of 20,600 kW. The sister ship *Marie Curie* will be in operation in the coming months.
Building of a new fast ferry-type vessel(Armón shipyard) with 4 dual-propulsion engines using natural gas or conventional liquid fuel.	Balearia (private sector)	€90,000,000	Ongoing — commissioning expected in 2020	With a length of 123 m and capacity for 1,200 people, 500 linear metres of cargo and 250 cars, the *Eleanor Roosevelt* will be able to reach a maximum speed of more than 40 knots. It will incorporate 4 dual-propulsion engines with a power of 8,800 kW, in addition to 4 water jets for propulsion, as well as 2 gas-powered generators and another 2 powered by diesel for electricity generation.

ONGOING INITIATIVE	DEVELOPER	BUDGET	STATUS	OBSERVATIONS
Project LNGHIVE2 VESSELS DEMAND: GREEN AND SMART LINKS - LNG solutions for smart maritime links in Spanish Core ports: **Conversion of 5 ferries currently operating in the Mediterranean area to use LNG**	Balearia (private sector)	€60,000,000 20% CEF financed.	Ongoing — commissioning expected between 2019 and 2021	The project began in November 2018 with the fitting of new engines into the ferry *Nápoles* in the Gibdock shipyards in Gibraltar; it was commissioned in March 2019. The same process will then be carried out with the *Abel Matutes (*which already has an LNG auxiliary engine), *Sicilia, Bahama Mia* and *Martín i Soler.* Dual engines powered by LNG and conventional fuel will be mounted, in addition to tanks for storing 440 m^3 of LNG which will provide a range of 1,200 miles.
Conversion of 1 ferry for LNG consumption	Balearia (private sector)	€12,000,000	Planned (awaiting the start of implementation)	This is the ferry *Hedy Lamarr*, conversion of which will be similar to those mentioned before, although in this case it will be 100% privately funded. The planned date for its commissioning is unknown.
EPA3 CORE LNGas Hive activity: Port of Bilbao. **New LNG-powered tug** (dual propulsion engine, using natural gas or traditional liquid fuel).	EVE, Remolcadores Ibaizabal	€3,436,000 50% CEF financed. Of the remaining 50%, a total of €13,877 are Spanish public funds (EVE).	Ongoing — commissioning expected in March 2020	Conceptual engineering has been completed and the main contracts for procurement of equipment and construction in the shipyard have been signed. Ibaizabal will implement the majority of the budget and is project lead, in charge of the necessary procurement for the Bilbao tug.
EPM3 activity. Port of Barcelona. **Conversion of 2 existing straddle carriers** (one hydraulic and the other electric) in two different container terminals, to analyse feasibility and benefits before a large-scale roll-out.	Barcelona Port Authority, BEST, Naturgy, HAM, IDIADA, APM Terminals	€1,222,000 50% CEF financed. Of the remaining 50%, a total of €36,000 are Spanish public funds (Barcelona Port Authority)	Ongoing — commissioning expected in October 2019	In the end, the decision was made to convert the engines of just 1 the APM Terminals machine 2 to 100% gas. Conversion of the first engine was completed in 2018; the second is being converted and should enter the testing site in April 2019. Two 600 litre LNG tanks will be installed, one for each engine. The expectation is that it will begin emission control tests under operational conditions in October 2019. With regard to the other machine, it was decided to consider the project completed once the design phase had been finished, since the machine warranty could be forfeited if the conversion were carried out.
EPT1 activity. Port of Barcelona. Building of a **containerised mobile unit for electricity generation using LNG, for supply to ferries.** It will be possible to locate it either on board the vessel, or on the dock itself.	Barcelona Port Authority, Tenerife Port Authority, Vigo Port Authority, Suardíaz, Bureau Veritas, HAM, Siemens	€2,263,000 50% CEF financed. Of the remaining 50%, a total of €199,500 are Spanish public funds (Barcelona Port Authority, Tenerife Port Authority, Vigo Port Authority)	Operational since December 2017.	Following the pilot test in Barcelona in December 2017, the pilot was carried out in the port of Vigo in October-November 2018, and the final tests (including emission control tests) are expected in September 2019 in the port of Santa Cruz de Tenerife. In Barcelona, the generator was connected to the vessel *L'Audace*, supplying 100% of the power required (550-600 kW) and stopping the auxiliary engines. The generator was also tested with a resistance box to achieve 110% of its nominal power (900 kW) and the gas plant responded correctly, supplying the necessary flow for the 5 hours of testing. The tests in Vigo were carried out with the vessels *Suar Vigo* and *Bouzas*, where the demand was lower (300 kW). Work is currently being done on defining the LNG supply logistics for the port of Tenerife.

ONGOING INITIATIVE	DEVELOPER	BUDGET	STATUS	OBSERVATIONS
RePort Project. Port of Barcelona. **Conversion of 26 lorries that regularly operate in the port into dual-fuel vehicles,** suitable for operating interchangeably with diesel and natural gas (25 CNG units and 1 LNG unit).	ATEC, Gas Natural Servicios, BSC, IDIADA, Escola d'Enginyeria de Barcelona Est - Universidad Politécnica de Cataluña, Dimsport Spain, RTC, Escuela Europea de Short Sea Shipping, Barcelona Port Authority	€1,610,884.41 financed with ERDF Funds from the Operational Programme for Catalonia 2014-2020	Ongoing — commissioning expected in January 2020	The project was begun in November 2016 as part of Barcelona Port Authority's air quality improvement plan, with the following scope: ■ study of air quality in Barcelona and surrounding area; ■ plan for the conversion of vehicles to dual fuel completed, conversion of the vehicles to CNG completed (awaiting conversion of the lorry to LNG); ■ design and development of the logistics of supplying natural gas to the vehicles also completed; ■ demonstration: tests of vehicles with gas fuel, monitoring of consumption, performance and emissions ongoing until the end of the project; ■ management and coordination of the project.
EV2 CORE LNGas Hive activity: **Feasibility study for an LNG-powered salvage vessel.**	SASEMAR Armón shipyards	€500,000 50% CEF financed. About 25% of the budget is from Spanish public funds (SASEMAR).	Under way Completion expected in January 2020	Following analysis of the costs and benefits of a conversion compared with a new vessel for all vessel types of the SASEMAR fleet, identification of the design requirements for a new multipurpose unit of the *Clara Campoamor* type has been carried out.
EV3 activity. **Technical, legal and economic feasibility study of an LNG-powered port locomotive.** Project is for its conversion.	Tarragona Port Authority	€250,000 50% CEF financed. The remaining 50% are Spanish public funds (Tarragona Port Authority).	Completed January 2018	Both the technical, legal and economic feasibility study of the LNG-powered locomotive (LNG-only engine) and the design for future conversion of the locomotive, based on the model 310 that operates in the port of Tarragona, have been completed. This engineering work included defining the technical requirements, identifying the work necessary to integrate the new system into the current locomotive, and defining the validation and monitoring process.
EV4 CORE LNGas Hive activity: Port of Barcelona. **Feasibility study of a tug powered by CNG.**	Barcelona Port Authority, UTE Remolcadores de Barcelona S.A.R.	€360,000 50% CEF financed. A total of €115,000 of the budget are Spanish public funds (Barcelona Port Authority).	Under way Completion expected in December 2019.	The needs assessment and the design study for the gas-powered tug for Barcelona port were completed in October 2018. The logistics study and the safety study for the operation are under way, with completion expected in May 2019. The tug designed has a length of 31 m, a beam of 12.5 m and a maximum draft of 5.5 m, dual engines and a 26 m^3 LNG tank, with an estimated endurance of 1 week. A cost overrun of 30% compared with its diesel equivalent has been estimated. When the technical and economic feasibility studies are completed shortly, the project will be considered completed.
EV6 CORE LNGas Hive activity: Port of Valencia. **Feasibility study of an LNG-powered tug.**	Fundación Valenciaport, Seaplace, Boluda Corporación Marítima, Bureau Veritas Iberia, Valencia Port Authority	€1,127,200 50% CEF financed. Of the remaining 50%, a total of €17,500 are Spanish public funds (Valencia Port Authority)	Completed in June 2017 (awaiting deliverable)	The basic engineering was completed successfully.

Source: National Ports Authority, in consultation with the initiative leaders (March 2019).

On the other hand, new initiatives geared towards developing both LNG supply and demand in ports were identified in 2019. Their level of maturity will allow them to be carried out, foreseeably in the short term, in real implementation projects to continue with the roll-out phase under the LNGHIVE2 strategy. These initiatives include:

- Algeciras port Building of an LNG store for supply of LNG as a fuel.
- Port of Vigo. Building of an LNG store for direct bunkering to vessels (PTS mode).
- Port of Santander. Building of an LNG store for direct bunkering to vessels.
- Building of at least one new supply vessel operational in Spanish ports and conversion of ferries for LNG consumption in the Atlantic area.

ENCOURAGING THE PARTICIPATION OF SPANISH ORGANISATIONS IN PROJECTS TO DEVELOP LNG SUPPLY AND DEMAND AT PORTS CO-FINANCED BY EU PROGRAMMES

Table III-10. Developments related to encouraging the participation of Spanish organisations in projects to develop LNG as a fuel at ports, co-financed by EU programmes

ONGOING INITIATIVE	DEVELOPER	BUDGET	STATUS	OBSERVATIONS
WP4.2 CORE LNGas Hive activity: **Indicative investment strategy: LNGHIVE2** (roll-out plan to all ports of general interest.	PDE, Enagás, Reganosa	€100,000 50% CEF financed. About 25% of the budget is from Spanish public funds (PDE).	Planned — completion expected in March 2020.	Analysis will begin during 2019, once the studies of the logistics chains and the cost simulation tool have been successfully completed. This investment plan will allow a financing strategy for the roll-out to be established within the framework of LNGHIVE2.
Encouraging the participation of Spanish organisations in projects to develop LNG supply and consumption at ports, co-financed by EU programmes.	Ministry of Infrastructure and Transport (MFOM) MINISTRY OF ECONOMY AND COMPETITIVENESS DIRECTORATE-GENERAL FOR EU FUNDS	-	Ongoing	The National Ports Authority, the State Secretariat for RDI and the Directorate-General for EU Funds together encourage the participation of the Spanish private sector in various European programmes (the CEF, Horizon 2020, ERDF) through which co-financing can be obtained for the installation of LNG bunkering infrastructure and equipment for ports and the conversion of equipment and vessels to LNG.

Source: National Ports Authority, in consultation with the initiative leaders (March 2019).

One of the milestones achieved in 2018 was the launch of the LNGHIVE2 institutional strategy through the submission of three proposals concerning the use of LNG as a marine fuel to the CEF Blending 2017 call for applications (second phase).

Led by the National Ports Authority in close collaboration with representatives from a broad range of organisations from the gas, shipping and ports sectors, the strategy is the Spanish Government's flagship initiative for roll-out of the market for LNG as a marine fuel in southern Europe. The LNGHIVE2 strategy is a continuation of the institutional measures and developments in the more experimental phase, the CORE LNGas Hive project. Its main aims are:

- To set out an indicative plan for investments to 2025, 2030 and 2050 for the deployment of infrastructure and equipment for supplying LNG in the ports, consistent with the needs of the market and including the investment requirements associated with the conversion of the vessels. That plan will enable the identification of viable and mature projects for roll-out at every point of the development of the market.

- To provide the tools that will enable the sector to optimise the logistical costs of the necessary supply chain for transporting LNG to the refuelling points.

- To have in place an umbrella project for the country that will enable us to maximise the opportunities for attracting direct and financial European aid for the developers of projects related to the supply and consumption of LNG as a fuel in Spanish ports.

- To support the implementation of Directive 2014/94/EU with regard to the availability of LNG refuelling points for maritime shipping in the western Mediterranean and the Atlantic, including the geo-strategic region for bunkering in the Strait of Gibraltar.

- To encourage institutional coordination with the strategies of other Member States that share similar interests in rolling out the market for LNG as a marine fuel (principally in the Mediterranean and Atlantic).

- To contribute to the implementation of the work plans for the Atlantic and Mediterranean Corridors of the TEN-T under market conditions, as well as the environmental pillar of the Detailed Implementation Plan for Motorways of the Sea (MoS DIP) with regard to alternative fuels.

TRAINING PROGRAMMES FOR CREWS OF VESSELS USING LNG

Table III-11. Developments related to training programmes for crews of vessels using LNG

ONGOING INITIATIVE	DEVELOPER	BUDGET	STATUS	OBSERVATIONS
Decision of 21 September 2016 of the Directorate-General of Merchant Navy (DGMM) on obtaining the proficiency certificate in basic and advanced training for captains, officers and ratings on vessels that use gases or other low-flashpoint fuels **(IGF Code).**	DGMM	-	Operational since October 2016	The DGMM has overseen the incorporation into Spanish law of the training programmes for crews of vessels using LNG as a fuel laid down by the IMO in Resolutions MSC.396(95) and MSC.397(95), where these apply to LNG terminal operators. Following its publication in 2016, this has been complemented by way of Decision of 26 January 2018 of the Directorate-General of Merchant Navy establishing the procedure for approval for providing basic and advanced training courses for captains, officers, ratings and other staff aboard vessels governed by the IGF Code and the issuing of their proficiency certificates.
International LNG School — Jovellanos Centre: Structure for training provision that covers all aspects of LNG, directed at both Spanish and international professionals.	SASEMAR Enagás	-	Operational since September 2017	The first course, 'Safe Handling of LNG', was taught in September 2017 in the Jovellanos Centre and in the Enagás regasification plant in El Musel (Gijón). The objective is to understand the behaviour of LNG and learn how to handle it routinely. The centre has been approved for teaching basic training courses for ships governed by the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code) since January 2018.

Source: National Ports Authority (March 2019).

ANALYSIS OF LNG CONSUMPTION: LNG BUNKERING WITHIN PRESENT GAS SECTOR REGULATION

LNG supply as a marine fuel currently entails the use of the core infrastructure of the gas system which is subject to specific regulations that affect, among other matters, the financial arrangements for that use. Thus the use of the regulated system's infrastructure entails the payment of access tolls for the facilities which, in accordance with current legislation, do not allow differentiation depending on the final use of the gas. This forces supply to be seen as a conventional refuelling activity. The structure and values of the legislation were not geared to the sizes of vessel expected for LNG bunkering operations, particularly in the phase of market development in which supply has to be adapted to the demand curve (volumes below 5,000 m^3).

Consequently, one of the elements that has required the most institutional effort has been the collaboration of the National Ports Authority with the current Ministry for Ecological Transition in the process of adapting the structure of tolls applicable to LNG bunkering. This has culminated in the publication of Royal Decree 335/2018 of 25 May 2018 amending several royal decrees that regulate the natural gas sector. This new structure sets out a specific bracket of 0 to 5,000 m^3, which is representative of the volumes expected in LNG loading operations related to bunkering LNG as a marine fuel in the current phase of the market's development. Similarly, the possibility of adapting that bracket in response to the conditions and trend in the market is provided for, giving the regulatory framework the flexibility necessary to meet the needs of supply and demand at any time. This is essential for the competitiveness of the LNG supply market.

This Royal Decree came into force at the end of 2018 with the publication of Order TEC/1367/2018 of 20 December 2018 establishing the tolls and fees associated with third party access to gas installations and the remuneration of regulated activities for 2019. Hence, for 2019 the amounts of tolls for loading LNG onto specific vessels have been laid down for small volumes: the first for volumes below 2,000 m^3 and the second for volumes between 2,000 m^3 and 5,000 m^3. These new amounts are between 60% and 70% lower than those previously in force. This contributes decisively to the development of the market for LNG as a marine fuel and therefore constitutes an essential measure for complying with the aims and targets of the National Policy Framework on Alternative Fuels in Transport.

On 2 August 2019, the CNMC presented the proposal in a Circular setting out the methodology for calculating tolls for transport, local networks and regasification of natural gas, which includes a new toll for loading LNG to vessels that does not have a set term. This is particularly advantageous for small vessels: the saving compared to the tolls published in Order TEC/1367/2018 could reach 89% for vessels of less than 2,000m^3. This discount is reduced for larger vessels.

However it is true that for lower volumes (below 1,000 m^3) there is still room for improvement in order to reach the market objective of the logistical cost of bunkering LNG not exceeding 20% of value of the molecule, which would strengthen the efficiency of the logistics supply chain. The Spanish Markets and Competition Commission has recently submitted its proposal for establishing the methodology for calculating tolls for transport, local networks and regasification of natural gas for public consultation, in order for it to be implemented from 1 January 2020. The proposal would eliminate the fixed term for the formula for calculating the toll for transfer from plant to ship. This would make Spanish plants considerably more competitive in supplying LNG as a marine fuel, providing a boost to the development of this market in the way that Directive 94/2014/EU advocates.

STANDARDISATION OF VARIOUS LNG BUNKERING PROCEDURES

The standard UNE-EN ISO 20519: Ships and Marine Technology, Specification for Bunkering of Liquefied Natural Gas Fuelled Vessels was published in 2017 (ISO 20519:2017). This is the official Spanish version of the European Standard EN ISO 20519:2017, which in turn adopts the International Standard ISO 20519:2017. It sets out the requirements applicable to equipment and systems for transferring LNG fuel used for the refuelling of vessels that are powered by LNG, which are not covered by the International Code for the Construction and Equipment of Ships that Transport Liquefied Gases in Bulk (IGC CODE). The document includes the following five elements:

- hardware: systems for transferring liquid and steam;
- operational procedures;
- a requirement for the LNG supplier to provide a delivery note from the LNG storage tank;
- training and qualifications of the staff involved;
- requirements for LNG facilities to observe the ISO standards and applicable local codes.

In accordance with Commission Delegated Regulation (EU) 2018/674 of 17 November 2017 supplementing Directive 2014/94/EU of the European Parliament and of the Council as regards charging points for L-category motor vehicles, shore-side electricity supply for inland waterway vessels and refuelling points for LNG for waterborne transport, and amending that Directive as regards connectors for motor vehicles for the refuelling of gaseous hydrogen, the requirements laid down in the standard EN ISO 20519 will be compulsory from 24 May 2020.

DEFINITION OF PROCEDURES FOR LNG BUNKERING AT PORTS AND ESTABLISHING THE MINIMUM QUALIFICATION REQUIREMENTS

The Ministry of Public Works plans to drive the adaptation of the National Ports and Merchant Navy Act (consolidated version published as Royal Legislative Decree 2/2011 of 5 September 2011) to Regulation (EU) 2017/352 of the European Parliament and of the Council of 15 February 2017 establishing a framework for the provision of port services and common rules on the financial transparency of ports. Among other aspects, and pursuant to the abovementioned Regulation, bunkering (including that of LNG) has had the status of port service since 24 March 2019. The National Ports Authority is currently working on the proposal to amend the law to include the provisions of the consolidated National Ports and Merchant Navy Act, in particular to include LNG bunkering in the regulation of port services provided for in that Law. Under the Regulation, port authorities have the obligation to regulate service provision through specific terms and conditions, which the National Ports Authority is legally bound to report.

In this context, the National Ports Authority is preparing a template of benchmark terms and conditions for the port authorities, which indicatively include the common administrative requirements that must be demonstrated in order to achieve the status of LNG bunkering service provider and obtain the corresponding licences, as well as the technical, environmental, safety, quality and other conditions for the different possible modes of supply.

In parallel, and in the framework of Activity ET1 of the CORE LNGas Hive project, recommendations on technical, safety and environmental conditions and requirements for LNG bunkering in ports will be prepared. These recommendations are intended to provide a practical focus for the port authorities, based on benchmarks and standards that are already in existence such as the EMSA Guideline or the above-mentioned ISO 20519.

With regard to the qualification requirements for staff involved in LNG bunkering operations, we have encouraged the creation of an Expert Group within the Spanish National Qualifications Institute, which reports to the Ministry of Education and Professional Training. This will develop the competencies and training content for a future qualification of LNG bunkerer, which will need to be shown in order to engage in the activity in the ports. The aim of this is to make LNG bunkering operations in the ports safer and more efficient and ensure the consistency of the current training and qualification requirements throughout the supply chain, thus making it easier to validate qualifications.

Table III-12. Initiatives related to LNG bunkering procedures and training requirements

ONGOING INITIATIVE	DEVELOPER	BUDGET	STATUS	OBSERVATIONS
Participation in the workshops Marine LNG subgroup of workshops of the ESSF (European Sustainable Shipping Forum) in order to prepare **recommendations on LNG bunkering for port authorities and governments, an EMSA (European Maritime Safety Agency) Guideline**	DGMM	-	The Guideline was published in February 2018.	The National Ports Authority, the Ministry of Public Works, DGMM, DG for OECC (Directorate-General for the Spanish Office for Climate Change), and the Barcelona Port Authority represent Spain at the ESSF. Spain actively participates in the following subgroups: ■ Competitiveness (Ministry of Infrastructure and Transport) ■ Marine LNG (DGMM, Fundación Valenciaport and GASNAM) ■ MRV (EU Monitoring, Reporting and Verification) Monitoring (DGMM) ■ MRV Verification & Accreditation (DG OECC) ■ Air emissions from Ships (DGMM)
CORE LNGas Hive Activity ET1: **Practical recommendations** for the port authorities	DGMM PDE, Enagás, Reganosa	€300,000 50% CEF financed. Of the remaining 50%, a total of €105,000 are Spanish public funds (PDE, DGMM).	Under way: completion expected in December 2019	The aim of the work is to enable the port authorities to identify the minimum requirements that are common to LNG bunkering activities at ports, indicating the necessary measures for their effective implementation. Its main references are the EMSA Guideline and ISO 20519
CORE LNGas Hive Activity ET6: **Analysis of the training requirements in LNG,** preparation of training programmes and proposal of accreditation processes.	Univ. Politécnica de Madrid (UPM), Enagás, SASEMAR, Reganosa, Univ. Santiago de Compostela (USC)	€800,000 50% CEF financed. Of the remaining 50%, a total of €275,000 are Spanish public funds (UPM, SASEMAR, USC).	Under way — completion expected in December 2019.	Profiles and categories, general training content and accreditation procedures for LNG bunkering activities have been analysed and proposed.
Expert group to define content for a qualification for LNG bunkerers.	PDE, DGMM, Barcelona Port Authority, Bilbao Port Authority, Enagás, Reganosa, Molgas	-	Under way — completion expected in the first half of 2020	On the basis of the ET6 work, collaboration with the National Qualifications Institute, which reports to the Ministry of Education and Professional Training, has been started with the aim of defining a professional qualification for LNG bunkerers, since until now this has not existed. As a first milestone, an expert group has been formed which will establish the competencies and knowledge for that professional qualification.

Source: National Ports Authority, in consultation with the initiative leaders (March 2019).

SUPPORT FOR RDI

Table III-13. Developments with regard to RDI

ONGOING INITIATIVE	BODY RESONSIBLE	BUDGET	STATUS	OBSERVATIONS
Royal Decree 873/2017 of 29 September 2017 regulating the granting of **aid to the shipbuilding sector with regard to research, development and innovation.**	MINCOTUR (DGIPYME, Directorate-General for Industry and SMEs)	Annual limit of €15,000,000	Operational	The publication of Royal Decree 873/2017 established an RDI aid plan to the shipbuilding sector, in force until December 2020.
Government-backed financing for building and for converting existing vessels, therefore also including low emission vessels.	MFOM	€40,000,000 in 2018 (Act 6/2018 of 3 July 2018, the Budget Act for 2018)	Operational	This instrument has been in force since the 1990s and its annual budgetary contribution is set out in the Budget Act for each year. Initially geared to the building of new low-emission vessels, it currently allows guarantees for the conversion of vessels too.

Source: DG for Industry and SMEs (Ministry of Economy, Industry and Competitiveness).

USE OF PUBLIC PROCUREMENT TO SUPPORT THE USE OF LNG AS A MARINE FUEL

The Green Public Procurement Plan of the Central Government, its regional bodies and social security management agencies (2018-2025) was approved by Agreement of the Council of Ministers of 7 December 2018.

The Plan meets the need to incorporate environmental criteria into public procurement, allowing the Central Government, its regional bodies and social security management agencies to promote and contribute to the objectives of economic and environmental sustainability. Its objectives are thus to:

- promote procurement by the public administration of goods, works and services with the least environmental impact;
- serve as an instrument to drive the Spanish Strategy for Circular Economy;
- ensure more rational and economic use of public funds;
- promote environmental clauses in public procurement;
- publicise the possibilities offered by the legal framework for green public procurement.

Thus, a group of 20 priority goods, works and services is specified in accordance with the EU's criteria for green public procurement, among which transport stands out. It includes a series of general, voluntary environmental criteria for procurement, which can be included in procurement specifications as criteria for selection and award, technical specifications and special conditions for implementation.

Although shipping is not explicitly mentioned, the recommendations set out are applicable to this sector, and public administrations may use this benchmark when procuring goods and services related to shipping that have a low environmental impact.

Along the same lines, Law 9/2017 of 8 November 2017 on Public Sector Contracts, transposing Directives of the European Parliament and of the Council 2014/23/EU and 2014/24/EU of 26 February 2014 into Spanish law, will come into force in March 2018.

These provide that all public procurement must include social and environmental criteria wherever they are relevant to the purpose of the contract, based on the conviction that including these will provide a better price-quality ratio in contractual provision, as well as greater efficiency in the use of public funds.

III.2 ELECTRICITY

- Spain currently has 2 electricity supply points for ships and ferries, in Melilla and Motril respectively. **The commissioning of 6 supply points is expected in the second half of 2019:** in the Canary Islands (2 in the port of San Sebastián de La Gomera, 2 in the port of Santa Cruz de La Palma and 2 in the port of Santa Cruz de Tenerife).

- **The 'OPS Master Plan for Spanish Ports 2017-2019' project,** financed by the CEF and led by the National Ports Authority, is developing pilot initiatives in Palma de Mallorca and the Canary Islands (in the ports of La Luz-Las Palmas and Santa Cruz de Tenerife); completion could take until 2020. In addition, we are analysing the feasibility of increasing the provision of supply points in other ports, geared towards three kinds of fleet: ferries, container ships and cruise ships.

- Since 2019, a **reduction of the tax on provision of shore-side electricity has applied;** in practice, this has almost reduced it to zero.

- **Royal Decree-Law 15/2018 of 5 October 2018 on urgent measures for energy transition and consumer protection** lays down that, exceptionally, those managing ports (port authorities) as consumers may provide electricity supply services to vessels.

- Article 14 of the **Climate Change and Energy Transition bill** states that the Government must adopt measures to gradually reduce the emissions generated by the consumption of fossil fuels by boats and auxiliary attachments when berthed at ports, so that ports under the jurisdiction of the State reach zero direct emissions by 2050.

- Point 4 of **Order TEC/406/2019 of 5 April 2019 laying down guidelines for energy policy** for the National Commission on Markets and Competition lays down that the structure and methodology for establishing the tolls must incentivise the process of electrification of the Spanish economy.

III.2.1. SHORE-SIDE SUPPLY INFRASTRUCTURE

EXISTING SUPPLY INFRASTRUCTURE

Spain currently has 2 electricity supply points for ships and ferries, in Melilla and Motril respectively. The commissioning of 6 supply points is planned in the second half of 2019: in the Canary Islands (2 in the port of San Sebastián de La Gomera, 2 in the port of Santa Cruz de La Palma and 2 in the port of Santa Cruz de Tenerife).

SUPPLY INFRASTRUCTURE UNDER WAY

The 'OPS Master Plan for Spanish Ports 2017-2019' project financed by the Connecting Europe Facility (CEF) has pilots in Palma de Mallorca and the Canary Islands (the ports of La Luz-Las Palmas and Santa Cruz de Tenerife)[79].

In addition, the following initiatives are being carried out:

- the provision of supply points in the ports of Santa Cruz de la Palma and San Sebastián de La Gomera (Start-up expected in the third quarter of 2019);
- provision of 2 supply points for container ships in the port of Barcelona;
- a study for a second connection point in the port of Melilla;
- performance of a feasibility study for providing supply points to tourist cruise ships in the four maritime terminals of the port of Barcelona, and in the maritime terminals of Málaga and Valencia.
- performance of a feasibility study for providing supply points to container ships in the ports of Las Palmas (Canary Islands), Valencia and Barcelona.
- performance of a feasibility study for providing supply points to ferries in the ports of Santander, Vigo, Almería, Málaga, Cádiz, Seville, Huelva and Barcelona (6 outlets for the lines to the Balearic Islands).

[79] For details, see the section below.

Table III-14. Electricity supply infrastructure under way.

PORTS WITH SHORE-SIDE ELECTRICITY SUPPLY BEING IMPLEMENTED					
PORT(S)	**TERMINAL/VESSEL**	**No OF CONNECTIONS**	**VOLTAGE (V)**	**TYPE OF VESSEL SERVICED**	**PROGRESS DURING 2016-2019**
La Luz-Las Palmas *Core TEN-T network*	Fishing Dock	32	400	Vessels being repaired while afloat and fishing vessels	**OPS Master Plan for Spanish Ports 2017-2019 project financed by the CEF** Port of Las Palmas: project completed and provision of 32 outlets in the Muelle Grande Ports in Tenerife (La Palma, San Sebastián de la Gomera and Santa Cruz de Tenerife): the civil works have been implemented and the electrical equipment is being received for operation in 2019 Palma de Mallorca: out to tender, with implementation expected in 2020.
Santa Cruz de Tenerife *Core TEN-T network* La Palma and La Gomera[80] *Comprehensive TEN-T network*	Maritime Terminals	6	400	Ferries to the mainland and between the Canary Islands operated by the shipping companies Fred Olsen and Armas	
Palma de Mallorca *Core TEN-T network*	Muelle de Paraires	2	400 and 11,000	Ferry operated by the shipping companies Balearia and Trasmediterranea	
Melilla and Motril *Core TEN-T network*	Maritime Terminals in both ports	1	400	No demand	No demand on outlets fitted

Source: National Ports Authority

III.2.2. INITIATIVES CARRIED OUT DURING 2016-19

'OPS MASTER PLAN FOR SPANISH PORTS 2017-2019' PROJECT

The National Ports Authority (Organismo Público Puertos del Estado, OPPE) is responsible for the coordination and management of the 'OPS Master Plan for Spanish Ports 2017-2019' project, the budget for which is 6 million euros; it is co-financed with 1.5 million euros from the CEF[81]. It was initiated in November 2016 and since an extension of 2 years was requested, its completion is expected in December 2021. In addition to this coordination, the National Ports Authority will carry out a study on the current legislative framework in order to identify the barriers to shore-side electricity supply, with the aim of proposing solutions for reducing the cost of that supply.

The Polytechnic University of Madrid (Universidad Politécnica de Madrid, UPM) has contributed two working groups to the project. Its Higher Technical School for Industrial Engineers (Escuela Técnica Superior de Ingenieros Industriales) is carrying out a study on the benefits for the electrical system that could arise from connecting the engines of vessels in port to the general electricity grid. The Centre for Automation and Robotics (Centro de Automatización y Robótica, CAR), which also belongs to the Scientific Research Council (Consejo Superior de Investigaciones Científicas, CSIC) is making the prototype for the handling crane for managing the electrical connection cable between the dock and the vessel.

[80] Outside the scope of this 'OPS Master Plan for Spanish Ports 2017-2019' project, the investments have been extended to the ports of Santa Cruz de La Palma and San Sebastián de La Gomera

[81] Project 2015-EU-TM-0417-S submitted to the Connecting Europe Facility 2014 call for applications and approved in July 2015.

The University of Cádiz (UCA) has carried out a study of the avoidable emissions generated by vessels because of the operation of their auxiliary engines to generate the electricity they need during their stays in port (for example, refrigeration of containers on board, pumping equipment).

The University of Las Palmas de Gran Canaria (ULPGC) has made an initial monetary assessment of those emissions and the damage to health and the environment caused by atmospheric and noise pollution in the port area and its surroundings; that is, an assessment of the externalities that currently arise from the consumption of fossil fuels by the auxiliary engines of vessels at berth.

- The first pilot project involves the ports of Santa Cruz de Tenerife, Santa Cruz de La Palma, San Sebastián de la Gomera and Las Palmas de Gran Canaria (managed by the Santa Cruz de Tenerife and Las Palmas port authorities). Together with the shipping companies Fred Olsen and Armas, they will initiate this pilot to provide an electricity supply to the fleet of fast ferries that operates between those islands.

- The second pilot involves the sea transport service between the Balearic Islands and the Spanish mainland. Specifically, a shore-side electricity supply will be provided in the port of Palma de Mallorca to a vessel from the company Acciona Transmediterránea, which also makes stops at the port of Barcelona.

- The third pilot project, in the Puerto de Pasajes (Guipúzcoa), will provide the vehicle terminal with a connection to the power grid to supply electricity to the fleet of the Norwegian shipping company United European Car Carriers (UECC)[82]. Following completion of the feasibility study, this is currently suspended due to a change of the shipping company's fleet.

The final objective of this project is the achievement of a Masterplan 2021-2025 to provide the ports of general interest with connection points for shore-side electricity supply. This work is being tackled by the National Ports Authority, together with the companies Inova, Ghenova and Seaplace that will carry out feasibility studies in various ports and docks. These studies include:

- ferries in the ports of Santander, Vigo, Almería, Málaga, Cádiz, Seville and Huelva, as well as the provision of 6 outlets in Barcelona for ferries to the Balearic Islands;
- container ships in the ports of Las Palmas and Valencia;
- tourist cruise ships in the port of Barcelona for its four maritime terminals, and also Málaga and Valencia.

Finally, a project dissemination campaign will be carried out with the aim of making known its activities and their results, as well as the benefits of deploying this energy supply system for society and the environment. The design and initiation of the dissemination plan will be carried out by the National Ports Authority together with the company Marine Traffic. Along these lines, the work of dissemination and awareness-raising was begun in 2017 through a website at http://poweratberth.eu, an information podcast[83] and presentations in national and international seminars.

[82] In order to invigorate this project, a working group within the Basque Maritime Forum was set up in autumn 2016. It was made up of: Ingeteam, Ormazabal-Velatia, Eldu, Lloyd's Register, IHOBE, the National Ports Authority, Pasajes Port Authority, Bilbao Port Authority, the shipping company UECC and the maritime authorities of Pasajes and Bilbao.

[83] https://www.youtube.com/watch?v=XtJY6Z0ME3k

APPROVAL OF REBATES ON THE TAX ON ELECTRICITY FOR VESSELS AT BERTH

In 2017, the Spanish National Ports Authority, through the Directorate-General for Taxes, requested the European Commission's authorisation to reduce the tax on shore-side electricity for vessels docked in port. This reduction has been in force since 1 January 2019.

ROYAL DECREE-LAW 15/2018 OF 5 OCTOBER 2018 ON URGENT MEASURES FOR ENERGY TRANSITION AND CONSUMER PROTECTION

The twenty-first additional provision, 'Electricity supply to ships, aircraft and railways' states that, exceptionally, the managers of ports in their role as consumers can provide electricity supply services to ships, aircraft and railways, and services entailed by the provision of that service, respectively.

METHODOLOGY FOR TRANSPORT AND DISTRIBUTION TOLLS

Point 4 of Order TEC/406/2019 of 5 April 2019 laying down guidelines for energy policy for the National Commission on Markets and Competition lays down that the structure and methodology for establishing the tolls must incentivise the process of electrification of the Spanish economy necessary for energy transition in such a way that decarbonisation of the economy is encouraged, electricity consumption is not penalised in comparison with other fuels, and energy transformations that could be environmentally or economically suitable are not discouraged. Along these lines, the methodology for establishing the tolls should contribute to encouraging the use of electricity in vessels berthed in Spanish ports.

PROJECT CLIMATE: SPANISH OFFICE FOR CLIMATE CHANGE AND NATIONAL PORTS AUTHORITY AGREEMENT ON TRADING CO_2EQ

On 18 February 2019, an agreement was signed between the National Ports Authority (OPPE) and the Spanish Office for Climate Change (OECC) on the trading of greenhouse gases not released into the atmosphere because of the connection of vessels to the general electricity grid. The port authorities will join this programme for trading CO_2 equivalent emissions to the extent that the vessels berthed in their ports connect to the electricity grid and both electricity consumption and the tonnes of emissions avoided are verified.

In the 2019 call for applications, settled in July 2019, a project along these lines was approved; it will be developed in several autonomous communities.

Table III-15. Summary of the progress made during 2016-19 of the support measures for shore-side electricity supply

CATEGORY	No	MEASURE	BODY RESONSIBLE	PROGRESS DURING 2016-19
Tax incentives	1	**50% reduction** in the berthing fee charged to vessels docked in port when connected to mains electricity. *Legislation: National Ports and Merchant Navy Act (consolidated version published as Royal Legislative Decree 2/2011 of 5 September 2011), as amended by the seventeenth final provision of the 2015 Budget Act (Act 36/2014 of 26 December 2014).*	National Ports Authority (Ministry of Infrastructure and Transport)	Continuity of the measure subject to monitoring/evaluation

	2	**Creation of a working group** to analyse the possible future demand for shore-side electricity for vessels docked at our ports and the feasibility of bringing fees into line with market conditions.	National Ports Authority (OPPE) DG Taxes SE Energía CNMC	Since 1 January 2019, a reduction of the tax on electricity for vessels at berth has been applied. Order TEC/406/2019 ensures that the structure and methodology of tolls encourage shore-side electricity. The establishment of a new port fee for NOx applicable throughout the EU is being analysed.
Promotion of supply infrastructure	3	**Encouraging the participation of Spanish organisations** (port authorities) in projects to develop electricity supply infrastructure at ports	National Ports Authority	Within the framework of the 'OPS Master Plan for Spanish Ports' project, co-financed by the CEF, feasibility studies are being carried out and developers are being sought to carry out the associated investments.
	4	**Monitoring shipping companies' plans** in order to meet the foreseeable demand for shore-side electricity supply	National Ports Authority	Both the National Ports Authority and the various port authorities have made contact throughout these years with various ferry, car-carrier and cruise ship companies.
Legislative developments	5	Analysis of a possible revision of the rules applicable to shore-side electricity supply	National Ports AuthorityS.E. Energía	The National Ports Authority has passed on a request to make progress on this to the Directorate-General for Energy Policy and Mines.
Promoting industrialisation and RDI	6	Studies on the applicability of smart grids to shore-side electrical connections	National Ports Authority (Ministry of Infrastructure and Transport)	In 2017, the National Ports Authority commissioned a specific study on smart grids to shore-side electrical connections.
	7	Participation in innovative projects to ensure on-site power generation from renewable sources	National Ports Authority (Ministry of Infrastructure and Transport)	CLIMA (Climate) Projects 2017 call for applications: the Port Authority of Ceuta was a beneficiary of funding for carrying out a shore-side electrical supply project in that port.
Awareness-raising	8	Creation of a website providing information about the ports that provide shore-side electricity	National Ports Authority (Ministry of Infrastructure and Transport) REE	In 2017, a specific website was created (http://poweratberth.eu/lang=es) to disseminate the 'OPS Master Plan for Spanish Ports' project, co-financed by the CEF. Similarly, this project has been presented at various seminars, both nationally and internationally.

Source: National Ports Authority

IV. AIR TRANSPORT

IV.1. ELECTRICITY

- Electricity supply systems for stationary aircraft began to be installed in Spanish airports in the 1990s, and since 2000 all new jet bridges have this infrastructure. Consequently, **in 2015** (the baseline situation) practically all the parking bays for aircraft at jet bridges already had a power point. Specifically, there was a total of **400 power points in Spain's airports.**

- **Between 2016 and 2018, 65 units have been replaced and 34 new units installed,** so there are currently 434 power points.

- **It is expected that by 2030 there will be 36 new points and significant investment in replacing equipment.** To that end, a **budget pf 15 million euros will be allocated.**

- Summary of the trend (2015-2018) and forecast to 2030 of the electricity supply infrastructure for stationary aircraft in Spanish airports:

	Replacements	New units	Total
2015 (Base year)			**400**
2016	16 (1 in Madrid and 15 in Palma de Mallorca)	6 (4 in Madrid and 2 in Palma de Mallorca)	**406**
2017	44	18 (Madrid, Barcelona, Palma de Mallorca, Málaga, Lanzarote and Tenerife North)	**424**
2018	5	10 (Madrid, Barcelona, Palma de Mallorca, Málaga and Tenerife North)	**434**
Forecast for 2030	Most of the investments expected correspond to equipment replacements	36 (14 in Madrid, 1 in Bilbao, 10 in Palma de Mallorca, 2 in Tenerife South, 1 in Valencia and 1 in Vigo)	**470**

IV.1.1. SUPPLY INFRASTRUCTURE FOR STATIONARY AIRCRAFT

In line with its environment and energy policy, the state-owned company Aena S.A. seeks to reduce the emissions of gases that contribute to climate change by making efficient use of energy resources, having the necessary information and resources available to propose and achieve constant improvement objectives involving energy efficiency as a cornerstone for reducing CO_2 emissions, as well as to prevent the atmospheric pollution that could be associated with airport activity.

The purpose of the 400 Hz electricity supply systems is to supply electricity to stationary aircraft, allowing any other systems, whether external or on-board the aircraft, to be switched off. Having this system available allows reductions to the polluting emissions and noise levels of airports, as well as significant cost savings to airlines and operational benefits in the tasks involved in aircraft ground handling.

Based on these policies, a continuous effort is being made to equip airports with infrastructure providing fixed 400 Hz ground power supply for aircraft. These investments have been made for the following three main reasons:

- Apron remodelling/reorganisation. This is where parking bays are redesigned, giving rise to new needs for 400 Hz equipment (e.g. remodelling at Barajas Terminals 1, 2 and 3 to become a hub).

- Terminal expansion/remodelling. In this case, new jet bridge contact positions and other assistance systems are created (remodelling of terminal and ramp 15 at Barcelona, future expansion of Palma de Mallorca, etc.).

- Replacement due to obsolescence. This occurs when equipment has reached the end of its useful life, which is estimated at fifteen years.

EXISTING INFRASTRUCTURE[84]

As reflected in the following table, in the baseline situation corresponding to 2015, there was a total of 400 power supply points for stationary aircraft in the airports of general interest in Spain. In the 1990s, 400 Hz electricity supply systems began to be installed, and since 2000, all new jet bridges have this infrastructure for power supply to aircraft. Consequently, in 2015 practically all the parking bays for aircraft at jet bridges already had a power point.

In 2016, investments were made in the airports of Madrid-Barajas and Palma de Mallorca. These were directed both at the replacement of equipment (1 in Madrid and 15 in Palma de Mallorca) and at the installation of new power points (4 in Madrid and 2 in Palma de Mallorca): a total of 16 replacements and 6 new points.

In 2017, 44 units were replaced and 18 new units were supplied. The investments were made in the airports of Adolfo Suárez (AS) Madrid-Barajas, Barcelona-El Prat, Palma de Mallorca, Málaga, Lanzarote and Tenerife North.

With regard to 2018, 5 units were replaced and 10 new units supplied. Those investments were made in the airports of AS Madrid-Barajas, Barcelona-El Prat, Palma de Mallorca, Málaga, and Tenerife Norte.

Table IV-1. Trend in the electricity supply infrastructure for stationary aircraft in Spanish airports (2015-2018)

	Airport	Power points in 2015	Units replaced due to obsole scence in 2016	New units in 2016	Supply points in 2016	Units replaced due to obsole scence in 2017	New units in 2017	Supply points in 2017	Units replaced due to obsole scence in 2018	New units in 2018	Supply points in 2018
Core TEN-T network airports	Adolfo Suárez Madrid-Barajas	**139**	1	4	**143**	**9**	**3**	**146**	2	6	152
	Alicante-Elche	**16**			**16**			**16**			16
	Barcelona-El Prat	**77**			**77**	**9**	**6**	**83**	0	1	84
	Bilbao	**6**			**6**			**6**			6

[84] Although the National Policy Framework presented on 9 December 2016 distinguished between fixed and combined electric power supply systems, the difference between the systems is solely structural, so it is not considered necessary to continue using this disaggregation. Similarly, we should point out that mobile equipment is used on a one-off basis to replace fixed equipment when there is a breakdown: the great majority of the equipment is made up of non-mobile units.

	Gran Canaria	**15**			**15**			**15**			15
	Málaga-Costa del Sol	**29**			**29**	**0**	**3**	**32**	0	1	33
	Palma de Mallorca	**37**	15	2	**39**	**13**	**6**	**45**	0	2	47
	Seville	**0**			**0**			**0**			0
	Tenerife South	**8**			**8**			**8**			8
	Valencia	**6**			**6**			**6**			6
Comprehensive TEN-T network AIRPORTS	A Coruña	**2**			**2**			**2**			2
	Asturias	**3**			**3**			**3**			3
	Fuerteventura	**13**			**13**			**13**			13
	Ibiza	**4**			**4**			**4**			4
	La Palma	**7**			**7**			**7**			7
	Lanzarote	**6**			**6**	**6**	**0**	**6**			6
	Menorca	**5**			**5**			**5**			5
	Santiago	**12**			**12**			**12**			12
	Seve Ballesteros-Santander	**2**	16	6	**2**			**2**			2
	Tenerife North	**10**			**10**	**7**	**0**	**10**	3	0	10
	Vigo	**3**			**3**			**3**			3
	Total	**400**			**406**	**44**	**18**	**424**	**5**	**10**	**434**

Source: AENA S.A.

INFRASTRUCTURE ENVISAGED FOR 2030

The plan for 2030 is to provide 36 new power supply units, in the airports of Madrid-Barajas (14), Bilbao (1), Palma de Mallorca (10), Tenerife South (2), Valencia (1) and Vigo (1), so the total number of operational points would amount to 470. Most of the investments expected for the period 2019-2030 correspond to equipment replacements.

Table IV-2. Planned electricity supply infrastructure for stationary aircraft in Spanish airports (2015-2018)

	Airport	**Existing units in 2015**	**Existing units in 2018**	**Forecast for new units 2018-2030**	**Units expected in 2030**	**Total investments 2019-2030 (*)**
Core TEN-T network airports	Adolfo Suárez Madrid-Barajas	139	152	14	166	€8,333,500.00
	Alicante-Elche	16	16	0	16	

	Barcelona-El Prat	77	84	0	84	€1,670,000.00
	Bilbao	6	6	1	7	€420,000.00
	Gran Canaria	15	15	0	15	€254,000.00
	Málaga-Costa del Sol	29	33	0	33	€140,500.00
	Palma de Mallorca	37	47	10	57	€1,326,500.00
	Seville	0	0	7	7	€576,000.00
	Tenerife South	8	8	2	10	€508,000.00
	Valencia	6	6	1	7	€63,500.00
Comprehensive TEN-T network airports	A Coruña	2	2	0	2	€127,000.00
	Asturias	3	3	0	3	€190,500.00
	Fuerteventura	13	13	0	13	€127,000.00
	Ibiza	4	4	0	4	
	La Palma	7	7	0	7	
	Lanzarote	6	6	0	6	
	Menorca	5	5	0	5	€317,500.00
	Santiago	12	12	0	12	
	Seve Ballesteros-Santander	2	2	0	2	€63,500.00
	Tenerife North	10	10	0	10	€762,000.00
	Vigo	3	3	1	4	€135,000.00
	Total	**400**	**434**	**36**	**470**	€15,014,500.00

(*) The ‘Total investments 2019-2030’ column includes total investments by airport, both for installing new units and for replacing existing units. Most of the investments expected correspond to replacements.

Source: AENA S.A. Estimate made in December 2018

Finally, the National Energy and Climate Plan 2021-2030 highlights the role of biofuels in the aviation sector. Thus, under measure 1.6, ‘Advanced biofuels in transport’, the Plan provides for the establishment of specific objectives for the consumption of biofuels in aviation.

V. RAIL TRANSPORT

Almost 40% (over 6,000 km) of railway tracks in the railway network of general interest have still not been electrified. Similarly, the lack of electrification of some sections of track, especially those for access to ports or logistics terminals, means that 20% of the transport activity for the network, for both passengers and goods, in terms of gross tonne-kilometres, is done with diesel traction. That uses 26% of the total energy (electric + diesel), and produces 28% of the carbon dioxide emissions of rail transport[85].

There are already plans to electrify over 1,000 km of these lines. In addition, part of the diesel traffic will arise from the high speed network as this is extended. However, for the transition periods, or for lines that have not been electrified, RENFE has designed an equipment plan that includes, among other measures, the conversion of part of the diesel fleet to LNG, hydrogen or batteries, either as the sole means of traction or as hybrids with electric traction. In addition to the associated benefits in environmental terms, this will represent a reduction in operational costs, greater schedule speed and thus greater competitiveness for rail as a means of transport.

Similarly, Adif is working on an initiative to encourage systems of energy generation, storage and distribution. The initial approach seeks to strengthen two specific projects:

- one on the storage of braking energy with new technologies;
- the other to develop a demonstrator for a hydrogen-based fuel cell supplying electricity to parts of the rail infrastructure.

V.1. LNG

The adoption of LNG on Spain's railways is still at the testing stage, focusing primarily on the conversion of self-propelled passenger trains and diesel locomotives. To that end, the following projects have been initiated:

PILOT TEST ON RAILWAY TRACTION WITH LNG FOR A 2600 SERIES PASSENGER TRAIN

This project arose in 2013 as the result of a cooperation agreement between the State-owned enterprise RENFE, Cepsa, Enagás and Gas Natural Fenosa, with the support of the Ministry of Public Works to trial the use of LNG on Spain's railways. It has a budget of 2.4 million euros, of which 75% is provided by the private partners and the remaining 25% by RENFE. The pilot tests are currently being carried out as part of the project and progress is being made on modelling[86] the results obtained. The tests are expected to be completed during 2019.

The aim is to analyse the technical, legal and economic feasibility of using LNG for railway traction in order to be able to gauge the possibility of extending this new form of traction to Spain's commercial sector. For that purpose, the diesel locomotive used is a 2600 series unit in metric width (two carriages) that serves the Trubia-Figaredo route (Asturias). Once the pilot test has been completed and the regulatory administrative procedures followed, it is expected that both this prototype unit and three others will be put into commercial service. The LNG is provided from a gas terminal in the north and taken by tanker lorry to Asturias.

[85] Source: National Network of Spanish Railways (RENFE)

[86] There is a need to contribute more data to the model in order to have the most accurate results possible with all the variables. Modelling and defining the parameters of the data on the basis of all the information obtained will enable complete monitoring of the train's performance in multiple situations. It is carried out by the University of Oviedo.

In addition to the above and in a possible second phase, the conversion to LNG of the second carriage of this prototype unit as well as a 'mini-series' of another three 2600 units to provide a commercial service on the Caudal-Aller/Figaredo (Asturias) line. The consortium GNL2600 has awarded a contract for the engineering work for conversion of this mini-series and progress is expected to be made on the implementation phase in the last quarter of 2019 and the first four months of 2020. The pilot tests and progress mentioned above will give RENFE sufficient technical and financial information to assess the project and make the decision on conversion of the mini-series.

DEMONSTRATION STUDY OF INFRASTRUCTURE ASSOCIATED WITH AN INNOVATIVE LNG TRACTION SOLUTION IN RAILWAY OPERATION (CEF PROJECT)

As a continuation of the above project carried out in Asturias, work is being done on a project for a 1600 series metric width diesel locomotive which could be used for both passengers and freight. It was started in December 2017 and has a budget of 4.8 million euros, of which 50% are funded by the EU's Connecting Europe Facility (2016 call for applications — Blending). The tendering phase for conversion engineering, both rail and gas, began in the second half of 2019; the rail engineering has already been tendered for and awarded, and the gas engineering is in the process of being awarded. With the help of RENFE, the consortium GNL CEF Locomotoras is managing the performance tests in tunnels with the Asturian Department of Industry as manager of the test tunnel at San Pedro de Anes (Siero, Asturias). The National Centre for Experimentation in Hydrogen and Fuel Cell Technology (CNH2) will also participate.

V.2. HYDROGEN

DEVELOPMENT PROJECT FOR A HYDROGEN ELECTRIC TRAM POWERED BY BATTERIES AND A FUEL CELL AS A SOLUTION TO SUSTAINABLE MOBILITY IN THE RIBADESELLA AREA (ASTURIAS)

In 2010, the State-owned company FEVE (now part of RENFE) carried out a project to assess the feasibility in railway traction of hydrogen by means of a fuel cell and its technological fit with a railway/tramway vehicle, financed under the framework of the call for applications to the Asturias Plan for Science, Technology and Innovation (PCTI). The project received public aid from Asturias and the Industrial Technology Development Centre (CDTI). The railway vehicle is currently available as a test facility.

On the basis of that pioneering experiment, throughout 2018 RENFE in collaboration with the National Centre for Experimentation in Hydrogen and Fuel Cell Technology (Centro Nacional del Hidrógeno, CNH2), carried out analysis and diagnosis of the existing equipment, and has assessed the possibility of modernising that equipment as satisfactory. Since April 2019, we have been awaiting the definition of a project that will be co-financed by the EU to retake the pilot tests and 'real world' tests on railway lines, using this as a platform for subsequent experiments with other series.

HYBRIDISING SUBURBAN AND MID-RANGE TRAINS WITH LNG AND HYDROGEN

RENFE'S equipment plan currently includes the prototype for a polyhybrid solution for mid-range carriages based on the current structure of the platform for CIVIA suburban trains and mid-range self-propelled 449 series trains. The intention is to test alternatives to electric and/or diesel traction by using LNG and primarily hydrogen feeding a fuel cell. The combination of these technologies, charged by regenerative braking, would allow travel on lines that are only partly electrified, taking advantage of that power source, and travel with LNG, hydrogen or batteries on non-electrified sections, thus avoiding travel with diesel under catenaries.

For that purpose, in 2018 an agreement was signed between RENFE and the National Centre for Experimentation in Hydrogen and Fuel Cell Technology (CNH2) to work jointly on the design of a carriage that allows electric-hydrogen, electric-LNG, diesel-hydrogen and diesel-LNG hybridisation on trains for non-electrified mid-range and suburban services.

In parallel, work is being done on the conversion of a prototype train for testing hydrogen, using an electric series 3600 train. The National Centre for Experimentation in Hydrogen and Fuel Cell Technology will also participate in this project.

VI. ANNEXES

VI.1. ANNEX 1: RECORDS WITH THE REGIONAL AND LOCAL ROAD TRANSPORT MEASURES

VL.1.1. REGIONAL MEASURES

ANDALUSIA

Measure M.1.1	2017. Line of grants (80% ERDF and 20% Andalusian Government): Smart Networks to promote the transformation of the cities of the Autonomous Community of Andalusia towards a smart city model that results in balanced and energy-sustainable development. It includes certain measures for the decarbonisation of transport: 1. Infrastructure and processes that enable the use of electricity or alternative fuels: 1.1. Infrastructure for the supply of alternative fuels (electricity, or the use of gas or hydrogen in transporting people or goods): 50%-80% grant. 1.2. Harnessing of renewable energy for sustainable mobility (facilities for generating electricity, or that enable the use of hydrogen, based on the harnessing of renewable energies: wind, photovoltaic solar power or both, for partial or total use in refuelling vehicles with alternative fuels): 60-85% grant. 2. Purchase of, or conversion into, energy-efficient vehicles (replacement of conventional vehicles or fleets with efficient solutions that use alternative energy sources and vectors to those that have traditionally been used, or conversion of vehicles using liquid fuels to use gas as a fuel): 35%-50%, 30% grant. 3. Measures to raise awareness of sustainable mobility: 40%-80% grant. 4. Measures for the decarbonisation of transport through energy services (set-up of contracts for energy services linked to investments that seek to improve energy efficiency in the transport of people or goods, through the development of facilities or other means that provide more sustainable mobility): grant variable according to the nature of the measure.
Amount	Total amount (Infrastructure for and promotion of clean urban transport, including equipment and rolling stock): €10,106,269.00
Body responsible	Regional Department of Finance, Industry and Energy

Regulation	Order of 23 December 2016 approving the regulatory framework for granting incentives for Sustainable Energy Development in Andalusia for the period 2017-2020. Decision of 28 July 2017 of the Managing Board of the Andalusian Public Energy Agency calling for applications for 2017-2020 for the Smart Networks line of incentives covered by the Order of 23 December 2016 approving the regulatory framework for Sustainable Energy Development in Andalusia for the period 2017-2020. Decision of 11 April 2019 by the Andalusian Public Energy Agency amending the catalogue of energy initiatives in the Smart Networks Line covered by the Order of 23 December 2016 approving the regulatory framework for Sustainable Energy Development in Andalusia for the period 2017-2020.
Fuel	All
Link	Link to the Catalogue of Energy Initiatives of the Smart Networks Line: https://www.agenciaandaluzadelaenergia.es/sites/default/files/documentos/boja_anexo_catalogo_ri.pdf Link to the regulatory framework (Order of 23 December 2016): http://portavoz.cpre.junta-andalucia.es/presidencia/portavoz/resources/files/2016/12/30/1483097092034Empleo.pdf https://www.agenciaandaluzadelaenergia.es/sites/default/files/Documentos/Incentivos/resolucion_incrementori_11abril2019.pdf Link to the call for applications to the Smart Networks Line: https://www.agenciaandaluzadelaenergia.es/sites/default/files/documentos/boja17-148-00018-13864-01_00118938_redesinteligentes.pdf

Measure M.1.2	2018. Climate Change and Energy Transition Act, which aims to combat climate change and progress towards a new energy model in Andalusia. With regard to sustainable mobility, this Act lays down: • the procurement or rental of hybrid or electric vehicles by the Andalusian Government, provided this is technically feasible; • the progressive replacement of more polluting vehicles in service in the Andalusian Government with models that use cleaner propulsion technologies than the traditional ones; • encouragement of the electrification of transport through support for the installation of a network of charging points for electric vehicles; • encouragement of the use of shared vehicles;

	• encouragement of modes of transport with a smaller carbon footprint; • rationalisation of transport infrastructure and services according to the principles of sustainability, economy and efficiency.
Amount	-
Body responsible	Regional Department of Agriculture, Livestock Farming, Fisheries and Sustainable Development
Regulation	Act 8/2018 of 8 October 2018 on measures to deal with climate change and for transition towards a new energy model in Andalusia.
Fuel	All
Link	https://www.juntadeandalucia.es/boja/2018/199/1

Measure M.1.3	2019. Bill on promoting sustainable mobility, which aims to reduce the environmental impact of transport, contribute to combating climate change, energy saving and efficiency, and reduce atmospheric and noise pollution. This measure lays down the obligation on public administrations to: • Prepare an Andalusian Sustainable Mobility Plan, a Plan for Territorial Planning, Sustainable Urban Mobility Plans (for towns) and Sustainable Mobility Plans for Centres that Generate Mobility (large workplaces, industrial estates, stadiums, etc.). • These plans must include information on the diagnosis, aims, economic and financial studies and a code of good practice with regard to sustainable mobility. They must be evaluated every two years. • Ensure that population centres and centres of activity are accessible on foot or by bicycle. • Promote sustainable public transport. • Promote the use of electric vehicles or those that reduce greenhouse gases. • Progressively replace the vehicle fleet in accordance with energy efficiency criteria. • Create the Andalusian Fund for Municipalities with vehicle-free areas in order to carry out the necessary preparation works. The provision of the Fund will be the responsibility of the Andalusian Government.
Amount	
Body responsible	Regional Department of Public Works, Infrastructure and Land Use Planning
Regulation	Andalusian Sustainable Mobility Bill (in process)
Fuel	All

Link	https://juntadeandalucia.es/export/drupaljda/Anteproyecto%20de%20Ley%20de%20Movilidad%20Sostenible.pdf

Measure M.1.4	2019. MOVES - Andalusia Grant
Amount	Total amount €8,096, 943.04 Type of initiative: • Purchase of new energy vehicles: €4,048,471.52. • Deployment of recharging infrastructure for electric vehicles: €3,643,624.37 • Deployment of electric bicycle loan systems: €404,847.15
Body responsible	Regional Department of Finance, Industry and Energy
Regulation	*Decision of 11 April 2019 by the Andalusian Energy Agency announcing the 2019 incentives for energy improvement of transport in Andalusia covered by Royal Decree 72/2019 of 15 February 2019.*
Fuel	All
Link	https://www.juntadeandalucia.es/boja/2019/73Z2

ARAGON

Measure **M.2.1**	2016. Aragonese Hydrogen Masterplan. This seeks to identify new opportunities in hydrogen technologies that enable institutional, business and academic decision-making in the areas of storage, transport and distribution. It is structured into five workstreams: • hydrogen production: electrolysis, electronic development of power and hydrogen production from waste; • storage, transport, distribution: compression by means of hydrides, developmental study of storage systems for market standards and roll-out of refuelling infrastructure; • applications for hydrogen and fuel cells: PEM stack development for applications in the transport and aeronautics sector, niche applications and mobility systems using hydrogen; • technology transfer, protection from economic impact, strengthening of hydrogen entrepreneurship, collaboration

	programmes in the industrial sector and diversification of Aragonese companies into the hydrogen sector; • training and awareness-raising: studies of social perception and the effectiveness of dissemination of the technology, and training geared to hydrogen technologies.
Amount	
Body responsible	Regional Department of Economy, Industry and Employment
Regulation	Aragonese Hydrogen Masterplan 2016-2020
Fuel	Hydrogen
Link	http://hidrogenoaragon.org/wp-content/uploads/2016/07/plan_director_espa%C3%B1 ol.pdf

Measure M.2.2	2018. Gather information on the technical features and financial needs of potential projects from automotive companies that wish to be involved, in order to focus the future call for applications for aid to electric vehicles and understand if there are companies interested in carrying out projects in this area and, where appropriate, participate in the future call for aid applications.
Amount	-
Body responsible	Regional Department of Economy, Industry and Employment
Regulation	*ORDER EIE/922/2018 of 28 May 2018 inviting companies from the automotive sector to express an interest in accessing a line of aid to carry out business projects with experimental development and/or industrial research regarding electric vehicles.*
Fuel	ELECTRICITY
Link	http://www.boa.aragon.es/cgi-bin/EBOA/BRSCGI?CMD=VERDOC&BASE=BOLE&PIECE=BOLE&DOCS= 1-46&D0CR=18&SEC=FIRMA&RNG=200&SEPARAD0R=&&PUBL=2018060 7

ASTURIAS

Measure M.3.1	2017. Grant for the installation of charging points for electric vehicles and refuelling facilities for natural gas.

Amount	Total amount: €127,314[87] - up to €2,200 for each charging point in mode 3; - up to €16,500 for each charging point in mode 4; - up to €55,000 for each compressed natural gas (CNG) supply point; - up to €125,000 for each liquid natural gas (LNG) supply point.
Body responsible	Directorate-General for Mining and Energy
Regulation	*Decision of 12 December 2016 by the Regional Department of Employment, Industry and Tourism approving the regulatory framework for the granting of subsidies on a competitive tendering basis for the use of renewable energy, and for energy saving and efficiency measures, for private companies.* *Decision of 28 March 2017 by the Regional Department of Employment, Industry and Tourism calling for subsidies on a competitive tendering basis for the use of renewable energy, and for energy saving and efficiency measures for private companies in 2017.*
Fuel	Electricity and natural gas (CNG and LNG)
Link	Regulatory framework: https://sede.asturias.es/bopa/2016/12/23/2016-13491.pdf Call for applications https://sede.asturias.es/bopa/2017/04/17/2017-03830.pdf

Measure M.3.2	2017. Establishment of a Regional Committee for the Promotion of Electric Mobility to promote the roll-out of a core network of fast charging points for vehicles in Asturias through support for 61 charging points (11 fast charging and 50 normal charging). The installation of 14[88] fast charging points was supported. They will be operated by the company EDP and are mainly located in petrol filling stations, although there are other locations. FAEN has also developed two charging points that are isolated from the grid, with a photovoltaic power supply and battery storage:

[87] a grant of €4,950 was made: 5 charging points in Oviedo and 4 in Gijón, all for the company's fleet. For gas, a grant of €122,364 was made for a CNG and LNG gas filling station in Noreña.

[88] In operation: Asturias Airport — Cudillero (E.S. Avia) — Mieres (University campus) — Pola de Laviana (E.S. Avia) — Cangas de Onís — La Fresnada (E.S. Galp) — Tapia de Casariego (E.S. Avia) - Gijón (3 locations: Escuela de Ingenieros Industriales (School of Industrial Engineers), Gijón South and Viesques) — Ribadesella (E.S. Avia). In addition, another three are due to go into operation, in Grado, Llanes and Avilés.

	One mobile (roving for educational use, and located in the Asturias Science Park, Llanera when not used for that purpose) and the other fixed (in Mieres), both accessible by the public.
Amount	-
Body responsible	Directorate-General for Mining and Energy.
Regulation	Establishment of a Regional Committee for the Promotion of Electric Mobility on 31 October 2017. Two work groups were established to develop specific initiatives: • public transport group • regional strategy group.
Fuel	ELECTRICITY

Measure M.3.3	2018. Transport and Mobility Act. This lays down that transport and mobility in Asturias must satisfy, among other things, the objective of promoting the use of alternative fuels that are more efficient in reducing greenhouse gas emissions and are safer for human health.
Body responsible	Directorate-General for Mining and Energy
Regulation	Act of the Regional Government of Asturias 12/2018 of 23 November 2018, on Sustainable Transport and Mobility. BOPA No 281 of 4.12.2018
Fuel	All
Link	https://sede.asturias.es/bopa/2018/12/04/2018-12023.pdf

Measure M.3.4	2018. Grant in 2018 for the purchase of vehicles with alternative fuels and the installation of charging points for electric vehicles and refuelling facilities for natural gas.
Amount	Total amount implemented: €92,881 - Purchase of vehicles (battery electric vehicles, BEVs) designed and constructed primarily for the carriage of goods. Up to €6,500. - Up to €1,000 for each slow charging point (P<15 kW). - Up to €2,200 for each semi-fast charging point (15 kW<P<50 kW). - Up to €50 per place for works and trunking in shared mains facilities in garages. - Up to €50 per place for electrical equipment in shared mains facilities in garages. - Up to €2,200 for semi-fast charging points for public access.

	- Up to €16,500 for fast charging points (P>50 kW) for public access. - Up to €55,000 for each CNG supply point for public access. - Up to €125,000 for each LNG supply point for public access.
Body responsible	Directorate-General for Mining and Energy
Regulation	*Decision of 23 May 2018 of the Regional Department of Employment, Industry and Tourism approving the regulatory framework for the granting of subsidies for the use of renewable energy, and for energy-saving and efficiency measures.* *Decision of 20 June 2018 of the Regional Department of Employment, Industry and Tourism announcing the 2018 grant scheme for the use of renewables and for energy efficiency.*
Fuel	Electricity and natural gas (CNG and LNG)
Link	Basis https://sede.asturias.es/bopa/2018/05/29/2018-05415.pdf Call for applications https://sede.asturias.es/bopa/2018/06/26/2018-06597.pdf

Measure M.3.5	2018. Establishment of a Regional Committee for the Promotion of Vehicle Natural Gas (VNG) in order to promote the roll-out of a core network of charging points for VNG.
Amount	-
Body responsible	Directorate-General for Mining and Energy
Regulation	Establishment of the Regional Committee for the Promotion of VNG The Regional Committee for the Promotion of VNG started meeting on 18 December 2018.
Fuel	Natural Gas
Link	-

Measure M.3.6	2019. MOVES Plan — Asturias
Amount	Total amount: €1,000,022

	• Purchase of new energy vehicles: €500,011; • deployment of infrastructure for charging electric vehicles, for a total of €450,010; • deployment of electric bicycle loan systems: €50,001
Body responsible	Regional Department of Employment, Industry and Tourism
Regulation	Extract from the Decision of 25 April 2019 by the Regional Department of Employment, Industry and Tourism, opening the period for submissions to the call for applications for grants corresponding to the programme of incentives for efficient and sustainable mobility (MOVES programme) in Asturias for the 2019 financial year.
Fuel	All
Link	https://sede.asturias.es/bopa/2019/04/29/2019-04293.pdf

CANARY ISLANDS

Measure M.4.1	2018. Award of €300,000 for the installation of charging points in 17 municipalities of Gran Canaria.
Amount	€300,000
Body responsible	Island Council of Gran Canaria
Regulation	There are no specific regulations:
Fuel	ELECTRICITY
Link	http://cabildo.grancanaria.com/-/noticia-el-cabildo-ad¡udica-por-casi-300-000-euros-los-puntos-de-recarga-para-vehiculos-electricos-en-17-municipios-de-gran-canaria?redirect=http%3A%2F%2Fcabildo.grancanaria.com%2Fdesarrollo-economico-energia-e-i-d-i%3Fp p id%3D101 INSTANCE kMX4P6ofo6I2%26p p lifecycle%3D0%26 p p state%3Dnormal%26p p mode%3Dview%26p p col id%3Dcolumn-7%26p p col pos%3D1%26p p col count%3D2

Measure M.4.2	2018. Award of €79,000 for a photovoltaic charging installation for electric vehicles in its central car park.
Amount	€79,000
Body responsible	Island Council of Gran Canaria

Regulation	There are no specific regulations:
Fuel	ELECTRICITY
Link	http://cabildo.grancanaria.com/-/noticia-el-cabildo-adjudica-por-79-000-euros-una-planta-fotovoltaica-para-la-recarga-de-vehiculos-electricos-en-su-parquin-central?redirect=http%3A%2F%2Fcabildo.grancanaria.com%2Fdesarrollo-economico-energia-e-i-d-i%3Fp_p_id%3D101_INSTANCE_kMX4P6ofo6I2%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-7%26p_p_col_pos%3D1%26p_p_col_count%3D2

Measure M.4.3	2017-2018 Aid for the installation of charging points in different parts of the Canary Islands
Amount	Total amount: €777,316
Body responsible	Island Councils of Gran Canaria, El Hierro, Fuerteventura, Lanzarote, Tenerife
Regulation	There are no specific regulations:
Fuel	Electricity
Link	Gran Canaria: http://cabildo.grancanaria.com/-/noticia-el-cabildo-destina-445-000-euros-a-la-instalacion-de-puntos-de-recarga-para-vehiculos-electricos-en-17-municipios?redirect=http%3A%2F%2Fcabildo.grancanaria.com%2Fdesarroll o-economico-energia-e-i-d-i%3Fp_p_id%3D101_INSTANCE_kMX4P6ofo6I2%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-7%26p_p_col_pos%3D1%26p_p_col_count%3D2 El Hierro: http://www.goronadelviento.es/inic/download.php?idfichero=61 Fuerteventura: http://www.cabildofuer.es/cabildo/el-cabildo-de-fuerteventura-pone-en-funcionamiento-seis-puntos-de-recarga-de-vehiculos-electricos-en-la-isla/ Lanzarote: http://www.cabildodelanzarote.com/tema.asp?sec=Noticias&idTema=17&idCont=16789 http://www.lancelotdigital.com/lanzarote/los-coches-electricos-ya-disponen-de-puntos-de-recarga-rapida La Palma: http://www.cabildodelapalma.es/portal/contenedor_ficha.jsp?seccion=s_fnot_d4_v1.jsp&contenido=11759&tipo=8&nivel=1400&codResi=1

Measure M.4.4	2018. Line of grants to promote the deployment of ten fast charging points for electric vehicles in Tenerife
Amount	€460,000
Body responsible	Council of Tenerife
Regulation	Call for applications and regulatory framework and annexes to the procedure summarised, regulatory framework published in the Official Gazette of the Province of Santa Cruz de Tenerife No 96 of 10 August 2018
Fuel	Electricity
Link	https://sede.tenerife.es/es/tramites-y-servicios/item/6336-subvenciones-para-la-implantacion-de-puntos-de-recarga-rapida-de-vehiculos-electricos-en-la-isla-de-tenerife

Measure M.4.5	2019. Reduction of the Canary Islands general indirect tax (IGIC) to 0% for the purchase of hybrid, electric and gas vehicles
Amount	
Body responsible	Government of the Autonomous Community of the Canary Islands
Regulation	Act setting the zero rate of the Canary Islands general indirect tax applicable to the delivery, import, leasing or execution of works on certain vehicles, and setting out the arrangements for refunds for commercial fuel in the excise duty of the Autonomous Community of the Canary Islands on fuels derived from oil
Fuel	Electricity and natural gas
Link	https://www.parcan.es/iniciativas/tramites.py?id_iniciativa=9L/PPL-0029

CANTABRIA

Measure M.5.1	Grant in 2017, 2018 and 2019 for the installation of fast and semi-fast charging systems for electric vehicle batteries
Amount	2017: €1,350.00 2018: €900,000 2019: €1,580,000

	- €15,000 per fast charging point installed - €2,000 per semi-fast charging point installed
Body responsible	Regional Department of Innovation, Industry, Tourism and Trade
Regulation	Basis: *Order INN/26/2017 of 6 June 2017 amending Order INN/28/2016 of 11 July 2016 laying down the regulatory framework for grants to initiatives on renewable energy and energy savings and efficiency in Cantabria (B.O.C. No 117 of 19.6.2017).* *Order INN/4/2019 of 15 February 2019 laying down the regulatory framework for grants to initiatives on renewable energy and energy savings and efficiency in Cantabria (B.O.C. No 43 of 1.3.2019)* *CALLS FOR APPLICATIONS:* *Order INN/30/2017 of 28 June 2017 approving the 2017 call for applications for grants to initiatives on renewable energy and energy savings and efficiency in Cantabria (B.O.C. No 131 of 7.7.2017).* *Order INN/4/2018 of 16 February 2018 approving the 2018 call for applications for grants to initiatives on renewable energy and energy savings and efficiency in Cantabria (B.O.C. No 43 of 1.3.2018).* *Order INN/13/2019 of 20 March 2019 approving the 2019 call for applications for grants to initiatives on renewable energy and energy savings and efficiency in Cantabria (B.O.C. No 63 of 29.3.2019).*
Fuel	Electricity
Link	Basis: https://boc.cantabria.es/boces/verAnuncioAction.do?idAnuBlob=335898 Call for applications: https://boc.cantabria.es/boces/verAnuncioAction.do?idAnuBlob=337013 Information: http://dgicc.cantabria.es/ayudas-y-subvenciones/energia

CASTILE-LA MANCHA

Measure 2018. Aid for the purchase of new efficient vehicles powered by M.6.1 alternative fuels and the conversion of power systems fed by conventional fuels (petrol or diesel) to systems based on LPG, CNG, LNG or hydrogen.

Amount	- Total amount for programme 1.A. Purchase of new efficient vehicles powered by alternative fuels for local bodies in Castile-La Mancha is €200,000 in 2018 (and €200,000 in 2019) - Total amount for programme 1.B, 1.C, 2.A, 2.B: €325,000 in 2018 and €175,000 in 2019. • Programme 1.B Purchase of new efficient vehicles powered by alternative fuels for private companies and individual entrepreneurs (2018: €125,000; 2019: €25,000) • Programme 1.C. Purchase of new efficient vehicles powered by alternative fuels for natural persons in a private capacity (2018: €125,000, 2019: €100,000) • Programme 2.A Conversion of engine power systems for vehicles powered by conventional fuels (petrol or diesel) to systems based on LPG, CNG, LNG or hydrogen, for private companies or individual entrepreneurs (2018: €50,000; 2019: €25,000) • Programme 2.B Conversion of engine power systems for vehicles powered by conventional fuels (petrol or diesel) to systems based on LPG, CNG, LNG or hydrogen, for natural persons in a private capacity (2018: €25,000; 2019: €25,000) By category of vehicle: For the purchase of new efficient vehicles powered by alternative fuels, the grant will be as follows, depending on the category of vehicle acquired and the propulsion system: • For categories M1, N1, L6e and L7e: (a) Pure and hybrid plug-in electric vehicles and hydrogen vehicles: €8,000 per vehicle. (b) Hybrid vehicles: €3,000 per vehicle. (c) Vehicles powered by LPG, CNG or LNG (multi-fuel or bi-fuel): €2,000 per vehicle. • For categories N2, N3, M2 and M3: (a) Pure and hybrid plug-in electric vehicles and hydrogen vehicles: €25,000 per vehicle. (b) Hybrid vehicles: €20,000 per vehicle. (c) Vehicles powered by LPG, CNG or LNG (multi-fuel or bi-fuel): €15,000 per vehicle. In any event, the aid must not exceed 25% of the market price of the vehicle, with ‘market price’ meaning the final purchase price of the vehicle. For the conversion of the engine power systems for vehicles powered by conventional fuels (petrol or diesel),

	to systems based on LPG, CNG LNG or hydrogen. the grant will depend on the category of vehicle to be transformed, as follows: • €800 per vehicle converted from categories M1, N1, and for vehicles of categories M2 and M3, the maximum amount of the aid shall be €7,500, with the limit for all categories being 50% of the cost of the conversion.
Body responsible	Regional Department of Economy, Business and Employment
Regulation	*Order 75/2018 of 8 May 2018 by the Regional Department of Economy, Business and Employment laying down the regulatory framework for public aid co-financed by the European Regional Development Fund for improving energy efficiency through the use of new efficient vehicles and the conversion of the engine system to LPG, CNG, LNG or hydrogen.* *Decision of 27 July 2018 by the Directorate-General for Industry, Energy and Mining announcing for 2018 the aid programmes 1B, 1C, 2A and 2B for the purchase of new efficient vehicles and for the conversion of the engine system to LPG, CNG, LNG or hydrogen. Extract from BDNS (Identifier): 410412. [2018/9219]* *Decision of 2 July 2018 of the Directorate-General for Industry, Energy and Mining announcing programme 1A aid for 2018, for the purchase of new efficient vehicles powered by alternative fuels for local bodies in Castile-La Mancha, funded up to 80% by the European Regional Development Fund — DOCM 11 July 2018, No 135.*
Fuel	LPG, NG and hydrogen
Link	Order 75/2018 of 8 May 2018: https://docm.castillalamancha.es/portaldocm/descargarArchivo.do?ruta=2018/05/24/pdf/2018_6331 .pdf&tipo=rutaDocm Decision of 27 July 2018: https://docm.castillalamancha.es/portaldocm/descargarArchivo.do?ruta=2018/08/03/pdf/2018_9219.pdf&tipo=rutaDocm Decision of 27 July 2018: https://docm.castillalamancha.es/portaldocm/descargarArchivo.do?ruta=2018/07/11/pdf/2018_8134.pdf&tipo=rutaDocm

CASTILE AND LEON

Measure M.7.1	2018. Regulatory framework for the purchase of new vehicles where the propulsion system is wholly or partially based on electricity, or where the propulsion system is based on internal combustion engines that can use approved alternative fossil fuels such as liquefied petroleum gas (LPG, autogas) or compressed natural gas (CNG).

Amount	2018: the budget for the exclusive purchase of new electric vehicles is €90,000. Maximum limit: • €5,000 for pure electric M1 and N1 electric vehicles with a minimum range of 150 km.
Body responsible	Regional Department of Economy and Finance
Regulation	*ORDER EYH/1089/2018 of 8 October 2018, approving the regulatory framework for grants intended for the purchase of new energy vehicles in Castile and Leon.* *Order of 7 November 2018 by the Regional Department of Economy and Finance announcing grants intended for the purchase of new energy vehicles in Castile and Leon for the financial year 2018.*
Fuel	Electricity natural gas and LPG
Link	http://bocyl.jcyl.es/boletines/2018/10/17/pdf/B0CYL-D-17102018-4.pdf http://bocyl.jcyl.es/boletines/2018/11/14/pdf/B0CYL-D-14112018-5.pdf

Measure M.7.2	2019. Proposal for a new regional income tax deduction for the purchase of electric vehicles.
Amount	The maximum amount of the reduction will be €4,000 and its application will be subject to meeting certain conditions.
Body responsible	Regional Department of Economy and Finance
Regulation	*Regulation in process — Bill on tax, financial and administrative measures awaiting approval.*
Fuel	Electricity
Link	*Regulation awaiting approval.*

Measure M.7.3	2019. MOVES Programme aid — Castile and Leon
Amount	€2,229,768.20

Body responsible	Regional Department of Economy and Finance.
Regulation	*EXTRACT from the Order of 15 April 2019 by the Regional Department of Economy and Finance announcing grants within the programme of incentives for efficient and sustainable mobility (MOVES Programme).*
Fuel	All
Link	http://bocyl.jcyl.es/boletines/2019/04/16/pdf/B0CYL-D-16042019-10.pdf

CATALONIA

Measure M.8.1	2017. Climate Change Act, which lays down that measures adopted on transport and mobility must be aimed at: • promoting improvement in the energy efficiency of the vehicle fleet and energy diversification through economic and administrative incentives for both producers and consumers; • creating technical and management conditions that enable the integration and intermodality of the various modes of transport in order to encourage the modes that use fossil fuels less intensely; • promoting free parking zones for vehicles that use renewable energy until these reach 80% of the vehicle fleet; • ensuring that the electricity infrastructure has enough capacity to meet the additional demand for electricity that the transition towards electric vehicles will result in; along these lines, the energy plans must incorporate the objectives that 100% of the public fleet of the Catalan Government should be electric by 2030 and that 30% of replacements in the vehicle fleet should be electric by 2025; • promoting the necessary measures in the automotive sector so that, from 2030, no new motor vehicles will be internal combustion ones; • reducing dependence on fossil fuels by 50%, especially dependence on fuels derived from oil in the areas of road transport, freight ports and marinas, between now and 2040; • with regard to port infrastructure, developing a plan for progressive electrification of the main ports in order to provide a shore-side connection to the electricity grid for moored boats.
Amount	-
Body responsible	Regional Department of Land and Sustainability

Regulation	*Act 16/2017 of 1 August on climate change*
Fuel	Electricity
Link	https://www.boe.es/buscar/pdf/2017/B0E-A-2017-11001-consolidado.pdf

Measure M.8.2	2018. Aid for the purchase of vehicles for use as taxis.
Amount	Total amount: €300,000 By segment: - category M1 pure electric vehicles, extended range electric vehicles (EREVs) or plug-in hybrid vehicles with a minimum range of 40 km: €4,000; - category M1 hybrid petrol vehicles with emissions below or equal to 60 mg NOx/km (Euro 6 or better), or which use LPG or natural gas or are bi-fuel €1,000. - category N1 pure electric vehicles, extended range electric vehicles (EREVs) or plug-in hybrid vehicles with a minimum range of 40 km: €4,500. - category N1 vehicles powered by LPG, natural gas, or bi-fuel petrol engines: €1,200.
Body responsible	Regional Department of Land and Sustainability
Regulation	*DECISION TES/910/2018 of 18 April 2018, calling for applications for grants to promote the purchase of electric and low-emission vehicles for taxi service, commercial use and other services, which operate in special protection areas for the atmosphere, for 2018.*
Fuel	Electricity, natural gas and LPG
Link	http://dogc.gencat.cat/es/pdogc_canals_interns/pdogc_resultats_fitxa/index.html?action=fitxa&documentId=816843&newLang=es_ES

Measure M.8.3	2018. Aid for installations of public-access rapid charging for electric vehicles requested by public administrations (local authorities).
Amount	Total amount: €864,750.

	100% aid up to a maximum of €40,000 for the eligible spending per 50 kW fast charging station.
Body responsible	CATALAN ENERGY INSTITUTE (ICAEN)
Regulation	*DECISION EMC/1626/2018 of 6 July 2018 opening the call for applications for awarding grants for the installation of charging facilities for electric vehicles in the framework of the action plan for the roll-out of charging facilities for electric vehicles in Catalonia (PIRVEC 2016-2019).*
Fuel	Electricity
Link	http://icaen.gencat.cat/es/energia/ajuts/icaen-installacio-dinfraestructures-de-recarrega-per-al-vehicle-electric-2018/

Measure M.8.4	2019. MOVES Programme aid — Catalonia
Amount	Total: €7,300,768 Per line: • purchase of new energy vehicles: €3,247,095 • deployment of charging infrastructure for electric vehicles: €3,102,780 • deployment of electric bicycle loan systems: €360,788 • implementation of measures contained in plans on transport to work in companies: €505,103
Body responsible	CATALAN ENERGY INSTITUTE (ICAEN)
Regulation	Aid for natural persons: *DECISION EMC/1322/2019 of 14 May 2019 announcing the 2019 call for applications for grants under the programme of incentives for efficient and sustainable mobility intended for natural persons (MOVES Programme)*
Fuel	All
Link	https://portaldogc.gencat.cat/utilsEAD0P/PDF/7878/1744053.pdf

Measure M.9.1	2017. Aid to sole traders and SMEs for modernisation of the van and light van fleet with highly energy-efficient models that consume less fuel and emit less CO_2 and NOx.
Amount	€1,000,000 By type: • Tranche I: €6,000/vehicle. N1 vehicles with emissions below or equal to 80 g CO_2/km and 60 mg NOx/km. • Tranche II: €3,000/vehicle. Vehicles not included in Tranche I, with emissions below or equal to: 160 g CO_2/km. 80, 105 or 125 mg NOx/km, depending on whether they are classified as N1 class I, class II or class III vehicles, respectively. • Tranche III: €2,000/vehicle. Vehicles not included in Tranches I and II, with emissions below or equal to: 200 g CO_2/km; 80, 105 or 125 mg NOx/km, depending on whether they are classified as N1 class I, class II or class III vehicles, respectively.
Body responsible	Regional Department of the Environment and Land Use Planning
Regulation	*EXTRACT of Order 2390/2017 of 1 August 2017 issued by the Regional Department of Environment, Administration and Land Use Planning, announcing the 2017 call for applications for the granting of aid for the purchase of efficient light commercial, auxiliary and service vehicles.*
Fuel	All
Link	http://www.bocm.es/boletin/CMOrden B0CM/2017/09/01/B0CM-20170901-9.PDF

Measure **M.9.2**	2017. Incentives for modernisation of the fleet of vehicles intended to be taxis, with highly energy-efficient models that consume less fuel and emit less CO_2 and NOx.
Amount	€1,000,000 By type: • Tranche I: vehicles with emissions below or equal to 80 g CO_2/km and 60 mg NOx/km: €6,000/vehicle. • Tranche II: vehicles with emissions below or equal to 120 g CO_2/km and 80 mg NOx/km, not included in Tranche I: €2,000/vehicle. • Tranche III: vehicles with emissions below or equal to 160 g CO_2/km and 80 mg NOx/km, not included in Tranches I and II: €1,000/vehicle. • Tranche IV: vehicles belonging to the Eurotaxi category, adapted for persons with reduced mobility, with emissions below or equal to 180 g CO_2/km and 120 NOx/km: €2,000/vehicle not included in tranches I, II and III.

Body responsible	Regional Department of the Environment and Land Use Planning
Regulation	*EXTRACT of Order 2389/2017 of 1 August 2017 issued by the Regional Department of Environment, Administration and Land Use Planning, approving the 2017 call for applications for aid for the purchase of efficient vehicles for use as taxis.*
Fuel	All
Link	http://www.bocm.es/boletin/CM_Orden B0CM/2017/09/01/B0CM-20170901-8.PDF

Measure M.9.3	2017. Establishment of the Regional Electric Vehicle Committee Coordinated by the Madrid Commissioner for Climate Change, the Committee is made up of representatives of the Regional Department of the Environment, Directorate-General for Industry, Energy and Mines, Directorate-General for Transport, IDAE (Institute for Energy Saving and Diversification), the Ministry of Economy and Business, Madrid City Council, the Spanish Association of Car Manufacturers (ANFAC), the Business Association for the Development and Promotion of the Electric Vehicle (AEDIVE), AECIM (Madrid Association of Metal Companies), AEESCAM (Madrid Association of Filling Station Businesspeople), AER (Spanish Retail Association), AUVE (Association of Electric Vehicle Users), CITET (Innovation Centre for Logistics and Freight Transport).
Amount	-
Body responsible	Regional Department of the Environment and Land Use Planning
Regulation	
Fuel	Electricity
Link	-

Measure M.9.4	2018. Grants to natural persons who are sole traders and SMEs for the purchase of efficient commercial, ancillary and service vehicles
Amount	Total: €1,000,000 By category: Category N1 vehicles: • zero emission vehicles: €8,000/vehicle; • clean air vehicles: €3,000/vehicle. Category N2 vehicles:

	• zero emission vehicles: €10,000/vehicle; • clean air vehicles: €4,000/vehicle; • Spanish C-label vehicles: €2,000/vehicle.
Body responsible	Regional Department of the Environment and Land Use Planning
Regulation	*Order 3222/2014 of 22 December 2014 by the Regional Department of the Environment and Land Use Planning, laying down the regulatory framework for granting aid for the purchase of efficient* *light commercial, ancillary and service vehicles, amended by Order 322/2018 of 13 February 2018.* *Order 877/2018* *of 11 September 2018 by the Regional Department of the Environment and Land Use Planning, approving the 2018 call for applications for aid for the purchase of efficient commercial, ancillary and service vehicles.*
Fuel	All
Link	https://www.bocm.es/boletin/CM_Orden B0CM/2018/09/24/B0CM-20180924-11.PDF

Measure M.9.5	2018. Programme PIAM 2018 (Madrid Plan for Taxi Incentives) of aid for the purchase of new energy vehicles for use as taxis.
Amount	Total amount: €1,000,000 By type: • Zero emission vehicles: €8,000/vehicle. • clean air vehicles: €2,000/vehicle. • Vehicles belonging to the Eurotaxi category, adapted for persons with reduced mobility, not included in Tranche I and classified as clean air vehicles: €3,000/vehicle.
Body responsible	Regional Department of the Environment and Land Use Planning
Regulation	*Order 323/2018 of 13 February 2018 amending Order 2157/2013 of 23 September 2013 by the Regional Department of the Environment and Land Use Planning, laying down the regulatory framework for granting aid for the purchase of efficient vehicles for use as taxis.* *EXTRACT from Order 878/2018 of 11 September 2018 by the Regional Department of the Environment and Land Use Planning, approving the*

	2018 call for applications for aid for the purchase of efficient vehicles for use as taxis.
Fuel	All fuels
Link	http://www.bocm.es/boletin/CM_Orden_B0CM/2018/03/02/B0CM-20180302-25.PDF http://www.bocm.es/boletin/CM_Orden_B0CM/2018/09/24/B0CM-20180924-12.PDF

Measure **M.9.6**	2018. Grants intended for the deployment of charging infrastructure (conventional, semi-fast, fast and ultra-fast charging) for electric vehicles for town and city councils, local regional bodies, local public business entities, publicly-owned local commercial companies, businesses, sole traders, natural persons and residents' associations.
Amount	Total amount of the measure: €1,500,000 • 60% of the eligible investment for town and city councils, local regional bodies, local public • business entities, local commercial companies whose share capital is publicly-owned; • 50% of the eligible investment for natural persons and residents' associations; • 40% of the eligible investment for companies, sole traders and other legal persons. The maximum aid limit will be €50,000 per project and €100,000 per beneficiary.
Body responsible	Regional Department of Economy, Employment and Finance
Regulation	*AGREEMENT of 9 October 2018 of the Governing Council approving the regulatory framework and laying down the procedure for the direct granting of aid to install charging facilities for electric vehicles in Madrid.*
Fuel	Electricity
Link	https://www.bocm.es/boletin/CM_Orden_B0CM/2018/10/19/B0CM-20181019-18.PDF

Measure M.9.7	2018. Aid to natural persons for the purchase of M1 vehicles powered by LPG, LNG, CNG or bi-fuel (petrol and gas), BEVs, EREVs, PHEVS and fuel cell vehicles, and exclusively electric motorcycles (L-category).
Amount	€2,000,000
Body responsible	Regional Department of Economy, Employment and Finance
Regulation	*Order of 29 November 2018 by the Regional Department of Economy, Employment and Finance approving the regulatory framework for the granting of aid by the Energy Foundation of the Community of Madrid for the development of the Sustainable Urban Mobility Plan (Plan MUS).* *EXTRACT of 7 December 2018 of the Order by the Regional Department of Economy, Employment and Finance calling for applications for the granting of aid to incentivise the purchase in the Community of Madrid of vehicles using alternatives to conventional fuels through the Sustainable Urban Mobility Plan (Plan MUS).*
Fuel	Electricity, LGP, CNG, LNG, hydrogen
Link	https://www.bocm.es/boletin/CM Orden B0CM/2018/12/07/B0CM- 20181207-22.PDF http://w3.bocm.es/boletin/CMOrden B0CM/2018/12/12/B0CM-20181212-24.PDF

Measure **M.9.8**	2019. MOVES Programme aid — Community of Madrid
Amount	Total amount: €6,287,521 • Purchase of new energy vehicles: €3,143,760 (of which €157,188 to heavy vehicles powered by LPG or NG). • Deployment of charging infrastructure for electric vehicles: €2,515,008. • Implementation of measures contained in plans on transport to work in companies: €314,376.
Body responsible	Regional Department of the Environment and Land Use Planning
Regulation	*Moves Madrid Plan*
Fuel	All

Link	*Measure 1: http://www.bocm.es/bocm-20190416-38?ajax_popup=1* *Measure 2: http://www.bocm.es/bocm-20190416-37?ajax_popup=1* *Measure 4: http://www.bocm.es/bocm-20190416-35?ajax_popup=1*

COMMUNITY OF VALENCIA

Measure M.10.1	2017. The plan to promote electric vehicles and roll out the charging infrastructure in the Community of Valencia which sets the following objectives: (A) With regard to the penetration of electric vehicles by 2030: - 0.6% penetration of electric vehicles by 2020 (20,300 electric vehicles); - 2.2% penetration of electric vehicles by 2025 (78,100 electric vehicles); - 7.0% penetration of electric vehicles by 2030 (260,000 electric vehicles). These objectives for penetration assume that in 2030 the market share of electric vehicles will be 25% of all vehicles sold in the Community of Valencia. (B) With regard to the charging infrastructure associated with electric vehicles by 2030: - by 2020: 105 fast charging points and 350 semi-fast charging points; - by 2025: 210 fast charging points and 950 semi-fast charging points; - by 2030: 270 fast charging points and 2,100 semi-fast charging points.
Amount	Total investment 2017-2030: €5,765,700,000 (including private and public investment). Economic incentives proposed for: - For electric vehicles: • Up to €100,000 for the procurement of electric buses and €50,000 for hybrids with energy storage in batteries. • Up to €6,000 for passenger vehicles and commercial light vans. Priority will be given to BEV-type electric vehicles; if this aid is applied for to purchase a PHEV-type vehicle, its range must exceed 40 km. • Between €1,600 and €2,000 for quadricycles, between €400 and €750 for mopeds and motorcycles and a maximum of €300 for the purchase of electric bicycles.

	- For the deployment of charging points the following aids and allowances are provided for: • up to a maximum of €2,000 aid for slow charging points; • up to €10,000 aid for semi-fast charging points; • a maximum of €25,000 aid for fast charging points.
Body responsible	IVACE (Valencian Institute of Business Competitiveness)
Regulation	*Plan to promote electric vehicles and roll out the charging infrastructure in the Community of Valencia*
Fuel	Electricity
Link	http://www.ivace.es/images/energia/oculto/Pla_vehicle_electric_definitiu.pdf

Measure M.10.2	2017. Aid for public or private companies and bodies for the installation of charging facilities for electric vehicles. 2018. Aid for public or private companies and bodies for the installation of charging facilities for electric vehicles. 2019. Aid for public or private companies and bodies for the installation of charging facilities for electric vehicles.
Amount	2017: €500,000 2018: €778,500 2019: €850,000 TOTAL: €2,128,500 Amount of aid: this should not exceed 40% of the eligible cost of the project (this may be increased by up to 10 percentage points for aid to medium enterprises, by up to 20 percentage points for aid to small enterprises and by up to 40 percentage points for aid for non-economic activities undertaken by town and city councils, public bodies and not-for-profit bodies and institutions). Maximum aid amounts: • Fast charging station: max. €36,000 • Semi-fast charging station: max. €12,000 • Private charging station: max. €3,200

Body responsible	IVACE
Regulation	*Order 9/2017 of 5 May 2017 by the Regional Department of Sustainable Economy, Productive Sectors, Trade and Work laying down the regulatory framework for the granting of aid by the Valencian Institute of Business Competitiveness (IVACE) with regard to energy savings and efficiency. (DOGV 8.035 of 9.5.2017)* *DECISION of 7 June 2017 by the chair of the Valencian Institute of Business Competitiveness (IVACE) calling for applications for aid for the installation of charging facilities for electric vehicles. (DOGV 8.064 of 16.6.2017)* *DECISION of 15 January 2018 by the chair of the Valencian Institute of Business Competitiveness (IVACE) calling for applications for aid for the installation of charging facilities for electric vehicles. (DOGV 8218 of 23.1.18) and later budget increase (DOGV 8338 of 13.7.18)* *DECISION of 15 April 2019 by the chair of the Valencian Institute of Business Competitiveness (IVACE) calling for applications for aid for the installation of charging facilities for electric vehicles to be charged to the budget for the 2019 financial year. (DOGV 8531 of 17.4.19)*
Fuel	Electricity
Link	http://www.dogv.gva.es/datos/2017/05/09/pdf/2017_3881.pdf http://www.dogv.gva.es/datos/2017/06/16/pdf/2017_5362.pdf http://www.dogv.gva.es/datos/2018/01/23/pdf/2018_542.pdf http://www.dogv.gva.es/datos/2019/04/17/pdf/2019_3971.pdf

Measure M.10.3	2017. Aid for the purchase of electric vehicles or vehicles powered by alternative fuels. 2018. Aid for the purchase of electric vehicles or vehicles powered by alternative fuels. 2019. Aid for the purchase of electric vehicles or vehicles powered by alternative fuels.
Amount	2017: €750,000 2018: €1,000,000 2019: €2,000,000

	TOTAL: €3,750,000 This is an initiative (code T27A) within the call for applications for aid for sustainable mobility projects that IVACE makes available to companies and agencies of the Autonomous Community of Valencia. The foregoing budget is for the whole call for applications being, statistically, the budget of which the T27A initiative makes up 50%. This aid is restricted to the procurement of vehicles intended for urban public transport services; consequently, the beneficiaries can only be public administrations or public service concession holders. Aid amount: 40% of the eligible cost for large enterprises and 50% of the eligible cost for town and city councils, SMEs and local authorities, with a limit of €200,000/project and the following maximum limits per vehicle: • buses: electric, fuel cell or hydrogen: €100,000; • hybrid buses (two fuel sources) with battery storage: €50,000; • natural gas buses: €12,000; • passenger cars: electric, fuel cell or hydrogen: €6,000; • natural gas passenger cars: €2,000; • electric mopeds: €400; • electric motorcycles: €750; • electric light quadricycles: €1,600; • electric heavy quadricycles: €2,000; • electric bicycles: €300; • electrically charged tricycles: €1,500.
Body responsible	IVACE
Regulation	*Order 9/2017 of 5 May 2017 by the Regional Department of Sustainable Economy, Productive Sectors, Trade and Work laying down the regulatory framework for the granting of aid by the Valencian Institute of Business Competitiveness (IVACE) with regard to energy savings and efficiency. (DOGV 8.035 of 9.5.2017)* *DECISION of 24 May 2017 by the chair of the Valencian Institute of Business Competitiveness (IVACE) calling for applications for aid relating to sustainable mobility, to be charged to the budget for the 2017 financial year. (DOGV 8054 of 2.6.2017)* *Decision of 21 February 2018 by the chair of the Valencian Institute of Business Competitiveness (IVACE) calling for applications for aid relating to sustainable mobility, to be charged to the budget for the 2018 financial year. (DOGV No 8246 of 2/3/2018)* *DECISION of 25 March 2019 by the chair of the Valencian Institute of Business Competitiveness (IVACE) calling for applications for aid relating to sustainable mobility, to be charged to the budget for the 2019 financial year, co-financed by the European Union through the European Fund for Regional Development. (DOGV No 8523 of 5/4/2019)*

Fuel	Electricity, natural gas and hydrogen
Link	http://www.dogv.gva.es/datos/2017/05/09/pdf/2017_3881.pdf http://www.dogv.gva.es/datos/2017/06/02/pdf/2017_4833.pdf http://www.dogv.gva.es/datos/2018/03/02/pdf/2018_2122.pdf http://www.dogv.gva.es/datos/2019/04/05/pdf/2019_3469.pdf

Measure M.10.4	2017. Establishment of an Electric Mobility Committee of the Autonomous Community of Valencia to encourage public and business participation in proposals for legislative measures and in decision-making with regard to electric mobility.
Amount	No financial allocation
Body responsible	IVACE
Regulation	*Electric Mobility Committee*
Fuel	Electricity
Link	-

Measure M.10.5	2019. MOVES Programme aid — Community of Valencia
Amount	Total amount: €4,774,698
Body responsible	IVACE
Regulation	*Extract from the decision of 16 April 2019 by the chair of the Valencian Institute of Business Competitiveness (IVACE) calling for applications for aid for the purchase of new energy vehicles within the programme of incentives to efficient and sustainable mobility to be charged to the budget for the 2019 financial year (MOVES-Vehicles Programme of the Autonomous Community of Valencia), and calling for applications for membership from dealers and points of sale of those vehicles [2019/4586]*
Fuel	All
Link	http://www.dogv.gva.es/datos/2019/05/07/pdf/2019_4586.pdf

EXTREMADURA

Measure M.11.1	2018. Strategy towards the horizon of 2030 to promote electric vehicles, which includes the following objectives: • 8,280 charging points connected, 189 charging stations for public use (22 for fast charging) and 220 private charging stations for restricted or unrestricted public use. (€10 million) • Objective by 2030: 10% of new registrations to be electric with a fleet of 9,200 electric vehicles. (€218.4 million) • Mobilisation of €6 million for business projects, training and RDI (€6.4 million) • Governance: improve the coordination and monitoring of initiatives by the regional and local governments (€750,000)
Amount	€235.51 million
Body responsible	Directorate-General for Industry, Energy and Mines
Regulation	*Regional Strategy for the promotion of electric vehicles in Extremadura. Horizon 2018-2030*
Fuel	Electricity
Link	http://industriaextremadura.juntaex.es/kamino/index.php/vehiculo-electrico-extremadura
Measure M.11.2	2019. Draft decree laying down the regulatory framework for public subsidies intended for initiatives to promote electric mobility in Extremadura. The initiatives to subsidise will be: a) the preparation of new sustainable urban mobility plans that promote, among other measures, the integration of electric vehicles in local authorities; b) the purchase of pure electric vehicles (battery electric vehicles, BEVs); c) the installation of charging stations for electric vehicles; d) initiatives with shared infrastructure in car parks or shared parking areas of existing buildings that enable the installation of charging stations for electric vehicles.
Amount	Not yet specified.
Body responsible	Directorate-General for Industry, Energy and Mines
Regulation	Under way. *DECREE XX/2019 of XX of XXXX laying down the regulatory framework for public subsidies intended for initiatives to promote electric mobility in the area of the Autonomous Community of Extremadura.*
Fuel	Electricity
Link	http://gobiernoabierto.juntaex.es//transparencia/filescms/web/uploaded_files/20190402movielec/Borrador_Decreto_Movilidad_Electrica.pdf

GALICIA

Measure M.12.1	2019. MOVES Programme aid — Galicia
Amount	Total amount: €2,616,913 • Purchase of new energy vehicles: electric: €1,178,456, LPG/NG €130,000. • Deployment of charging infrastructure for electric vehicles: €524,256 for fast and ultrafast and €523,200 for other charging systems. • Implementation of electric bicycle loan systems, €131,000. • Implementation of measures contained in plans on transport to work in companies, €130,000.
Body responsible	Galician Energy Institute (INEGA)
Regulation	*DECISION of 10 April 2019 approving the call for applications to the procedure for the granting of aid corresponding to the national programme of incentives for efficient and sustainable mobility (MOVES Programme). 2019 Annual Allocation.*
Fuel	All
Link	https://www.xunta.gal/dog/Publicados/2019/20190416/AnuncioG0474-120419-0001_es.html

BALEARIC ISLANDS

Measure M.13.1	2018. Aid for the promotion of charging infrastructure for electric vehicles.
Amount	€1,900,000 By type of beneficiary: • driverless car rental companies: €800,000; • tourist accommodation services companies: €800,000; • vehicle repair workshops: €200 000; • other companies: €100,000.
Body responsible	Regional Department of Land, Energy and Mobility

Regulation	*Decision by the Regional Minister for Land, Energy and Mobility of 4 June 2018 approving the public call for applications for subsidies to promote the electric vehicle charging infrastructure aimed at car rental companies, tourism establishments, vehicle repair workshops and other companies.*
Fuel	Electricity
Link	http://www.caib.es/eboibfront/es/2018/10831/610228/resolucio-del-conseller-de-territori-energia-i-mob?&idEnviament=610228&mode=view&numero=10831

Measure M.13.2	2018. Aid for the installation of fast-charging facilities for public use in the various districts (8) in the Balearic Islands.
Amount	€6,000,000 between 2019 and 2022
Body responsible	Regional Department of Land, Energy and Mobility
Regulation	Call for applications for subsidies for the installation of fast-charging facilities for electric vehicles, within the framework of the Balearic Islands tourist tax (Call for applications by lot).
Fuel	Electricity
Link	http://www.caib.es/govern/sac/fitxa.do?codi=3610334&coduo=2390767&lang=es

Measure M.13.3	2018. Aid to promote the installation of fast and semi-fast electric vehicle charging points for public use and for the adaptation of current management systems for charging points in order for them to function with the MELIB (Electric Mobility for the Balearic Islands) network.
Amount	€4,000,000 between 2019 and 2020
Body responsible	Regional Department of Land, Energy and Mobility
Regulation	Call for applications for subsidies for the installation of electric vehicle charging facilities in publicly accessible places, within the framework of the Balearic Islands tourist tax.
Fuel	Electricity
Link	http://www.caib.es/govern/sac/fitxa.do?codi=3610427&coduo=2390767&lang=es

Measure M.13.4	2018. Aid to promote the installation of new public charging points for electric vehicles in the framework of the Balearic Islands tourist tax.
Amount	€2,100,000 between 2019 and 2022
Body responsible	Regional Department of Land, Energy and Mobility
Regulation	Call for applications for subsidies to establish new electric vehicle charging facilities intended for the public administration and its accountable public bodies, within the framework of the Balearic Islands tourist tax.
Fuel	Electricity
Link	http://www.caib.es/govern/sac/fitxa.do?codi=3610401&coduo=2390767&lang=es

Measure M.13.5	2018. Aid to promote low-emission electric, plug-in hybrid, CNG- and LPG-powered VTCs (transport vehicles with drivers) and taxis.
Amount	€300,000
Body responsible	Regional Department of Land, Energy and Mobility
Regulation	Decision by the Regional Minister for Land, Energy and Mobility of 21 December 2018 approving by way of the advance spending procedure the public call for applications for subsidies for the purchase of low-emission electric, plug-in hybrid, CNG- and LPG-powered transport vehicles with drivers (VTCs) and taxis.
Fuel	Electricity, CNG, LPG
Link	http://www.caib.es/govern/sac/fitxa.do?codi=2319379&coduo=2390767&lang=es

Measure M.13.6	2019. Climate Change Act that includes measures aimed at mitigation of and adaptation to climate change in the Balearic Islands, as well as transition to a sustainable, decarbonised and efficient energy model. With regard to sustainable mobility, the following measures stand out: • the promotion of sustainable mobility by all the public administrations and workplaces of the Balearic Islands;

	• replacement of the institutional fleet: by 2035, zero-emission vehicles must make up 30% of the institutional fleet and 100% of new registrations; • public administrations will only be able to invite tenders for zero-emission vehicles; • development of electrical charging points: a binding objective is laid down for 1,000 points by 2025; • reservation of parking spaces exclusively for zero-emission vehicles in public spaces and private spaces for public use; • an obligation that by 2050, only zero-emission vehicles will be on the road; • the possibility of restricting the entry to the islands and use of vehicles that exceed air quality limits set within the framework of national legislation on air quality and atmospheric protection; • collaboration with the national authorities to achieve a reduction in emissions and a reduction in vulnerability to climate change in the areas of shipping and air transport.
Amount	-
Body responsible	Regional Department of Land, Energy and Mobility
Regulation	*Climate Change Act*
Fuel	All
Link	http://www.caib.es/eboibfro nt/cercar

Measure M.13.7	2019. MOVES Programme aid — Balearic Islands
Amount	Total amount: €1,078,326 Action 1. Purchase of new energy vehicles: €539,163.15 From this budget, a maximum of €50,000 will be allocated to the purchase of vehicles powered by LPG or natural gas, and €60,000 to the purchase of plug-in hybrid vehicles (PHEVs). Action 2. Deployment of charging infrastructure for electric vehicles: €323,497.89 From this budget, a minimum of €200,000 will be allocated to fast and ultra-fast charging points. Action 3. Deployment of electric bicycle loan systems: €161,748.95 Action 4. Implementation of measures in plans on transport to work in companies: €53, 916.31

Body responsible	Regional Department of Land, Energy and Mobility
Regulation	Decision by the Regional Minister for Land, Energy and Mobility of 12 April 2019 approving the public call for applications for subsidies for actions to support efficient and sustainable mobility (MOVES Programme)
Fuel	All
Link	https://www.caib.es/eboibfront/es/2019/10970/seccion-iii-otras-disposiciones-y-actos-administra/472

RIOJA

Measure M.14.1	2017. 15% discount on the purchase of new electric vehicles.
Amount	15% discount
Body responsible	Regional Department of Agriculture, Livestock and the Environment
Regulation	Act 10/2017 of 27 October 2017 consolidating the legal provisions of the Autonomous Community of Rioja with regard to regional and assigned taxes — Official Gazette of Rioja, 30.10.2017. Article 32(7) Discount on the purchase of new electric vehicles.
Fuel	Electricity
Link	https://www.larioja.org/tributos/en/tributos-cedidos/impuesto-renta-personas-fisicas/novedades-renta-2014/declaracion-irpf-2018

Measure M.14.2	2018. Subsidy for 2018 for town and city councils with fewer than 25,000 inhabitants for the installation of semi-fast charging points for public use, which must be located in public spaces classified as Rioja development land and be freely accessible. The aid is between €4,000 and €12,000 depending on the type of charging point.
Amount	€150,000
Body responsible	Regional Department of Agriculture, Livestock and the Environment

Regulation	*Order AGR/43/2018 of 28 June 2018, approving the regulatory framework of the aid to promote sustainable mobility projects in local authorities.*
Fuel	Electricity
Link	https://www.larioja.org/oficina-electronica/es?web=000&proc=24477#tab2

MELILLA

Measure **M.15.1**	2019. MOVES Plan — City of Melilla
Amount	Total amount: €83,212 • Purchase of new energy vehicles: €41,606 • Deployment of charging infrastructure for electric vehicles: €37,445 (50% to be allocated to fast and ultra-fast charging points) • Deployment of electric bicycle loan systems: €4,160
Body responsible	Regional Department of Coordination and the Environment
Regulation	*Decision No 644 dated 11 April 2019 with regard to approval of the regulatory framework for the call for applications for the programme of incentives for efficient and sustainable mobility (MOVES Programme) of the Autonomous City of Melilla.*
Fuel	All
Link	http://www.melilla.es/melillaPortal/contenedor.jsp?seccion=ficha_bome.jsp&dboidboletin=251869&codResi=1 &language=es&codAdirecto=15

NAVARRE

Measure M.16.1	2017. Regional Act 16/2017 of 27 December 2017 which amends various taxes and other tax measures, and lays down tax deductions for investments in the installation of charging points and in pure and plug-in hybrid electric vehicles.
Amount	Deduction of: - 30% for the purchase of an electric vehicle - 5% for the purchase of a plug-in hybrid vehicle - 15% for installation of a charging point
Body responsible	Regional Department of Finance and Financial Policy

Regulation	*Regional Act 16/2017 of 27 December 2017 amending various taxes and other tax measures*
Fuel	Electricity
Link	http://www.lexnavarra.navarra.es/detalle.asp?r=39720

Measure M.16.2	2017. 2017 aid to local authorities with fewer than 20,000 inhabitants for the purchase of pure electric vehicles and the installation of charging points
Amount	Line of transfers to local authorities to promote electric vehicles: €100,000
Body responsible	Directorate-General for Industry, Energy and Innovation
Regulation	*DECISION 9E/2017 of 10 March 2017 by the Director-General for Industry, Energy and Innovation approving the 'Call for applications for aid to local authorities for the promotion of energy efficiency, the implementation of renewable energy and the promotion of electric mobility'.*
Fuel	Electricity
Link	http://www.navarra.es/homees/Actualidad/B0N/Boletines/2017/64/Anuncio-27/

Measure M.16.3	2017. Initiative to promote electric, autonomous and connected vehicles in Navarre. This revolves around 4 priorities for action: 1. Sustainable mobility: ○ project to promote a power line specifically for electric buses in Pamplona; ○ project to promote hybrid and/or electric taxi fleets; ○ Implementation of sustainable mobility plans for companies 2. Charging infrastructure: ○ analysis of the location of public fast charging points; ○ development of smart charging systems and associated ICT solutions for fleets; ○ project to develop a model for charging in communities and for users without parking spaces. 3. Industrial opportunities:

	○ RDI projects for the development of specific modules such as a motorised wheel module and an efficient air conditioning system. 4. Pioneer territory: ○ definition of tax incentives for the purchase of electric vehicles and the installation of charging infrastructure; ○ creation of a national benchmark technology centre focused on automation and mechatronics.
Amount	
Body responsible	Directorate-General for Industry, Energy and Innovation
Regulation	*Initiative to promote electric, autonomous and connected vehicles*
Fuel	Electricity
Link	http://www.sodena.com/images/noticias/2017.12.15%20-%20Plan%20de%20Accin%20y%20Gobernanza_resumen.pdf

Measure M.16.4	2018. The Horizon 2030 Energy Plan for Navarre compiles the mobility plans of different regional departments and local authorities in the Autonomous Community of Navarre and, among other lines of action, lays down promotion of the change in transport towards 'ultra-low emission vehicles', increasing the use of renewable energy and reducing polluting emissions. The main objectives with regard to sustainable mobility are: - progressively reduce the consumption of fossil fuels in transport by 20% *by 2030*; - install and keep in operation 200 charging points with power < 22 kW and 20 points of > 22 kW accessible to the public *by 2030*; - through annual replacements, make 50% of the administration's fleet electric vehicles *by 2030*; - purchase a minimum of 50% of electric vehicles in the annual replacements of the regional and local public administrations' fleet of light vehicles; - provide toll discounts on the A-15 motorway; - provide free parking for electric passenger cars; - incorporate electric buses in urban transport and other electric heavy-duty vehicles in the public services; - incorporate electric or plug-in hybrid taxis and set out a plan for installing electric charging points for the taxi sector; - facilitate the installation of linked charging points in neighbourhood communities, companies, shopping centres, etc. through an agreement with the electricity suppliers.

	For the roll-out of charging points: - subsidise the installation of single-phase 7.4 kW or tri-phase 22 kW charging points only; - fast charging points must be capable of supplying 50 kW direct current by means of multi-standard chargers (CHAdeMO + CCS + 43 kW AC); - co-payment for charging points: grants for the installation of the charging points, or pay part of the high monthly bill for the power terminal.
Amount	
Body responsible	Directorate-General for Industry, Energy and Innovation
Regulation	*Navarre Energy Plan Horizon 2030*
Fuel	Electricity
Link	http://www.navarra.es/NR/rdonlyres/9F32A10F-A290-4F13-842D-90E799CA5ABA/403478/PEN2030DEFINITIV020171226comprimido.pdf

Measure M.16.5	2018. Regional Bill amending the Taxis Act that lays down that municipalities with a population greater than 20,000 inhabitants must ensure that vehicles given taxi licences from 1 January 2022 have the zero emissions or the ECO environmental label in accordance with the classification of the Directorate-General for Transport.
Amount	
Body responsible	Directorate-General for Public Works
Regulation	*Regional Bill amending Regional Act 9/2005 of 6 July 2005 on Taxis.*
Fuel	All
Link	https://gobiernoabierto.navarra.es/es/participacion/procesos/anteproyecto-ley-foral-modificacion-ley-foral-92005-6-julio-del-taxi

Measure M.16.6	2019. Bill laying down a regulatory, institutional and enabling framework to facilitate mitigation of and adaptation to climate change, and transition towards a low-carbon energy model based on renewable energy. With regard to sustainable mobility, this Bill lays down the following:

	• The preparation of urban or district Mobility Plans that include measures to boost sustainable urban mobility. • Transition to electric vehicles in public road transport. The vehicles used for public urban and interurban road transport will be gradually replaced by electric vehicles. The transition process should ensure that 50% of the fleet is electric by 2030, arriving at 100% by 2050. • Companies for the public transport of goods by road should adopt the necessary measures for the progressive replacement of the most polluting vehicles. • The Government will promote this transformation through coverage of the territory with charging facilities, campaigns, grants and tax benefits for the purchase and use of electric vehicles by both individuals and companies. In particular, the replacement of taxi, public transport service and company fleets, the use of which is very intensive, will be promoted. • Municipalities must reserve free or reduced-cost spaces for electric vehicles in public parking zones, until the electric fleet is in the majority. • All local authorities with more than 1,000 inhabitants must install at least one charging point for every thousand inhabitants in their municipal districts within the period of one year following approval of this Regional Act. Charging may be offered free of charge while there are no managed systems in the same road. • Within the period of two years following approval of this Regional Act, public administrations and connected public bodies must install charging points in the premises of public services that have more than ten vehicles in their fleet. • With effect from one year following approval of this Regional Act, 100% of new vehicles acquired by the Autonomous Community's administrations must be zero-emission vehicles.
Amount	
Body responsible	Directorate-General for the Environment and Water
Regulation	*REGIONAL BILL on Climate Change and Transition of the Energy Model. Ongoing.*
Fuel	All
Link	http://gobiernoabierto.navarra.es/sites/default/files/proyecto_de_ley_foral.pdf

BASQUE COUNTRY

Measure M.17.1	2017. Development of the Basque Country Master Plan for Sustainable Transport 2030 which lays down the guidelines of the Basque Country with regard to mobility. The aim is to establish a sustainable and integrated transport model that serves as an instrument of social cohesion and socio-economic development in the Basque Country. Objective 3 stands out: to promote a new balance between the modes of transport. Line 3.3.1 Reduce the transport sector's dependency on oil. Among other lines of action, 3.3.1.d stands out: to promote the replacement of the fleet of both light and heavy-duty vehicles, in particular by vehicles with alternative fuels (natural gas, electricity, etc.).
Amount	-
Body responsible	Governing Council of the Basque Country (Department of Economic Development and Infrastructure)
Regulation	Basque Country Master Plan for Sustainable Transport 2030
Fuel	Electricity natural gas and LPG
Link	http://www.euskadi.eus/contenidos/informacion/garraioak_iraunkorrearen_gida/es_def/adjuntos/PDTS_Euskadi_2030_ES.pdf

Measure M.17.2	2018. Aid for the purchase of electric mopeds, electric or hybrid heavy vehicles and electric and natural gas rolling stock (linked to transport tasks in airports and ports, and mining, industrial and service activity) Aid for the conversion of light vehicles to NG/LPG and heavy-duty vehicles to NG. Aid for core installations in shared garages, for electric charging points and for refuelling with alternative fuels.
Amount	Total amount: €800,000; Maximum aid for the purchase of: - electric mopeds €400 or 20% - pure and hybrid plug-in electric heavy-duty vehicles €50,000 or 15% - Electric and natural gas rolling stock linked to transport tasks in airports, ports, and mining, industrial and service activities €15,000 or 15%.

	Maximum aid for conversion: - conversion of light vehicles to natural gas €1,000 (35%); - conversion of light vehicles to LPG €400 (20%); - conversion of heavy-duty vehicles to natural gas €6,000 (40%). Maximum aid for charging or refuelling points: - core installations in shared garages in buildings: number of spaces x €200; - charging points for electric vehicles: between €500 and €35,000 (fast charging); - supply of natural gas: €25,000-€100,000 and hydrogen €30,000-€60,000.
Body responsible	Directorate-General of the Basque Energy Agency
Regulation	*DECISION of 20 April 2018 by the Director-General of the Basque Energy Agency (EVE) approving, calling for applications to, and publishing the regulatory framework for the aid programme for investments in transport and efficient mobility for 2018.*
Fuel	Electricity, natural gas, LPG, hydrogen
Link	https://www.euskadi.eus/y22-bopv/es/bopv2/datos/2018/05/1802373a.pdf

Measure M.17.3	2019. Aid programme for investments in efficient and alternative vehicles (PAVEA)
Amount	Total amount: €5,000,000 By type: pure electric light vehicles: €3,000; light hybrid plug-in or extended-range electric vehicles: €2,500; light hybrid non-plug-in vehicles: €2,250; light natural gas vehicles: €2,250; light hydrogen vehicles: €3,000; light LPG vehicles: €2,250; category M1 petrol or diesel vehicles with energy classification A: €2,000; category N1 petrol or diesel vehicles with a maximum authorised mass (MAM) below 2,500 kg and greenhouse gas emissions below 114 g CO_2/km: €2,000;

	category N1 petrol or diesel vehicles with an MAM equal to or above 2,500 kg and greenhouse gas emissions below 184 g CO_2/km: €2,000.
Body responsible	EVE
Regulation	*Aid programme for investments in efficient and alternative vehicles*
Fuel	All
Link	https://www.eve.eus/CMSPages/GetFile.aspx?guid=ebe765a7-1b44-44cb-897a-b2f462f4ebce

Measure M.17.4	2019. Programme of grants for investment in efficient transport and mobility
Amount	Total amount: €1,200,000. ■ Vehicles: electric mopeds: €750; pure and hybrid plug-in electric heavy-duty vehicles: €50,000; electric rolling stock: €20,000; natural gas heavy-duty vehicles: €18,000; conversion of heavy-duty vehicles to natural gas: €5,000; natural gas rolling stock: €10,000; heavy-duty hydrogen vehicles: €50,000; hydrogen rolling stock: €20,000. ■ Charging and refuelling facilities: electricity: grant of €100 of the eligible cost; NG: grants between €25,000 and €100,000; hydrogen: grants between €30,000 and €100,000. Other programmes: promotion of bicycles, energy studies and unique projects.
Body responsible	EVE
Regulation	*Programme of grants for investment in efficient transport and mobility*
Fuel	All
Link	https://www.eve.eus/CMSPages/GetFile.aspx?guid=57e77c4a-e691-49f5-be34-3f1d7c2d2411

Measure M.17.5	2018. Integrated Electric Mobility Plan 2018-2020: document diagnosing electric mobility that presents 63 initiatives to be implemented between 2018 and 2020 in order to electrify public transport, create a network of charging points

	and aid the purchase of electric vehicles for private individuals, companies and public administrations.
Amount	Estimated: €494 million
Body responsible	Governing Council of the Basque Country
Regulation	*Integrated Electric Mobility Plan 2018-2020*
Fuel	Electricity
Link	https://www.irekia.euskadi.eus/uploads/attachments/12136/CG_30_de_julio.pdf?1532941902 https://www.irekia.euskadi.eus/uploads/attachments/12134/Plan_Integral_de_Movilidad_Electrica.pdf?1532939576

Measure M.17.6	2019. Promotion of electric charging in public points for: - taxis, one free charge daily; - company and sole trader fleets: 30 free charges; - private individuals: 10 free charges.
Amount	Estimated amount: €15,000/year
Body responsible	Basque Energy Agency
Regulation	*RKARGA Promotion*
Fuel	Electricity
Link	https://www.eve.eus/Actuaciones/Promocion-RKARGA.aspx

Measure M.17.7	2019. Act on Energy Sustainability of the Basque Public Administrations which will affect all the municipal and territorial institutions of the Basque Country, aimed at reducing energy consumption, promoting energy sustainability and protecting the environment by deploying renewable energy facilities in public buildings. Among other measures, this Bill provides that as from 2020, 100% of vehicles procured by the Basque public administrations for their institutional fleets and public transport must use alternative fuels.
Amount	-

Body responsible	Regional Department of Economic Development and Infrastructure
Regulation	*Act on Energy Sustainability of the Basque Public Administrations*
Fuel	Electricity, natural gas, LPG, hydrogen, biofuels
Link	http://www.euskadi.eus/gobierno-vasco/-/eli/es-pv/l/2019/02/21/4/dof/spa/html/

Measure M.17.8	2019. The Basque Country Climate Change Bill, which aims to lay down the regulatory framework for allowing the adoption of measures aimed at the mitigation of and adaptation to climate change includes a chapter on sectoral policies, and specifically lays down the following with regard to transport. • Basque public administrations must promote the most efficient and least carbon-intense modes of transport, the use of new technologies, smart charging of the batteries of electric vehicles, multimodal transport, and low-emission fuels (such as electricity and advanced biofuels). • The obligation to prepare a Plan for developing the infrastructure for charging electric vehicles in the Basque Country, which must lay down that all newly-constructed buildings owned by the Basque public administrations must have charging points for electric vehicles. The Plan must ensure that the electric infrastructure has sufficient capacity to meet the additional demand for electricity that will result from the transition towards electric vehicles. • According to Act 4/2019 of 21 February 2019 on Energy Sustainability in the Autonomous Community of the Basque Country, 100% of the Basque public administration fleet must use alternative fuels. • Municipalities with over 5,000 inhabitants, provincial councils and companies with over 100 employees must prepare sustainable urban mobility plans.
Amount	-
Body responsible	Regional Department of the Environment, Land Use Planning and Housing
Regulation	*Basque Country Climate Change Bill. Ongoing.*
Fuel	All

Link	http://www.euskadi.eus/informacion_publica/consulta-publica-previa-a-la-elaboracion-del-anteproyecto-de-ley-de-cambio-climatico-del-pais- vasco/web01-a2inguru/es/

Measure M.17.9	2019. MOVES Programme aid — the Basque Country
Amount	Total amount: €2,120,089 Action 1. Purchase of new energy vehicles: €1,060,044 (50%). Action 2. Deployment of charging infrastructure for electric vehicles: €954,040 (45%). Action 3. Deployment of electric bicycle loan systems: €106,004 (5%)
Body responsible	EVE
Regulation	*Programme of incentives for efficient and sustainable mobility (MOVES Programme)*
Fuel	All
Link	https://www.euskadi.eus/y22-bopv/es/bopv2/datos/2019/04/1901641a.pdf

MURCIA

Measure M.18.1	2018-2019 Replacement Plan for the Automobile Fleet of the Autonomous Community of Murcia dated 8 November 2018 laying down the following general criteria for fleet replacement: - gradual replacement of the fleet with electric and hybrid vehicles; - replacement of vehicles with those classified in the Directorate-General for Traffic's Register of Vehicles as ZERO EMISSIONS OR ECO. On the basis of this Plan, three hybrid vehicles and an electric vehicle with a range of 400 km have recently been purchased. Similarly, one petrol vehicle has been converted to LPG.
Amount	
Body responsible	Regional Ministry of Finance

Regulation	Act 10/2018 of 9 November 2018 to Accelerate the Transformation of the Regional Economic Model for the Generation of Stable, High Quality Employment, which includes replacement of the Autonomous Community of Murcia's fleet of vehicles, using alternative energy sources to fuels derived from oil.
Fuel	All
Link	https://www.borm.es/#/home/anuncio/10-11-2018/6765
Measure M.18.2	2019. The Document to Promote Low-carbon Mobility is currently being prepared. Its aim is to improve the energy efficiency of mobility in Murcia and promote replacements for conventional fuels in order to steer the current mobility model towards one based on low carbon consumption, in which the objectives to be achieved and the actions to be carried out to achieve them are defined, and the mechanism for their monitoring and evaluation is laid down. The following are laid down as strategic objectives: • drive the transition towards an energy-efficient and decarbonised transport sector, contributing to the reduction in the greenhouse gas emissions associated with the transport sector and improving air quality (improving the public's health and quality of life); • drive the development of the economy and local knowledge; • create a favourable environment for adopting a more efficient and sustainable mobility model for society and businesses through setting an example, training, promotion and awareness-raising.
Amount	-
Body responsible	*Directorate-General for Energy, Industry and Mining. Regional Department of Employment, Universities, Business and the Environment.*
Regulation	Document to Promote Low-carbon Mobility. *In preparation*
Fuel	*Electricity, fuel cell, LPG (Autogas), CNG, LNG or bi-fuel.*
Link	*Not available*

Measure M.18.3	2019. MOVES Programme aid — Murcia
Amount	Total amount: €1,420,641

Body responsible	Regional Department of Employment, Universities, Business and the Environment
Regulation	*Order of the Regional Department of Employment, Universities, Business and the Environment laying down the regulatory framework for the grants with regard to the programme of incentives for efficient and sustainable mobility (MOVES Programme) in the Autonomous Community of Murcia.*
Fuel	All
Link	https://www.borm.es/services/anuncio/ano/2019/numero/2285/pdf?id=776278

VL.1.2. LOCAL MEASURES

Barcelona

Measure 1.1	2018. Strategy for Electric Mobility 2018-2024 defining the lines of action to be followed for the coming years (2018-2024) with the aim of promoting and enabling electric mobility in the city of Barcelona.
Amount	
Body responsible	Barcelona municipal authorities Department of Environmentalism, Urban Planning and Mobility
Regulation	*Strategy for Electric Mobility 2018-2024*
Fuel	Electricity
Link	https://ajuntament.barcelona.cat/ecologiaurbana/es/node/2843

Measure 1.2	2019. To date, public-private initiatives have been developed with the aim of promoting sustainable mobility in the city of Barcelona. Two of these are: • Committee against air pollution • Mobility Pact
Amount	
Body responsible	Department of Environmentalism, Urban Planning and Mobility
Regulation	*Committee against air pollution Mobility Pact*
Fuel	All
Link	Committee against air pollution: https://ajuntament.barcelona.cat/ecologiaurbana/es/con-quien-lo-hacemos/mesa-contra-la-contaminacion Mobility Pact: https://www.barcelona.cat/mobilitat/es/quienes-somos/organos-de-participacion/pacto-por-la-movilidad

Madrid

Measure 2.1	2017. Approval of the City of Madrid Air Quality and Climate Change Plan (Plan A) presenting 30 measures to reduce pollution and greenhouse gas emission and to comply with European and national legislation on air quality. Specifically, on mobility, among other measures, it lays down the measures below. • The creation of the Central Area with zero emissions, which grants preferential access to vehicles with ZERO (electric and fuel cell electric vehicles, FCEVs) and ECO labels that may enter and park in the SER zone during regulated hours for a maximum of 2 hours. • The requirement that by 2025, 100% of buses must have the ZERO (electric) or ECO (gas and hybrids) label. • Promotion of the charging and refuelling (CNG and LPG) infrastructure. • Parking regulation related to vehicle emissions in SER zones. • Subsidies to the taxi sector for conversion into low emission vehicles (ECO and ZERO labels). • Urban goods distribution using low-emission vehicles. This means establishing preferential measures on access and hours for access in the Central Area and the SER zone for low-emission vehicles. • Increase in the number of ZERO and ECO vehicles in the Madrid City Council fleet to reach 90% of the fleet of mopeds, motorcycles and passenger cars and 80% of the vehicle fleet with maximum authorised mass above 3,500 kg, by 2030.
Amount	
Body responsible	Department of Environment and Mobility
Regulation	*Plan A: City of Madrid Air Quality and Climate Change Plan*
Fuel	All
Link	https://www.madrid.es/UnidadesDescentralizadas/Sostenibilidad/CalidadAire/Ficheros/PlanAireyCC_092017.pdf

Action 2.2	2018. Call for applications for TAXIFREE 2018 subsidies by Madrid City Council
Amount	Total amount: €799,938 • Tranche I €3,000/vehicle Passenger cars with ZERO emissions labels. Eurotaxi passenger cars with ECO labels, not powered by diesel.

	• Tranche II — 5% of the vehicle cost, excluding VAT, up to a maximum of €1,200. Passenger cars with ECO labels, not powered by diesel.
Body responsible	Madrid City Council. Department of Environment and Mobility
Regulation	*Call for applications for TAXIFREE 2018 grants for ECO and ZERO taxis*
Fuel	All
Link	https://sede.madrid.es/portal/site/tramites/menuitem.62876cb64654a55e2dbd7003a8a409a0/?vgnextoid=aa43f22d9286c510VgnVCM1000001d4a900aRCRD&vgnextchannel=f24ba38813180210VgnVCM100000c90da8c0RCRD&vgnextfmt=pda

Action 2.3	2018. Authorise the use of fast charging points for electric vehicles with the aim of promoting the development of a network of fast charging points for opportunistic use in publicly-accessible places, preferably monitored ones, that encourages the use of electric vehicles.
Amount	-
Body responsible	Department of Environment and Mobility
Regulation	*Decree number 416 of 28 November 2018 by the Devolved Department of Environment and Mobility approving the call for applications to the procedure for granting authorisation for the use of charging points for electric vehicles by means of cooperation agreements for the development of a network of fast charging points for opportunistic use in universally and publicly accessible areas in the city of Madrid.*
Fuel	Electricity
Link	https://www.bocm.es/boletin/CM_0rden_B0CM/2018/12/12/B0CM-20181212-51.PDF

Measure 2.4	2019. Call for applications for TAXIFREE 2018 subsidies for ECO and ZERO taxis. Tranches of grant: •Tranche I: €3,000/vehicle. - Passenger cars with ZERO emissions labels or - Eurotaxi passenger cars with ECO labels, not powered by diesel. •Tranche II: 5% of the vehicle cost, excluding VAT, up to a maximum of €1,200. Passenger cars with ECO labels, not powered by diesel.
Amount	€398,353

Body responsible	Madrid City Council. Department of Environment and Mobility
Regulation	*Call for applications for TAXIFREE 2019 grants for ECO and ZERO taxis*
Fuel	All
Link	https://sede.madrid.es/sites/v/index.jsp?vgnextoid=0e73fc42d554b610VgnVCM2000001f4a900aRCRD&vgnextchannel=23a99c5ffb020310VgnVCM1000000171f5a0aRCRD#documentacion

Málaga

Measure 3.1	2019. Málaga Special Plan for Sustainable Urban Mobility Document that serves as reference in the future strategic and town planning development of the city, and discusses all forms of mobility.
Amount	-
Body responsible	Mobility Department
Regulation	*Málaga Special Plan for Sustainable Urban Mobility*
Fuel	Electricity and natural gas
Link	http://movilidad.malaga.eu/opencms/export/sites/movilidad/.content/galerias/Documentos-del-site/PEMUS.pdf

Seville

Measure 4.1	2017. Action plan for climate and sustainable energy (PACES 2017) that includes certain measures to promote alternative fuels in transport: - awareness-raising programme for the replacement of the vehicle fleet through incentives; - adaptation of buildings to accommodate charging points for electric vehicles (€250,000; 2018-2022); - replacement of the municipal transport authority LIPASAM's vehicle fleet by purchasing electric and lower-emission vehicles (€900,000 for 4 multi-purpose vehicles and 50 carrier tricycles; 2013-2020); - implementation in the city of low-emission zones, with restrictions on the use of polluting vehicles, and only eco-efficient vehicles being allowed into the zone (€250,000; 2018-2020); - replacement of 50% of the municipal vehicle fleet by purchasing eco-efficient vehicles with an associated reduced impact of CO_2 emissions (€1,969,000; 2018-2022); - expansion of the CNG refuelling station in the TUSSAM (municipal transport authority) facilities that will enable the refuelling of 300 buses during the night (€1,400,000; 2016-2020);

	- expansion of the CNG public transport bus fleet by 93 units (€26,135,000; 2017-2020); - use of electric vehicles in the vehicle fleet supervised by LIPASAM (€250,000; 2018-2020);
Amount	The amount varies depending on the action taken
Body responsible	Regional Department of the Environment and Land Use Planning
Regulation	*Action plan for climate and sustainable energy (PACES) for Seville*
Fuel	Electricity and natural gas
Link	https://www.sevilla.org/planestrategico2030/documentos/otros-planes-y-programas-de-sevilla/plan-mitigacion-paces.pdf

Measure 4.2	2018. The Andalusian Air Quality Strategy presents an exhaustive analysis of the state of air quality in Andalusia. With regard to transport, the Strategy analyses the emissions arising from this sector and proposes a series of measures to mitigate them: - encourage public transport; - restrict the use of private vehicles unless they have the DGT's ECO or CERO badges; - give preferential access to parking zones for ECO or CERO vehicles; - encourage the use of shared vehicles; - review speed limits depending on the area; - introduce 'ecopasses' in areas with a high traffic density, with a discount for less polluting vehicles; - progressively introduce new energy vehicles into the public fleet; - encourage the replacement of the automotive fleet and the public fleet; - develop a new protocol against pollution.
Amount	-
Body responsible	Regional Department of the Environment and Land Use Planning
Regulation	*Andalusian Air Quality Strategy for the city of Seville*
Fuel	All
Link	https://www.juntadeandalucia.es/export/drupaljda/tramite_informacion_publica/18/08/Estrategia_calidad_aire.pdf

Measure 4.3	2019. In preparation. Sustainable Urban Mobility Plan for the city of Seville. This will be a reference document for structuring mobility policies that will contribute to improving air quality.
Amount	

Body responsible	Regional Department of the Environment and Land Use Planning
Regulation	*Sustainable Urban Mobility Plan for the city of Seville.* In preparation.
Fuel	All
Link	https://www.diariodesevilla.es/2019/04/25/PMUS.pdf?hash=db4c75814be6d40e26ed50016e097f7cb05ed481

Valencia

Measure 5.1	2017. Action Plan for Climate and Sustainable Energy (PACES 2017) of the city of Valencia. This includes certain proposed measures with regard to mobility: - the use of biodiesel in the municipal fleet; - the progressive replacement of the municipal vehicle fleet with more efficient, low-emission vehicles; - the incorporation of criteria for more efficient vehicles in procurement specifications; - the use of biodiesel in all compatible diesel collective transport vehicles and the procurement of new vehicles powered by natural gas; - the replacement of conventional vehicles with other more efficient ones (electricity, gas or biofuels) in the private vehicle fleet, with the aim of reducing environmental impact; - tax incentives for the use of alternative fuels and electric vehicles: partial exemption from vehicle excise duty, or another kind of tax benefit; - the deployment of a municipal charging system for electric vehicles, with the aim of promoting the progressive purchase of electric vehicles; - the creation of 'bus-vao-eco' lanes for buses, high occupancy vehicles and eco-friendly vehicles.
Amount	
Body responsible	Department of Sustainable Mobility and Public Spaces
Regulation	*Action Plan for Climate and Sustainable Energy (PACES 2017) for the city of Valencia.*
Fuel	Electricity, natural gas and biofuels
Link	https://www.valencia.es/ayuntamiento/energias.nsf/0/4B8B567A773392F1C12581AF003D9688/$FILE/170926%20Listado%20general%20de%20acciones.pdf?OpenElement&lang=2

Valladolid

Measure 6.1	2016. Integrated Plan for Sustainable and Secure Urban Mobility for the City of Valladolid. This plan constitutes a reference document on urban mobility. Among other programmes, it includes a section on promoting the development of clean vehicles that revolves around: - developing a charging infrastructure for electric vehicles and a connected charging infrastructure; - developing service stations for alternative fuels; - measures for last-mile goods distribution in low-emission zones (Urban Centre for Ecological Distribution — CUDE); - shared use of electric vehicles; - incentives for professional fleets to use electric vehicles; - dimensions and signposting for parking places on public highways for electric vehicles and VELIDs (vehículos eléctricos de limitadas dimensiones, small electric vehicles); - a form of identification for electric vehicle users as an administrative document certifying that the holder is an electric vehicle user and can benefit from electric vehicle rights and discounts; - the introduction of environmental criteria in the policy of public procurement of transport vehicles.
Amount	
Body responsible	Department of Security and Mobility
Regulation	*Integrated Plan for Sustainable and Secure Urban Mobility for the City of Valladolid*
Fuel	All
Link	http://www.pimussva.es/wp-content/uploads/2016/05/PIMUSSVA Programa_Vehiculos_Limpios.pdf

Zaragoza

Measure 7.1	2017. Amendment to the plan for replacement of the urban bus transport concession fleet with hybrid buses; This measure consists in changing the propulsion technology of vehicles to be replaced in the current urban transport concession (August 2013-July 2023): as from 2017, all new vehicles must at least use hybrid diesel-electric technology.
Amount	Total amount of the measure: €31,500,000 (additionally, compared with diesel vehicles) Breakdown of amount: • an additional 52 hybrid articulated buses: €12,636,000 • an additional 131 hybrid conventional buses: €18,864,000
Body responsible	Devolved Department of the Environment and Mobility

Regulation	*Amendment to the management contract for public services in the form of concession, for the urban transport of passengers by bus in the city of Zaragoza (file 1395156/16)*
Fuel	Electricity
Link	https://www.zaragoza.es/ciudad/gestionmunicipal/contratos/verFehaciente?id=60318

Measure 7.2	2017. Exemption from parking fees for electric vehicles of all types in certain zones of the city of Zaragoza.
Amount	
Body responsible	Devolved Department of the Environment and Mobility
Regulation	Tax Ordinance No 25.11: Fee for parking motor vehicles inside certain zones of the city (2017, 2018)
Fuel	Electric vehicles
Link	http://www.zaragoza.es/ciudad/normativa/detalle Normativa?id=3569

Measure 7.3	2018. Amendment of motor vehicle tax. • Measure 1: Discount depending on the nature of the engine, the kind of fuel the vehicle consumes and the impact of that fuel on the environment. • Measure 2. Discount in the rate of the tax depending on the level of carbon dioxide emissions for passenger cars or similar, newly registered as from 2012.
Amount	• Measure 1:

Nature of engine	Discount percentage	Discount period
-Hybrid vehicles	65%	6 calendar years from first registration
-Electric and/or zero-emission vehicles	75%	No limit
-Plug-in hybrids with a ZERO label issued by the DGT	75%	6 calendar years from first registration

• Measure 2:

	Class of vehicle	CO_2 emissions	Percentage	Discount period
	Passenger car	Less than 100gr/km of CO_2	40% 20% 10% 10% 5% 5%	For the first year For the second year For the third year For the fourth year For the fifth year For the sixth year
Body responsible	Devolved Department of the Environment and Mobility			
Regulation	Ordinance on motor vehicle tax			
Fuel	Measure 1: -Hybrid vehicles (electric-petrol, electric-diesel or electric-gas engines) certified in the factory or incorporating catalytic converters. -Vehicles with electric engines and/or zero emissions. Plug-in hybrids with ZERO labels issued by the DGT Measure 2: -Vehicles using any fuel.			
Link	http://www.zaragoza.es/contenidos/normativa/ordenanzas-fiscales/2019/OF-06-2019.pdf			

Measure 7.4	2018 and 2019. Cooperation Agreement between the City Council and the Provincial Taxi Association to modernise taxis in both financial years.
Amount	Total amount: €270,000. - €10,000 subsidy for the purchase of electric taxis (15 Nissan Leafs) - €20,000 subsidy for each van adapted (6 e-NV200 vans)
Body responsible	Department of Urban Planning and Sustainability
Regulation	*Cooperation Agreement between the City Council and the Provincial Taxi Association*
Fuel	Electricity
Link	http://bop.dpz.es/BOPZ/obtenerContenidoEdicto.do?idEdicto=499405&numBop=128&fechaPub=martes%207%20de%20junio%20de%202016

Measure 7.5	2019. The Zaragoza Climate Change, Air Quality and Health Strategy (ECAZ 3.0) is a planning tool for designing and coordinating policies to combat climate change up until 2030.

	Some of the objectives of this Strategy with regard to mobility are: - promote incentives to purchase non-polluting vehicles; - develop training and awareness-raising programmes on the subject of sustainable mobility; - replace the fleet of public transport vehicles and taxis with more efficient vehicles; - replace the fleet of public transport vehicles and taxis with more efficient vehicles; - promote urban distribution of goods by electric vehicles; - create a protocol for action against periods of high pollution; - restrict the access of more polluting vehicles to certain zones of the city.
Amount	
Body responsible	Devolved Department of the Environment and Mobility
Regulation	*Zaragoza Climate Change, Air Quality and Health Strategy (ECAZ 3.0)*
Fuel	All
Link	http://www.zaragoza.es/contenidos/medioambiente/agenda21/20190507-ECAZ3_0Documentofinal.pdf

VI.2. ANNEX 2: COMPLIANCE WITH THE REQUIREMENTS OF ARTICLE 10 AND ANNEX 1 OF DIRECTIVE 2014/94/EU

			1. Legal measures	2. Policy measures supporting the implementation of the national policy framework						3. Deployment and manufacturing support			4. Research, Technology Development & Demonstration
			1a. Legal measures such as legislative, regulatory and administrative measures aimed at supporting the creation of infrastructure for alternative fuels	**2a. direct incentives** for the **purchase** of means of transport that use alternative fuels or for the creation of **infrastructure**	**2b.** availability of **tax incentives** to promote m**eans of transport** that use alternative fuels and the **corresponding** infrastructure	**2c.** use of **public procurement** to support alternative fuels, including joint procurement	**2d. non-financial incentives** that act on demand such as, for example, preferential access to restricted zones, parking policies and dedicated lanes	**2e.** consideration of the need for refuelling points for **renewable aviation fuels** at core TEN-T network airports	**2f. technical and administrative procedures** as well as legislation regarding authorisation to supply alternative fuels in order to facilitate the authorisation process	**3a. annual public budget for the deployment of infrastructure** for alternative fuels, **broken down by alternative fuel and mode of transport** (road, rail, sea or air)	**3b. annual public budget** to support the technologies of **alternative fuel manufacturing plants, broken down** by alternative fuel and mode of transport	**3c. Consideration of particular needs** during the initial phase of the deployment of infrastructure for alternative fuels	**4a. annual public budget to support research, technological development and demonstration** in the area of alternative fuels, **broken down by fuel** and mode of transport
NATIONAL MEASURES (pages)													
Cross-cutting	1	Programmes to support the purchase of vehicles, charging infrastructure and unique projects: MOVEA, MOVALT and MOVES		16, 31, 40, 46 and 57		16, 31, 40, 46 and 57				16, 31, 40, 46 and 57	16, 31, 40, 46 and 57		16, 31, 40, 46 and 57
	2	Climate Change and Energy Transition Bill	17, 33, 48 and 58			17, 33, 48 and 58	17, 33, 48 and 58	17, 33, 48 and 58	17, 33, 48 and 58				
	3	Draft of the 2021-2030 Integrated National Energy and Climate Plan (INECP):	17, 34, 48 and 58										
	4	PSA (Programme Support Action) price comparison	59						59				

	5	State Plan on Scientific and Technical Research and Innovation 2017-2020								59
	6	National Air Quality Plan 2017-2019 (PLAN AIRE II)	60		60	60				
	7	National Air Pollution Control Plan (PNCCA)	61			61				
	8	Inter-Ministry Commission for the Incorporation of Ecological Criteria and Public Procurement Plan (Order PCI/86/2019)	61		61					
	9	CLIMA (Climate) 2016-2019 Projects		62	62					
	10	General Guidelines on the new Spanish industrial policy 2030 and its Sectoral Agendas	62			62				
	11	Strategic Plan of Integrated Support to the Automotive Sector	62							
	12	Application of the UNE-16942 fuel labelling standard	63			63	63			
	13	REINDUS calls for applications 2017-2019						63		
	14	Draft of the Ministerial Order on financial support to industrial RDI projects in the field of manufacturing industry						64		
Natural Gas	15	Climate Change and Energy Transition Bill and Draft 2021-2030 Integrated National Energy and Climate Plan: measures for renewable gases	17			17	17			
	16	Promotion of renewable natural gas (biomethane)	17				17			
	17	2018 Call for applications for Waste Aid (PIMA Residuos and PEMAR): biogas use		20						

	18	Approval of technical standards	20			20				
	19	Development of a methodology to consider renewable gas in the calculation of CO_2	20							
Electricity	20	Royal Decree-Law 15/2018 of 5 October 2018 on urgent measures for energy transition and consumer protection	32			32				
	21	Spanish Battery Working Group						33		33
	22	Spanish projects to participate in IPCEI (Important Projects of Common European Interest) on batteries, led by Germany.						33		33
	23	Climate Change and Energy Transition Bill: electromobility measures	33		33	33				
	24	Public consultation to update the Technical Building Code	33			33				
	25	Draft of the 2021-2030 Integrated National Energy and Climate Plan (INECP): electromobility measures	34							
	26	PSA on identification of recharging points (e-Mobility codes & data collection) — IDACS	34			34				
	27	Publication of the interpretative guidance ITC-BT-52	34			34				
LPG	28	Formation of the Autogas/LPG Cluster					40			
	29	Promoting biopropane as a biofuel for transport (biofuel certificate)	40							
Hydrogen	30	Creation of Spanish Hydrogen Working Group					47			47

	31	Climate Change and Energy Transition Bill and INECP 2021-2030: measures to promote renewable hydrogen	[48]						
	32	Inclusion of hydrogen as a strategic value chain and possible IPCEI				[48]			[48]
	33	Reactivation of the Technical Committee on Standardisation for hydrogen technologies, CTN-181			[48]				
	34	Signing of the Hydrogen Initiative	[49]						
	35	Participation in the Fuel Cells and Hydrogen Joint Undertaking (FCH-JU) Regions and Cities Initiative	[49]						
	36	Promotion of Sectoral Cooperation Agreements			[50]				
	37	Funding of the New Hydrogen Technologies projects developed by the Spanish Research Agency (AEI)	[50]						
Biofuels	38	Royal Decree 235/2018 of 27 April 2018 laying down the calculation methods and reporting requirements with regard to the intensity of greenhouse gas emissions of fuels and energy in transport	[55]		[55]				
	39	2018 Call for Applications for Waste Aid (PIMA Residuos and PEMAR)		[56]					
	40	Creation of the Spanish Bioethanol Association (Bio-E)		[56]					
REGIONAL MEASURES									

Andalusia	M.1.1	Line of grants (80% ERDF and 20% Andalusian Government): Smart networks to promote the transformation of the cities of the Autonomous Community of Andalusia (2017-2020)		68, 124		68, 124					68, 124		
	M.1.2	Climate Change and Energy Transition Act, which aims to combat climate change and progress towards a new energy model in Andalusia	68, 125			68, 125							
	M.1.3	Bill on promoting sustainable mobility, which aims to reduce the environmental impact of transport, contribute to combating climate change, energy saving and efficiency, and reduce atmospheric and noise pollution.	68, 126			68, 126							
	M.1.4	MOVES - Andalusia Grant		69, 127							69, 127		
Aragon	M.2.1	Aragonese Hydrogen Masterplan											69, 127
	M.2.2	ORDER EIE/922/2018 of 28 May 2018 inviting companies from the automotive sector to express an interest in accessing a line of aid for carrying out business projects with experimental development and/or research in Aragon	69, 128										
Asturias	M.3.1	Grant for the installation of charging points for electric vehicles and refuelling facilities for natural gas		69, 128							69, 128		

	M.3.2	Establishment of a Regional Committee for the Promotion of Electric Mobility to promote the roll-out of a core network of fast charging points for vehicles in Asturias through support for 61 charging points (11 fast charging and 50 normal charging).	69, 129		
	M.3.3	Transport and Mobility Act	69, 130		
	M.3.4	Grant in 2018 for the purchase of new energy vehicles and the installation of charging points for electric vehicles and refuelling facilities for natural gas		69, 130	69, 130
	M.3.5	Establishment of a Regional Committee for the Promotion of Vehicle Natural Gas (VNG) in order to promote the roll-out of a core network of charging points for VNG.	70, 131		
	M.3.6	MOVES Plan — Asturias		70, 131	70, 131
Canary Islands	M.4.1	Award of €300,000 for the installation of charging points in 17 municipalities of Gran Canaria.		70, 132	70, 132
	M.4.2	Award of €79,000 for a photovoltaic charging installation for electric vehicles in its central car park		70, 132	70, 132
	M.4.3	Aid for the installation of charging points in different parts of the Canary Islands		70, 133	70, 133
	M.4.4	Line of grants to promote the deployment of ten fast charging points for electric vehicles in Tenerife		70, 134	70, 134

	M.4.5	Reduction of the Canary Islands general indirect tax (IGIC) to 0% for the purchase of hybrid and electric vehicles, as well as public transport vehicles powered by liquid gas and natural gas		70, 134							
Cantabria	M.5.1	Grant in 2017, 2018 and 2019 for the installation of fast and semi-fast charging systems for electric vehicle batteries		70, 134				70, 134			
Castile-La Mancha	M.6.1	Aid for the purchase of new efficient vehicles powered by alternative fuels and conversion to power systems based on LPG, CNG, LNG or hydrogen.		70, 135							
Castile and Leon	M.7.1	Grant for the purchase of new vehicles where the propulsion system is wholly or partially based on electricity, or where the propulsion system is based on internal combustion engines that can use alternative fossil fuels		71, 137							
	M.7.2	Proposal for a new regional income tax deduction for the purchase of electric vehicles.			71, 138						
	M.7.3	MOVES Programme aid — Castile and Leon		71, 138				71, 138			
Catalonia	M.8.1	Climate Change Act	71, 139			71, 139					
	M.8.2	Grants for the purchase of vehicles for use as taxis.		71, 140							
	M.8.3	Aid for installations of public-access rapid charging for electric vehicles requested by public administrations (local authorities)		71, 140		71, 140		71, 140			

	M.8.4	MOVES Programme aid — Catalonia	71, 141	71, 141
Community of Madrid	M.9.1	Aid to sole traders and SMEs Aid to sole traders and SMEs for modernisation of the van and light van fleet with highly energy-efficient models that consume less fuel and emit less CO_2 and NOx	71, 142	
	M.9.2	Incentives for modernisation of the fleet of vehicles intended to be taxis, with highly energy-efficient models that consume less fuel and emit less CO_2 and NOx	71, 142	
	M.9.3	Establishment of the Regional Electric Vehicle Committee	72, 142	
	M.9.4	Grants to natural persons who are sole traders and SMEs for the purchase of efficient commercial, ancillary and service vehicles	72, 143	
	M.9.5	PIAM 2018 (Madrid Plan for Taxi Incentives) Programme of aid for the purchase of new energy vehicles for use as taxis.	72, 144	72, 145
	M.9.6	Grants intended for the deployment of charging infrastructure (conventional, semi-fast, fast and ultra-fast charging) for electric vehicles	72, 145	
	M.9.7	Aid to natural persons for the purchase of M1 vehicles powered by LPG, LNG, CNG or bi-fuel (petrol and gas), BEVs, EREVs, PHEVS and fuel cell vehicles and	72, 146	

		exclusively electric motorcycles (L-category).								
	M.9.8	MOVES Programme aid — Community of Madrid		72, 146			72, 146			
Valencia	M.10.1	Plan to promote electric vehicles and roll out the charging infrastructure in Valencia 2017-2030	72, 147		72, 147		72, 147			
	M.10.2	2017, 2018 and 2019: Aid for public or private companies and bodies for the installation of charging facilities for electric vehicles		72, 148			72, 148			
	M.10.3	2017, 2018 and 2019: Aid for the purchase of electric vehicles or vehicles powered by alternative fuels.		73, 149			73, 149			
	M.10.4	Establishment of an Electric Mobility Committee of the Autonomous Community of Valencia to encourage public and business participation in proposing legislative measures and in decision-making with regard to electric mobility.	73, 151							
	M.10.5	MOVES Programme aid — Community of Valencia		73, 151			Yes.			
Extremadura	M.11.1	Strategy towards the horizon of 2030 to promote electric vehicles	73, 152	73, 152	73, 152		73, 152			73, 152

	M.11.2	Draft decree laying down the regulatory framework for public grants intended for initiatives to promote electric mobility in Extremadura		73, 152			73, 152			73, 152
Galicia	M.12.1	MOVES Programme aid — Galicia		73, 153				73, 153		
Balearic Islands	M.13.1	Aid for the promotion of charging infrastructure for electric vehicles.		73, 153				73, 153		
	M.13.2	Aid for the installation of fast charging facilities for public use in the various districts (8) in the Balearic Islands.		73, 154				73, 154		
	M.13.3	Aid to promote the installation of fast and semi-fast electric vehicle charging points for public use and for the adaptation of current management systems for charging points		73, 154				73, 154		
	M.13.4	Aid to promote the installation of new public charging points for electric vehicles in the framework of the Balearic Islands tourist tax		74, 155				74, 155		
	M.13.5	Aid to promote low-emission electric, plug-in hybrid, CNG- and LPG-powered VTCs (transport vehicles with drivers) and taxis		74, 154						
	M.13.6	Climate Change Act that includes measures aimed at mitigation of and adaptation to climate change in the Balearic Islands, as well as transition to	74, 155	74, 155	74, 155	74, 155		74, 155		

		a sustainable, decarbonised and efficient energy model						
	M.13.7	MOVES Programme aid — Balearic Islands	74, 156		74, 156			
Rioja	M.14.1 M.14.2	15% discount on the purchase of new electric vehicles	74, 157					
		Subsidy for 2018 for town and city councils with fewer than 25,000 inhabitants for the installation of semi-fast charging points for public use	74, 157		74, 157			
Melilla	M.15.1	MOVES Plan — City of Melilla	74, 158		74, 158			
Navarre	M.16.1	Regional Act 16/2017 of 27 December 2017 which amends various taxes and other tax measures, and lays down tax deductions for investments in the installation of charging points and in pure and plug-in hybrid electric vehicles	74, 158					
	M.16.2	2017 aid to local authorities with fewer than 20,000 inhabitants for the purchase of pure electric vehicles and the installation of charging points	75, 159		75, 159			
	M.16.3	Initiative to promote electric, autonomous and connected vehicles in Navarre.	75, 159					
	M.16.4	Navarre Energy Plan Horizon 2030	75, 159					

	M.16.5	Regional Bill amending the Taxis Act that lays down that municipalities with a population greater than 20,000 inhabitants must ensure that vehicles given taxi licences from 1 January 2022...	75, 161		75, 161	
	M.16.6	Bill laying down a regulatory, institutional and enabling framework to facilitate mitigation of and adaptation to climate change, and transition towards a low-carbon energy model	75, 161		75, 161	
Basque Country	M.17.1	Basque Country Master Plan for Sustainable Transport 2030	75, 163			76, 163
	M.17.2	Aid for the purchase of electric mopeds, electric or hybrid heavy vehicles and electric and natural gas equipment Aid for the conversion of light vehicles to NG/LPG and heavy-duty vehicles to NG. Aid for core installations in shared garages, for electric charging points and for refuelling with alternative fuels.		76, 163		
	M.17.3	Aid programme for investments in efficient and alternative vehicles (PAVEA)		76, 164		76, 165
	M.17.4	Programme of grants for investment in efficient transport and mobility		76, 165		
	M.17.5	Integrated Electric Mobility Plan 2018-2020	76, 165			

	M.17.6	Promotion of electric charging in public points		76, 166						
	M.17.7	Act on Energy Sustainability of the Basque Public Administrations	76, 166		76, 166					
	M.17.8	Basque Country Climate Change Bill	76, 167							
	M.17.9	MOVES Programme aid — the Basque Country		76, 168				76, 168		
Murcia	M.18.1	Replacement Plan for the Automobile Fleet of the Autonomous Community of Murcia	76, 168							
	M.18.2	dated 8 November 2018 Preparation of the Document to Promote Low-carbon Mobility	77, 169							
	M.18.3	MOVES Programme aid — Murcia		77, 169				77, 169		
LOCAL MEASURES										
Barcelona	M.1.1	Strategy for Electric Mobility 2018-2024	77, 170							
	M.1.2	Committee against air pollution and Mobility Pact	77, 140							
	M.2.1	City of Madrid Air Quality Plan and Climate Change Plan (Plan A)	77, 171		77, 171					
	M.2.2	Call for applications for TAXIFREE 2018 grants for ECO and ZERO taxis		77, 171						
Madrid	M.2.3	Granting of authorisation for the use of charging points for electric vehicles by means of a cooperation agreement			77, 172					
	M.2.4	TAXIFREE grants programme for ECO and ZERO taxis		78, 172						
Málaga	M.3.1	Málaga Special Plan for Sustainable Urban Mobility	78, 173							

	M.4.1	Action plan for climate and sustainable energy (PACES 2017) for the city of Seville	78, 173								
Seville	M.4.2	Andalusian Air Quality Strategy	78, 174	78, 174	78, 174			78, 174			
	M.4.3	Sustainable Urban Mobility Plan for the city of Seville	78, 174								
Valencia	M.5.1	Action Plan for Climate and Sustainable Energy (PACES 2017) for the city of Valencia.	78, 175								
Valladolid	M.6.1	Integrated Plan for Sustainable and Secure Urban Mobility for the City of Valladolid	78, 176								
Zaragoza	M.7.1	Amendment to the 2013-2023 plan for replacement of the urban bus transport concession fleet with hybrid buses		78, 176							
	M.7.2	Exemption from parking fees for electric vehicles of all types in certain zones of the city of Zaragoza			78, 177						
	M.7.3	Discounts to the Motor Vehicle Tax			78, 177						
	M.7.4	Cooperation Agreement between the City Council and the Provincial Taxi Association to modernise taxis	79, 178								
	M.7.5	Zaragoza Climate Change, Air Quality and Health Strategy (ECAZ 3.0)	79, 178								

	1. Legal measures	2. Policy measures supporting the implementation of the national policy framework						3. Deployment and manufacturing support			4. Research, Technology Development & Demonstration
	1a. Legal measures such as legislative, regulatory and administrative measures aimed at supporting the creation of infrastructure for alternative fuels	**2a. direct incentives** for the **purchase** of means of transport that use alternative fuels or for the creation of **infrastructure**	**2b.** availability of **tax incentives** to promote m**eans of transport** that use alternative fuels and the corresponding **infrastructure**	**2c.** use of **public procurement** to support alternative fuels, including joint public procurement	**2d. non-financial incentives** that act on demand such as, for example, preferential access to restricted zones, parking policies and dedicated lanes	**2e.** consideration of the need for refuelling points for **renewable fuels for aviation** at core TEN-T network airports	**2f. technical and administrative procedures** as well as legislation regarding authorisation to supply alternative fuels in order to facilitate the authorisation process	**3a. annual public budget for the deployment of infrastructure** for alternative fuels, **broken down by alternative fuel and mode of transport** (road, rail, sea or air)	**3b. annual public budget** to support the technologies of alternative **fuel manufacturing plants, broken down** by alternative fuel and mode of transport	**3c. consideration of the particular needs** during the initial phase of the deployment of infrastructure for alternative fuels	**4a. annual public budget to support research, technological development and demonstration** in the field of alternative fuels, **broken down by fuel** and means of transport
MARINE LNG											
Decree 335/2018 of 25 May 2018 amending several royal	[106]										

decrees regulating the natural gas sector							
Order TEC/1367/2018 of 20 December 2019 establishing the tolls and fees associated with third party access to gas installations and the remuneration of regulated activities for 2019	106						
Development of an official qualification with regard to LNG supply activities	105				105		
Preparation of model specifications of particular requirements for the service of supplying fuels (including LNG)					107		
Approval of harbour duty reductions applicable to consumer vessels, to LNG as cargo intended for bunkering and to terminals for LNG supply	100		100				
Royal Decree 873/2017 of 29 September 2017 regulating the granting of aid to the shipbuilding sector with regard to research, development and innovation.		109				109	109
Act 6/2018 of 3 July 2018 on the Budget for 2018, which includes an item of €40 million intended for State guarantees for the conversion of low-emission vessels		109				109	109

Approval of the Green Public Procurement Plan of the Central Government, its regional bodies and social security management agencies (2018-2025)			109						
Encouraging the participation of Spanish organisations in projects to develop LNG supply and demand at ports, co-financed by EU programmes: development of pilot initiatives in the context of the CORE LNGas Hive project (2014-2020) and launch of the LNGHIVE2 (2018-2030) institutional strategy in support of investment in the development of the market for the supply of LNG as a marine fuel.		98				98			
MARINE ELECTRICITY									
Commissioning of 2 electric supply points in the Canary Islands							111		
Implementation of the 'OPS Master Plan for Spanish Ports 2017-2019' project	113								113
Elimination of the tax on provision of shore-side electricity	115		115						

Royal Decree-Law 15/2018 of 5 October 2018 on urgent measures for energy transition and consumer protection (allows port authorities to provide electricity supply services to vessels under certain circumstances)	115		
Climate Change and Energy Transition Bill	115		115
Order TEC/406/2019 of 5 April 2019 laying down guidelines for energy policy	115	115	
Study of an environmental port fee for NOx	116	116	
50% reduction in the berthing fee	115	115	

	1. Legal measures	2. Policy measures supporting the implementation of the national policy framework						3. Deployment and manufacturing support			4. Research, Technology Development and Demonstration
	1a. Legal measures such as legislative, regulatory and administrative measures aimed at supporting the creation of infrastructure for alternative fuels	**2a. direct incentives** for the **purchase** of means of transport that use alternative fuels or for the creation of **infrastructure**	**2b.** availability of **tax incentives** to promote m**eans of transport** that use alternative fuels and the corresponding **infrastructure**	**2c.** use of **public procurement** to support alternative fuels, including joint public procurement	**2d. non-financial incentives** that act on demand such as, for example, preferential access to restricted zones, parking policies and dedicated lanes	**2e.** consideration of the need for refuelling points for **renewable aviation fuels** at core TEN-T network airports	**2f. technical and administrative procedures** as well as legislation regarding authorisation to supply alternative fuels in order to facilitate the authorisation process	**3a. annual public budget for the deployment of infrastructure** for alternative fuels, **broken down by alternative fuel and mode of transport** (road, rail, sea or air)	**3b. annual public budget** to support the technologies of **alternative fuel manufacturing plants, broken down** by alternative fuel and mode of transport	**3c. Consideration of particular needs** during the initial phase of the deployment of infrastructure for alternative fuels	**4a. annual public budget to support research, technological development and demonstration** in the field of of alternative fuels, **broken down by fuel** and means of transport
AIR											
Replacement of 65 electric units and installation of 34 new units (to make up the current 434 supply points)	118			118							

Plan to install 36 new electric supply points and other investments (€15 million)	119	119

	1. Legal measures	2. Policy measures supporting the implementation of the national policy framework						3. Deployment and manufacturing support			4. Research, Technology Development & Demonstration
	1a. Legal measures such as legislative, regulatory and administrative measures aimed at supporting the creation of infrastructure for alternative fuels	**2a. direct incentives** for the **purchase** of means of transport that use alternative fuels or for the creation of **infrastructure**	**2b.** availability of **tax incentives** to promote **means of transport** that use alternative fuels and the **corresponding** infrastructure	**2c.** use of **public procurement** to support alternative fuels, including joint public procurement	**2d. non-financial incentives** that act on demand such as, for example, preferential access to restricted zones, parking policies and dedicated lanes	**2e.** consideration of the need for refuelling points for **renewable aviation fuels** at core TEN-T network airports	**2f. technical and administrative procedures** as well as legislation regarding authorisation to supply alternative fuels in order to facilitate the authorisation process	**3a. annual public budget for the deployment of infrastructure** for alternative fuels, **broken down by alternative fuel and mode of transport** (road, rail, sea or air)	**3b. annual public budget** to support the technologies of **alternative fuel manufacturing plants, broken down** by alternative fuel and mode of transport	**3c. Consideration of particular needs** during the initial phase of the deployment of infrastructure for alternative fuels	**4a. annual public budget to support research, technological development and demonstration** in the field of alternative fuels, **broken down by fuel** and means of transport
RAIL											
Pilot test on railway traction using LNG for a passenger train (2600 series)		121									121
CEF project: Demonstration study of infrastructure associated with an innovative LNG traction solution in railway operation		122									122

QUANTITATIVE TARGETS AND OBJECTIVES

1. Degree of achievement of the fleet objectives compared with estimates made in the 2016 NPF.
2.

Road transport	**Fleet Sept. 2019**	**Current estimate of the fleet for 2020**	**Estimates of the fleet made in the NPF in 2016 for 2020**
Electric vehicles[89]	69,497	150,000	150,000
CNG vehicles	16,269	23,000	17,200
LNG vehicles	1,208	2,000	800
Hydrogen vehicles	38	50	500
LPG vehicles	61,150[90]	100,000	200,000-250,000

2. Estimates of new energy vehicle fleet: (2020, 2025 and 2030)

Fleet of new energy vehicles	**2016**	**2017**	**2018**	**Sept. 2019 provisional**	**2020**	**2025**	**2030**
Electric vehicles	21,004	33,170	54,079	*69,497*	150,000	800,000	5,000,000[91]
CNG vehicles	5,259	7,437	12,523	*16,269*	23,000	100,000	200,000
LNG vehicles	318	431	960	*1,208*	2,000	7,000	25,000
Hydrogen vehicles	13	17	32	*38*	50	200	1,000
LPG vehicles	14,123	20,830	41,510	*61,150*[92]	100,000	200,000	500,000

3. Estimates on alternative fuel infrastructure

Alternative fuel infrastructure	**2016**	**2017**	**2018**	***Sept. 2019 provisional***	**2020**	**2025**
Electric charging points	4,547	4,700	5,187	*5,187*	10,000	17,000
CNG stations	34	49	60	*64*	150	200
LNG stations	15	25	34	*36*	85	110
Hydrogen stations	6	5	4	*4*	6	15
LPG stations	468	564	589	*636*	650	750

[89] BEV, EREV and PHEV vehicles are included as well as the 'other vehicles' category according to the DGT classification (construction and agricultural vehicles, forklift trucks registered for driving on public highways, etc.).
[90] The current fleet data from the DGT still do not reflect all the LPG conversions carried out. Work is currently being done to better account for conversions.
[91] Forecast estimated in the 2021-2030 Integrated National Energy and Climate Plan (INECP)
[92] The current fleet data from the DGT still do not reflect all the LPG conversions carried out. Work is currently being done to better account for conversions.

4. Degree of achievement in deployment of the infrastructure on roads.

Road transport infrastructure	**Supply points in 2018**	**Supply points currently in the pipeline**	**Estimates of charging/refuelling points made in the NPF approved in 2016 for 2020/2025**
Electric charging	5.187[93]	eVia Project Ionit Project Ambra Project Cirve Project Plans of private companies AENA roll-out plan Estimates of charging points derived from Climate Change and Ecological Transition Bill	The 2016 NPF stipulated that there would be a sufficient number to ensure the circulation of the electric vehicle fleet in 2020, in accordance with Article 4 of Directive 2014/94/EU. In addition, the market is developing the necessary investment plans to continue complying in 2020.
CNG refuelling stations[94]	60 (=29 mixed + 31 CNG only)	-Points currently **being built or awaiting opening:** 24 mixed LNG/CNG and 19 CNG only[95]. **ECO-GATE** Project: 12 mixed LNG/CNG. -**Redexis-Cepsa** Agreement: 50 stations in 2021 and 80 in 2023. -**Enagás** (through Scale Gas Solutions) and **Repsol** roll-out plans.	46
LNG refuelling stations	34 (=29 mixed + 5 CNG only)		44 (by 2025)
Hydrogen refuelling stations	4	-GreenHydrogen Project **Mallorca** (Enagás, Acciona, Redexis, Cemex, Balearic Islands Government, IDAE and SG Indústria and SMEs) -Hydrogen Refuelling Stations in **Madrid** (Enagás, Toyota and Urbaser) -A possible **IPCEI** for H_2 roll-out is being discussed -Mobile hydrogen projects	20 The market is developing positively in 2019. Hence, although two hydrogen refuelling stations that supplied at an insufficient pressure for passenger cars of 300 bar have been closed, there is currently new hydrogen refuelling infrastructure in the pipeline, and this will contribute to market development.
LPG refuelling stations	589	The LPG refuelling station operators maintain their interest in increasing the extensive reach of the national network, although investments in infrastructure are not being made at the pace initially envisaged since the current infrastructure is sufficient to supply the predicted fleet.	800-1,000

[93] Source: ANFAC data.
[94] There are several CNG supply nozzles in each refuelling station.
[95] Source: Gasnam

5. Charging efficiency of the high power charging points

Average data by charging point and day	
Average number of charges per day	1.85 charges per day on average, per fast charging point
Average values for each charging point used	
Energy supplied per day	33.985 kWh on average supplied per day per fast charging point used
Average length of use per day	2.3 hours on average per day per fast charging point

Daily data	
Average number of charges per day	198 charges on average per day
Average values for each charging point used	
Energy supplied per day	1,904.610 kWh on average between all fast charging points used
Average length of use per day	129.51 hours of use on average between all fast charging points used

Sea Transport

Fuel		**2016**	**2017**	**2018**	**2019**	**2020**	**2025**	**2030**
LNG	Supply points	43[96]	43	43	**43**	43	43	43
	Fleet[97]	0	1	1	3	9	10	12
Electricity	Supply points	0	0	2	9	45	no data	no data

[96] All 43 ports of general interest
[97] Fleet controlled by Spanish shipping companies

Air Transport

Fuel		2016	2017	2018	2019	2020	2025	2030
Electricity	Supply points	406	424	434	434	no data	no data	470

ALTERNATIVE FUELS INFRASTRUCTURE DEVELOPMENTS

1. Number of vehicles per charging/refuelling point (roads)

Fuel	2016	2017	2018	Sept. 2019 provisional	2020	2025
Electricity	5	7	10	13	15	47
CNG	155	152	209	254	153	500
LNG	21	17	28	34	24	64
Hydrogen	2	3	8	10	8	13
LPG	30	37	70	96	154	267

2. Share of the vehicle fleet by fuel

	2016 Fleet	2016 Share	2017 Fleet	2017 Share	2018 Fleet	2018 Share
Petrol	13,641,959	43.10%	14,030,385	43.22%	14,563,270	43.80%
Diesel	17,968,013	56.77%	18,367,474	56.59%	18,574,542	55.87%
Electricity	21,004	0.07%	33,170	0.10%	54,079	0.16%
CNG	5,259	0.02%	7,437	0.02%	12,523	0.04%
LNG	318	0.00%	431	0.00%	960	0.00%
Hydrogen	13	0.00%	17	0.00%	28	0.00%
LPG	15,123	0.05%	20,830	0.06%	41,510	0.12%
Total	**31,651,689**		**32,459,744**		**33,246,912**	