



# Mid Atlantic Ship Repair & Supply Summit

## STRATEGY FOR LNG IN SPANISH AUTHORITIES HARBOURS

Puertos del Estado



GOBIERNO  
DE ESPAÑA

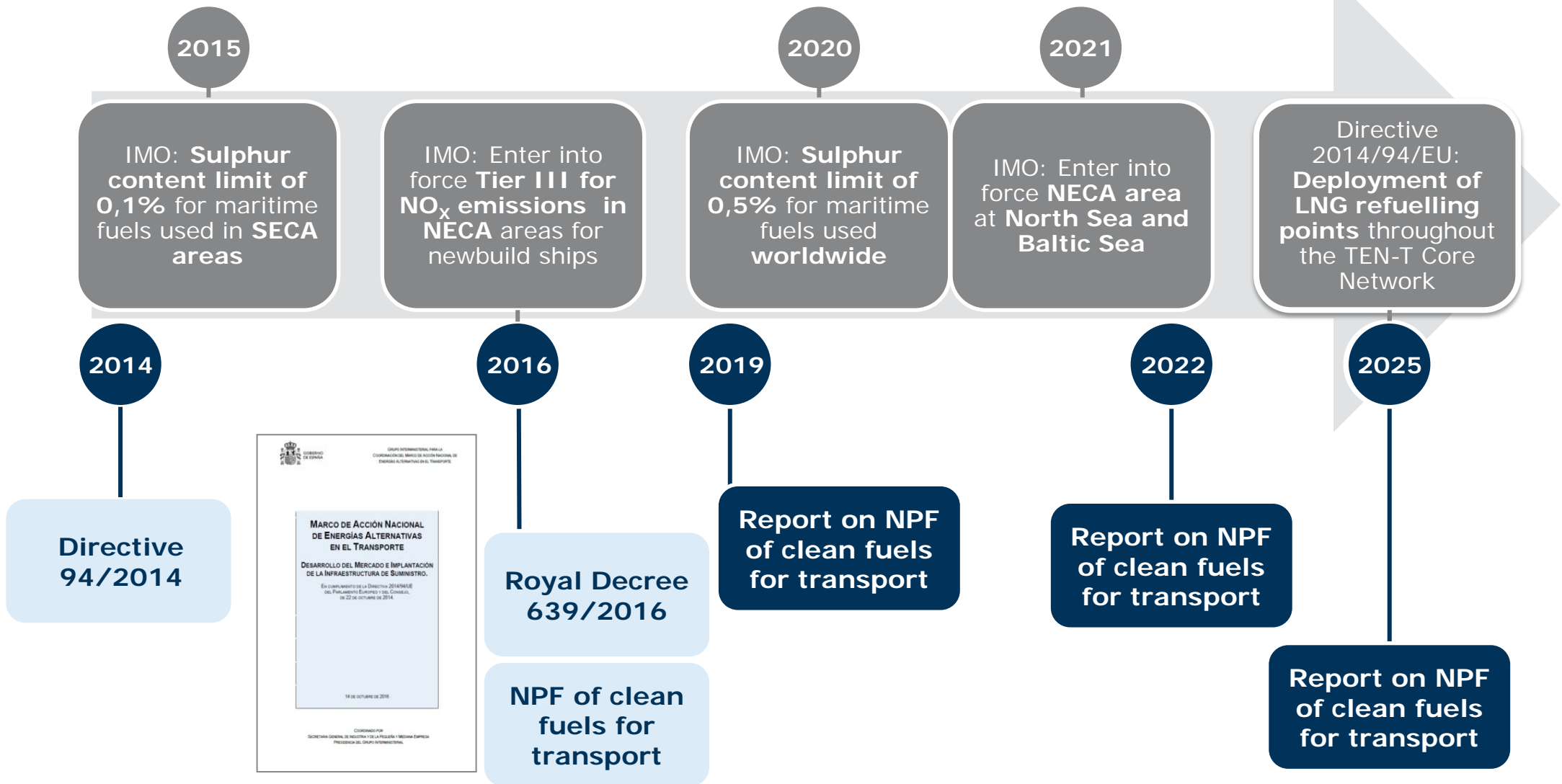
MINISTERIO  
DE FOMENTO



Co-financed by the European Union  
Connecting Europe Facility

# National Policy Framework

## INTRODUCCIÓN. REGULATORY CONTEXT



# National Policy Framework

## REQUIREMENTS FROM DIRECTIVE 94/2014 RELATIVES TO LNG AS MARITIME FUEL

- **OBJETIVES:** Provide an **adequate number of supply points in maritime and inland ports before 2025 and 2030**, respectively, so that LNG consuming vessels can navigate through the TEN-T basic network. Priority: Basic Network (although it does not exclude General Network)
- **GOALS:** Identify in **NPF** the ports that should be able to offer the supply service (**market criterion**)



### PORT SYSTEM OF GENERAL INTERES

- **46 PORTS OF GENERAL INTERES**
- **13 PORTS in BASIC NETWORK RTE-T, 7 CONNECTED TO CORRIDORS** →



# National Policy Framework

## DEMAND SITUATION. VESSELS WITH LNG PROPULSION IN 2016

### • DEMAND SITUATION:

#### ○ **International Fleet:** 77 vessels with LNG propulsion

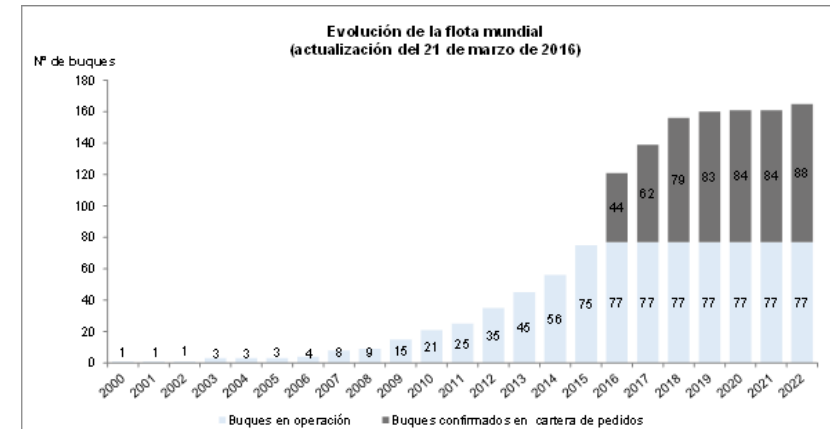
- More than 88 confirmed vessels in order book
- Mainly: ferries y container carriers
- Concentrated in Baltic Sea and North Sea (first SECA zone in 2015)

#### ○ **Spain: Confirmed vessels in order book:**

- Balearia: **Ro-Pax "Abel Matutes"** for Barcelona – Palma de Mallorca Route
  - Retrofitting of auxiliary engine (operational 2017)
- Fred Olsen: **Ferry "Bencomo Express"** for Tenerife-Las Palmas de Gran Canaria Route
  - Retrofitting of main engine for propulsion (operational 2018)
- Balearia: **Construction of new ferry** (second ferry optional)
  - 4 dual engines form propulsion (operational 2019)

#### ○ **Spanish Shipyards: Construction of vessels with LNG propulsion:**

- CNN La Naval (Sestao):
  - Ferry for Balearia (optional, construction of a second twin ferry).
  - Cable-laying for DEME Tideway shipowner.
  - Agree with Balearia for two new ferries.
- Shipyard Gondán:
  - Three tugboats for Østensjø Rederi shipowner.



Fuente: DNV GL (march de 2016)

# National Policy Framework

## SUPPLY SITUATION. BUNKERING INFRASTRUCTURE IN 2016

- **EXISTING BUNKERING INFRASTRUCTURE IN 2016:**

- 250 tanker trucks y 27 cryogenic containers
- Spanish gas companies had done 8 successful LNG bunkering operations to vessels using TTS

- **BUNKERING INFRASTRUCTURE EXPECTED in 2025 and 2030:**



STS



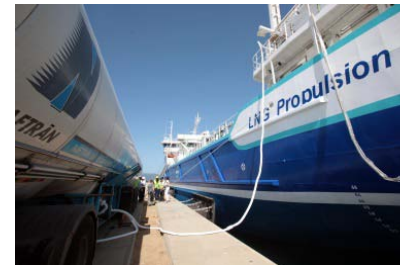
4 barges in  
**Barcelona, Bilbao,  
Valencia y Ferrol  
Ports** (Basic network  
RTE-T) results of pilot  
projects



PTS



4 connections in  
**Barcelona, Bilbao,  
Valencia y Ferrol  
Ports** (Basic network  
RTE-T) results of pilot  
projects



TTS



Option to **on-demand  
supply**, depending of  
volume, discharge flow  
and geographical  
availability (fleet of 250  
tanker trucks)



CTS

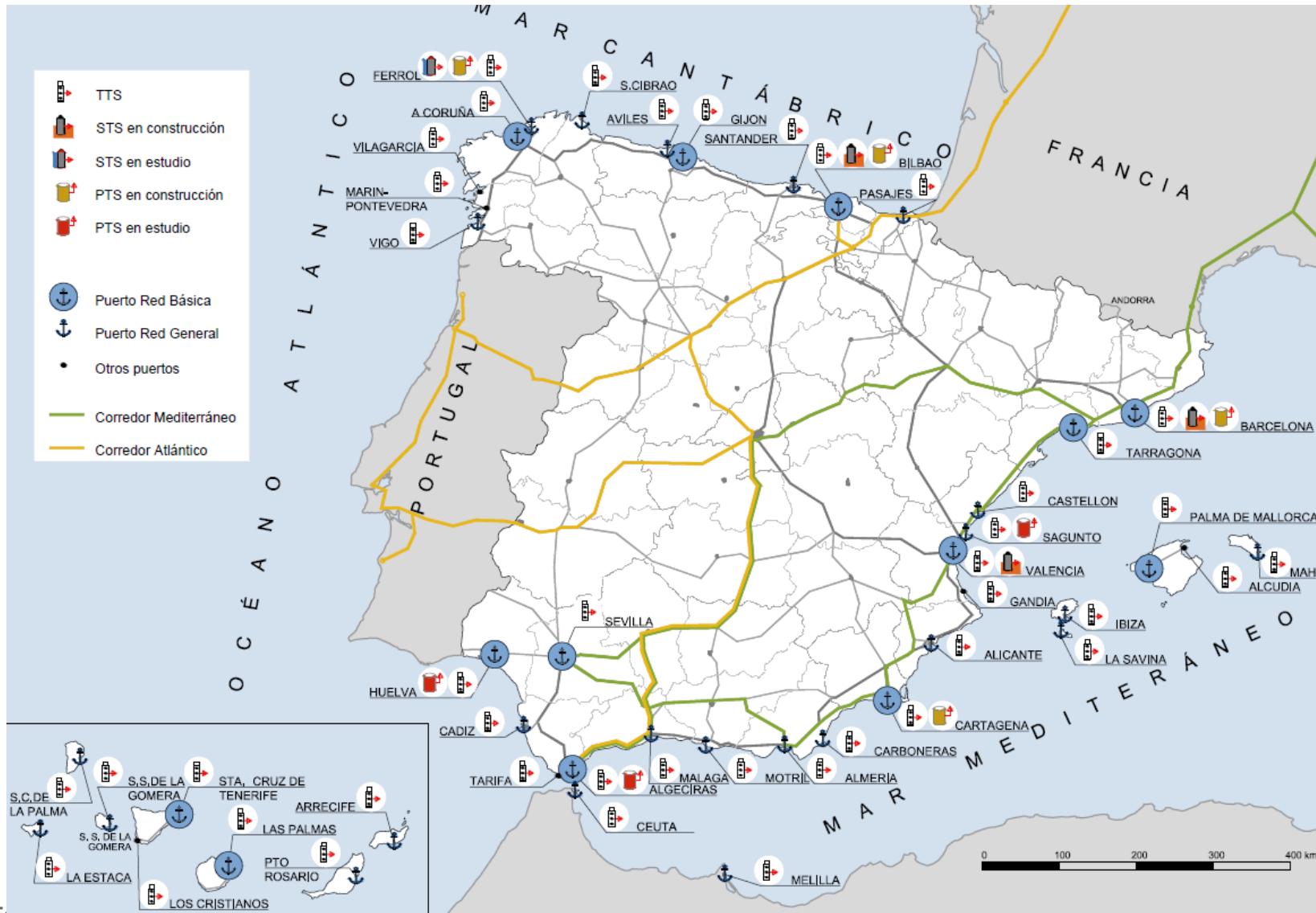


Option to **on-demand  
supply** (27 Cryogenic  
containers)

# National Policy Framework

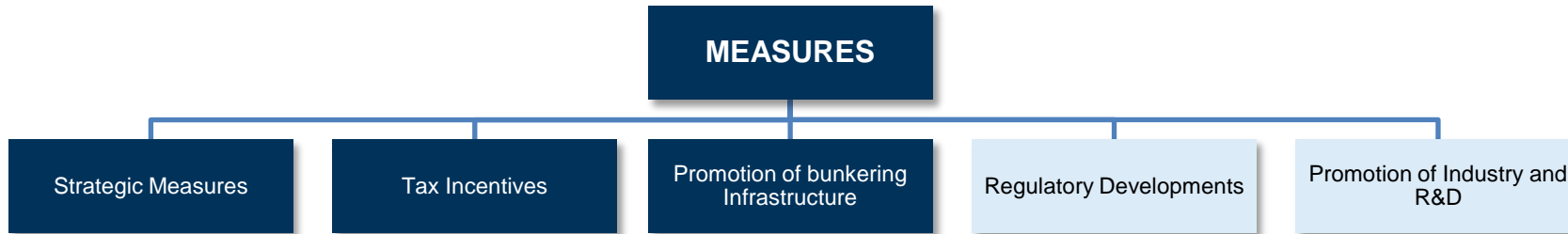
## CUANTITATIVE NATIONAL OBJECTIVES AND GOALS

### • EVOLUTION OF BUNKERING INFRASTRUCTURE:



# National Policy Framework

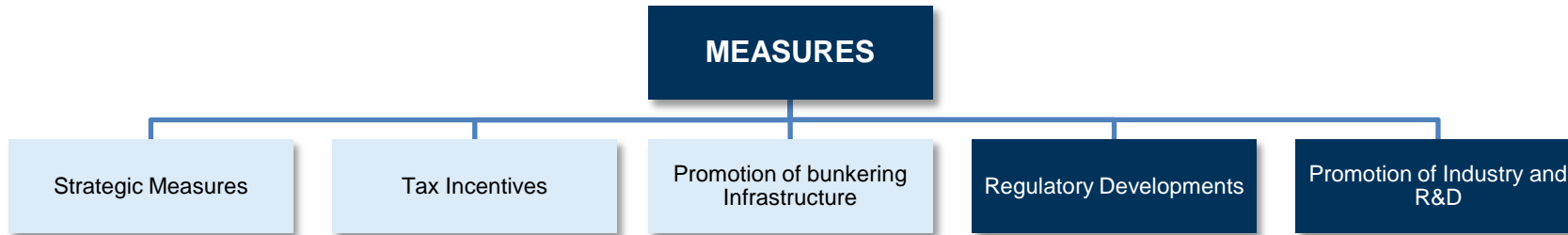
## IMPULSE MEASURES (I)



CATEGORY	Nº	MEASURE	COMPETENCIA	REGULATORY
Strategic Measures	1	<b>CORE LNGas Hive Project:</b> Core Network Corridors and Liquefied Natural Gas Budget 2014-2020: 33M€ <i>cofinanced to 50%</i>	Puertos del Estado y DG Marina Mercante (MFOM) Private Initiative	CEF (Aprobated in 2014)
Tax Incentives	2	<b>Bonus in the port rate</b> applicable to vessels <b>propelled by LNG</b> or LNG auxiliary engines (LNG carriers are excluded)	MFOM	Legislative Royal Decree 2/2011, 5th september
	3	Exemption for LNG used to propel vessels in the special hydrocarbon tax	MINHAP	Directive 2003/96/CE del Consejo, 2003, 27th october, Law 22/2005, Law 38/1992, de 28 de diciembre, Special Taxes
Promotion of bunkering Infrastructure	4	<b>Development of LNG supply barges and terminals</b> in ports through the actions of the CORE LNGas Hive Project	Puertos del Estado y DG Marina Mercante (MFOM) Private Initiative	CEF
	5	<b>Promotion of participation of Spanish entities in infrastructure projects for LNG bunkering</b> cofinanced by Programs of European Union	MFOM MINECO DGFONDOS	CEF Program Horizon 2020 Program FEDER

# National Policy Framework

## IMPULSE MEASURES(II)

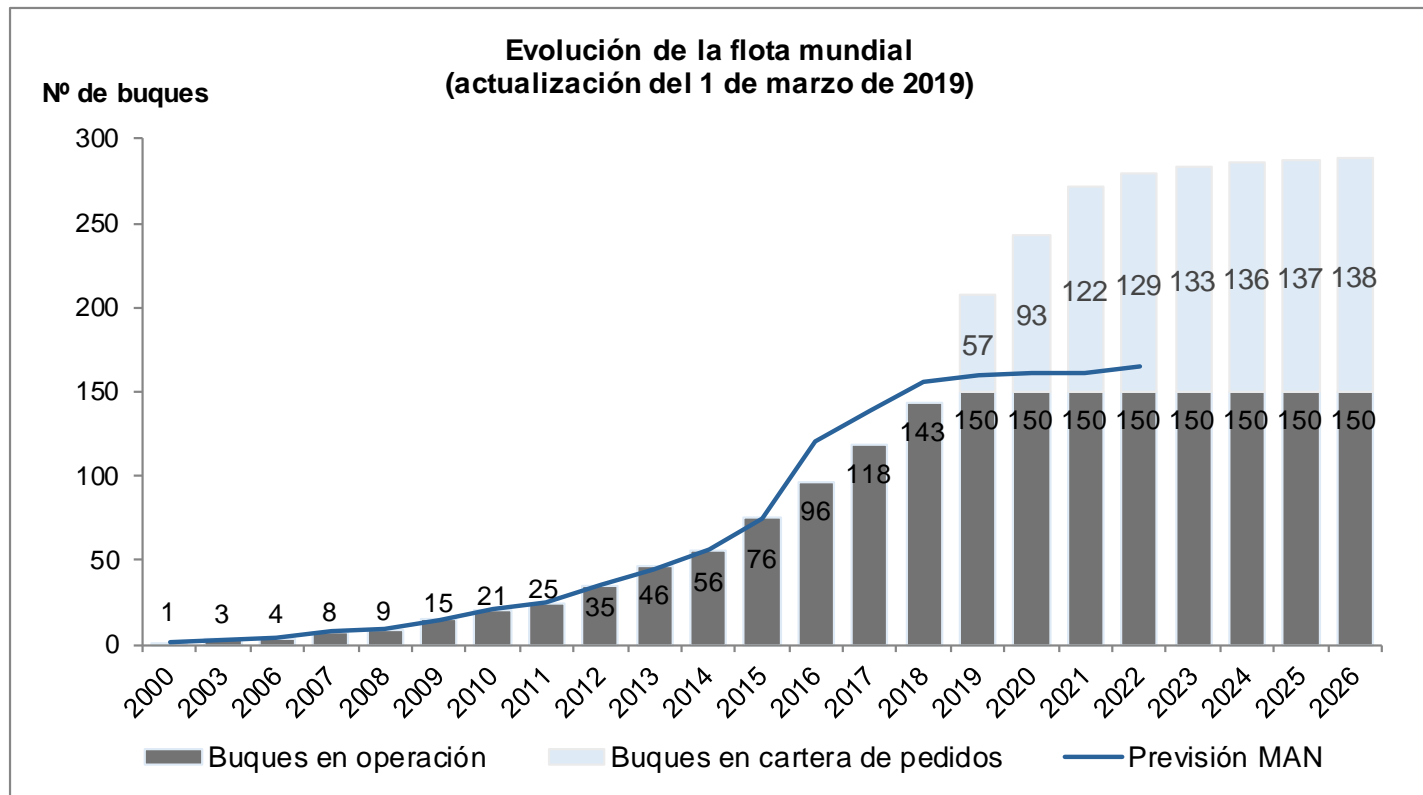


CATEGORÍA	Nº	MEDIDA	COMPETENCIA	NORMATIVA
Regulatory Developments	6	<b>Training Programs for vessel's companies using LNG</b>	MFOM	OMI : MSC.396(95) y MSC.397(95)
	7	<b>Analysis of the LNG consumption:</b> LNG supply to vessels in the current regulation of the gas sector	MINETUR Puertos del Estado (MFOM)	Ley 34/1998, 7 <sup>th</sup> October, Hydrocarbons Sector Royal Decree 1434/2002, 27 <sup>th</sup> December
	8	<b>Standars in LNG bunkering procedures to vessels</b>	AENOR	
	9	<b>Procedures for LNG bunkering services in public port domain</b>	Puertos del Estado (MFOM)	
Promotion of Industry and R&D	10	<b>Spanish State Guarantees</b> for construction and retrofiting of low emission vessels Budget 1999-2016:40M€	MFOM	General Budget Law of the State
	11	<b>Shipyards R&amp;D Aids</b> for constructiona of innovative ships and manufacturing procesdes	MINETUR	Royal Decree 442/1994, 11th March, about aids on naval construction
	12	<b>Shipyards Credits</b> : Subsidy of the interest rate on the credits granted by the financial entities to the shipowners for the construction of ships in Spain.	MINETUR	Royal Decree 442/1994, 11th March, about aids on naval construction



# Application Report and Review of NPF

## CURRENT SITUATION: FLEET WITH LNG PROPULSION



### • CHANGES REGARDING NPF:

- **International Fleet:** from 77 to 150 vessels
- **Expected Fleet to 2022:** from 165 to 279 buques (added vessels in order books)
- **Spanish Fleet:** from 0 to 3 vessels  
8 vessels in construction / order books  
(expected between 2019 and 2021)

# Application Report and Review of NPF



## DEVELOPMENTS ABOUT NATIONAL LNG FLEET

(in addition to viability studies and other tasks to improve demand)

PROJECT	PROMOTER	BUDGET	STATE	COMMENTS
Cleanport Project: <b>Retrofitting of RO-PAX vessel “Abel Matutes”</b> (LNG auxiliary engine) Route Barcelona – Palma de Mallorca.	Gas Natural Fenosa, Balearia, Autoridad Portuaria de Barcelona, Autoridad Portuaria de Baleares, DGMM	4.185.579 € 50% Cofinanced by CEF. Other 40.850 € from national public funds (AP Barcelona, AP Baleares, DGMM).	Operational from January 2017	On January 29th, 2017 was performed the first LNG bunkering operation to this vessel in Barcelona port. From March 2017 are performed weekly TTS.
<b>Build two new vessels type ferry</b> (shipyard: Cantiere Navale Visentini) dual engines with LNG or traditional fuel.	Balearia (private)	180.000.000 €	Operational from January 2019	“ <b>Hypatia de Alejandría</b> ” vessel is the first passengers ferry that cruise in the Mediterranean Sea LNG propelled. It’s a 186,5 m long and has the capacity to carry 810 passengers, 2.180 m linear of load and 150 cars, can reach 24 knots. Two dual engines of 20.600 kW. The twin vessel “ <b>Marie Curie</b> ” begin to operate next months.
<b>Build a new vessel type Fast Ferry</b> (shipyard Armon) 4 dual engines with LNG or traditional fuel.	Balearia (private)	90.000.000 €	On development – Operational in 2020	The ferry is 123m-long, and has the capacity to carry 1,200 passengers and 250 vehicles, the vessel “ <b>Eleanor Roosevelt</b> ” Will can reach more than 40 knots. Four dual engines of 8.800 kW, plus four “waterjet” for propulsion as well as two LNG auxiliary engines and, other two Diesel auxiliary engines.
Project LINGHIVE2 VESSELS DEMAND: GREEN AND SMART LINKS - LNG solutions for smart maritime links in Spanish Core ports: <b>Retrofitting of 5 ferries to LNG</b> currently operating in Mediterranean Sea	Balearia (private)	60.000.000 € 20% cofinanced by CEF.	On development – Operational between 2019 and 2021	The project started on November 2018 with the retrofitting of ferry “ <b>Nápoles</b> ” in shipyards Gibdock (Gibraltar), operational in 2019 march. Next is begin the same process with vessels “Sicilia”, “Abel Matutes” (already with LNG auxiliary engine), “Bahama Mama” y “Martín i Soler”. Will be installed dual engines with LNG or fuel, plus tanks to store 440 m <sup>3</sup> LNG to allow an autonomy for 1.200 miles.
<b>Retrofitting of 1 ferry to GNL</b>	Balearia (sector privado)	12.000.000 €	Planning (no started)	Ferry “ <b>Hedy Lamarr</b> ”, retrofitting will be similar to above vessels, although in this case 100% of budget will be private. It’s not known the begin of operation.
Activity EPA3 CORE LNGas Hive: Puerto de Bilbao. <b>New LNG propelled tugboat</b> (dual engine engines with LNG or traditional fuel.).	EVE, Remolcadores Ibaizabal	3.436.000 € Cofinanciado al 50% por CEF. Del restante 50%, un total de 27.550 € son fondos públicos nacionales (EVE).	On development – Operational in October 2019	The design was finished, and they were signed the main contracts of equipment purchase and build on shipyard. Ibaizabal will develop most of budget and will be the leader and will carry out the rest of biddings needed for Bilbao tugboat.

# Application Report and Review of NPF



## CONSTRUCTIONS IN SPANISH SHIPYARDS OF VESSELS PROPELLED BY LNG AND, BARGES FOR LNG BUNKERING

- **Armón Shipyard** : Build **one new vessel type fast ferry** for shipowner Balearia. Expected delivery on summer 2020.
- **Barreras Shipyard** : Build **two vessels type cruise** for shipowner Havila Kystruten. Expected delivery on 2021.
- **CNN La Naval:**
  - Ferry CNG dual Texelstroom (delivered July 2016) for Holland shipowner Royal N.V. Texels Eigen Stoomboot Onderneming (TESO).
  - Cablero Living Stone (delivered October 2017) for Holland shipowner DEME Tideway.
- **Gondán Shipyard** : **Three dual tugboats** named Dux (delivered May 2017), Pax (delivered July 2017) and Audax (delivered August 2017) for Norwegian shipowner Østenjø Rederi A/S.
- **Murueta Shipyard** :
  - Retrofitting of one bunkering barge to add the option on LNG bunkering in the atlantic spanish coast for Ibaizabal. Delivered on January 2018 (“Oizmendi”), currently operating in Huelva port.
  - Build of one new LNG propelled tugboat for “Ibaizabal Tugboats”. Expected delivery on December 2019.
- **Zamakona Shipyard** : Build of multiproduct barge “Bunker Breeze”. Delivered on October 2018, currently operating in Algeciras port. It has the capacity for ten tanks of traditional fuel and four LNG tanks, although LNG tanks were not installed (LNG Ready).

# Application Report and Review of NPF

## LNG BUNKERING OPERATIONS BY SPANISH COMPANIES

### NPF (2012 TO 2015)

• 7 OPERATIONS  
in national ports

### REPORT NPF (2016 TO 2018)

• 113 OPERATIONS  
in national ports

FECHAS	Nº DE OPERACIONES	PUERTO	BUQUE	TIPO	TAMAÑO ESLORA X MANGA (m)	ARQUEO BRUTO (GT)	CAPACIDAD DE CARGA GNL (m³)	COMERCIALIZADOR	TRANSPORTISTA AUTORIZADO	REPOSTAJE (m³)	Nº DE CISTERNAS	TIEMPO DE CARGA (h)	PLANTA REGASIFICADORA ORIGEN DEL SUMINISTRO	OBSERVACIONES
ene-17 a dic-18	82	Barcelona Valencia	Abel Matutes	Ferry	190 x 26	29670	30	Naturgy	Molgas Energía	entre 7 y 25	1	1,5	Barcelona Cartagena Sagunto	Consumo motor auxiliar
dic-18	1	Tenerife	Aida Nova	Crucero	337 x 42	183200	3520	Shell	Shell	2500	(STS)	4	Rotterdam	Suministro desde buque Cardissa
oct-17 a feb-18	8	Barcelona Marsella	Aida Perla	Crucero	300 x 38	125572	0	Molgas Energía	Molgas Energía	entre 1 y 6	(CTS)	12	Barcelona	Consumo inmediato motor auxiliar
ago-17	1	Gijón	Audax	Remolcador	40 x 16	1066	33	Repsol	Molgas Energía	32	1	2	Bilbao	
abr-17	1	Cartagena	Damia Desgagnés	Asfaltero	135 x 23	11978	620	Repsol	-	370	(PTS)	5	Cartagena	Suministro directo desde planta
may-17	2	Gijón	Dux	Remolcador	40 x 16	1066	33	Repsol	Molgas Energía	entre 22 y 26	1	2	Bilbao	
may-18	1	Cartagena	Fure Vinga	Carga	150 X 23	12770	540	Naturgy	Molgas Energía	257	6	13	Cartagena	
fe.-18	1	Bilbao	Ireland	Cementerero	110 x 14	4284	130	Molgas Energía	Itsas Gas	86	(STS)	6	Bilbao	Suministro desde buque Oizmendi
mar-17 a mar-18	15	Algeciras Bilbao Santander	Ireland	Cementerero	110 x 14	4284	130	Molgas Energía	Molgas Energía	entre 59 y 89	2	5	Huelva Bilbao	
mar-18	1	Cartagena	Mia Desgagnes	Petrolero	135 X 23	11837	625	Repsol	Molgas Energía	440	10	32	Cartagena	
oct-17	1	Cartagena	Myksund	Transporte			///	Repsol	Molgas Energía	85	2	5	Cartagena	
mar-17	1	Gijón	Pax	Remolcador	40 x 16	1066	33	Repsol	Molgas Energía	29	1	2	Bilbao	

# Application Report and Review of NPF



## CURRENT SITUATION OF INFRASTRUCTURES AND EQUIPMENTS FOR LNG BUNKERING

### • CURRENT INFRASTRUCTURE OF BUNKERING:

- 265 tank trucks and 14 cryogenic containers
- 1 supply barge operating in Huelva from 2018 (STS)
- 2 supply terminals operating in Barcelona and Bilbao (PTS)

### • EXPECTED INFRASTRUCTURE OF BUNKERING 2025 and 2030:

TYPE OF SUPPLY	CURRENTLY	ON DEVELOPMENT
<b>TTS</b>	LNG on-demand supply in the 43 general interés ports	<ul style="list-style-type: none"><li>▪ MTTs in Gijón (operational in 2020)</li><li>▪ MTTs in Huelva (operational in 2019)</li></ul>
<b>CTS</b>	LNG on-demand supply in the 43 general interés ports.	
<b>STS</b>	<ul style="list-style-type: none"><li>▪ Huelva</li></ul>	<ul style="list-style-type: none"><li>▪ Bahía de Algeciras (operational in 2021)</li></ul>
<b>PTS</b>	<ul style="list-style-type: none"><li>▪ Barcelona</li><li>▪ Bilbao</li></ul>	<ul style="list-style-type: none"><li>▪ Cartagena (operational in 2019)</li><li>▪ Ferrol (operational in 2020)</li><li>▪ Huelva (operational in 2019)</li><li>▪ Sagunto (operational in 2021)</li><li>▪ Valencia (operational in 2019)</li></ul>

# Application Report and Review of NPF



## DEVELOPMENTS OF INFRASTRUCTURES AND EQUIPMENTS FOR LNG BUNKERING (I)

PROJECT	PROMOTER	BUDGET	STATE
Activity EPM2 CORE LNGas Hive: Puerto de Barcelona. <b>Build of a barge for LNG bunkering</b> with capacity of 300 m <sup>3</sup> (STS).	AP Barcelona, Suardiaz, Bureau Veritas Iberia, Cepsa, HAM	2.754.000 € 50% Cofinanced by CEF. 46.708 € from national public funds (AP Barcelona).	Operational October 2018
Activity EPA2 CORE LNGas Hive: Puerto de Bilbao. <b>Retrofitting of a barge for LNG bunkering</b> with capacity of 600 m <sup>3</sup> (STS).	EVE, ITSAS GAS	5.573.000 € 50% Cofinanced by CEF. 40.000 € from national public funds (EVE).	Operational January 2018
Project LNGHIVE2 INFRASTRUCTURE AND LOGISTIC SOLUTIONS: <b>Build a new multiproduct (LNG + fuel) bunkering barge</b> to operate in Strait of Gibraltar (STS).	Marflet	15.792.000 € 20% Cofinanced by CEF. Rest are private funds.	In development – planned completion February 2021
Activity EPM1 CORE LNGas Hive: <b>Puerto de Barcelona. Installation of dedicated hoses in existing dock</b> from regasification plant, for LNG bunkering until 80.000 m <sup>3</sup> (PTS).	Enagás, AP Barcelona	1.525.000 € 50% Cofinanced by CEF. 38.125 € from national public funds (AP Barcelona).	Operational October 2018
Activity EPM4 CORE LNGas Hive: <b>Puerto de Cartagena. Regasification plant dock adaptation</b> in Escombreras for LNG bunkering (PTS).	Enagás, AP Cartagena	2.730.000 € 50% Cofinanced by CEF. 136.500 € from national public funds (AP Cartagena).	In development – Planned completion April 2019
Activity EPM5 CORE LNGas Hive: <b>Puerto de Valencia. Build one mixed gas station for vehicles and boats</b> (PTS)	Molgás, Fundación Valenciaport, AP Valencia	2.910.620 € 50% Cofinanced by CEF. 24.500 € from national public funds (AP Valencia).	In development – Planned completion October 2019
Activity EPA1 CORE LNGas Hive: <b>Puerto de Bilbao. Regasification plant dock adaptation</b> for LNG bunkering of vessels or barges (PTS).	EVE, ITSAS GAS	700.000 € 50% Cofinanced by CEF. 290.000 € from national public funds (EVE).	Operational January 2018

# Application Report and Review of NPF



## DEVELOPMENTS OF INFRASTRUCTURES AND EQUIPMENTS FOR LNG BUNKERING(II)

PROJECT	PROMOTER	BUDGET	STATE
Activity EPA4 CORE LNGas Hive: <b>Puerto de Ferrol. Regasification plant dock adaptation</b> for LNG bunkering of vessels or barges (PTS).	Reganosa	1.200.000 € 50% Cofinanced by CEF. Rest are private funds	In development – planned completion marzo de 2020
Project LNGHIVE2 INFRASTRUCTURE AND LOGISTIC SOLUTIONS: <b>Puerto de Huelva. Regasification plant dock adaptation</b> for LNG bunkering of all types boats (PTS).	Enagás	1.689.585 € 20% Cofinanced by CEF. Rest are private funds	Planning– planned completion December 2019
Project LNGHIVE2 INFRASTRUCTURE AND LOGISTIC SOLUTIONS: <b>Puerto de Sagunto. Regasification plant dock adaptation</b> for LNG bunkering (PTS).	SAGGAS	1.003.500 € 20% Cofinanced by CEF. Rest are private funds	Planning– planned completion December 2021
Activity EV1 CORE LNGas Hive: <b>Puerto de Ferrol. Design of a regasification plant dock</b> , 2º berth (suministro PTS).	Reganosa, AP Ferrol	100.000 € 50% Cofinanced by CEF. 20.000 € from national public funds (AP Ferrol).	Planning– planned completion December 2020

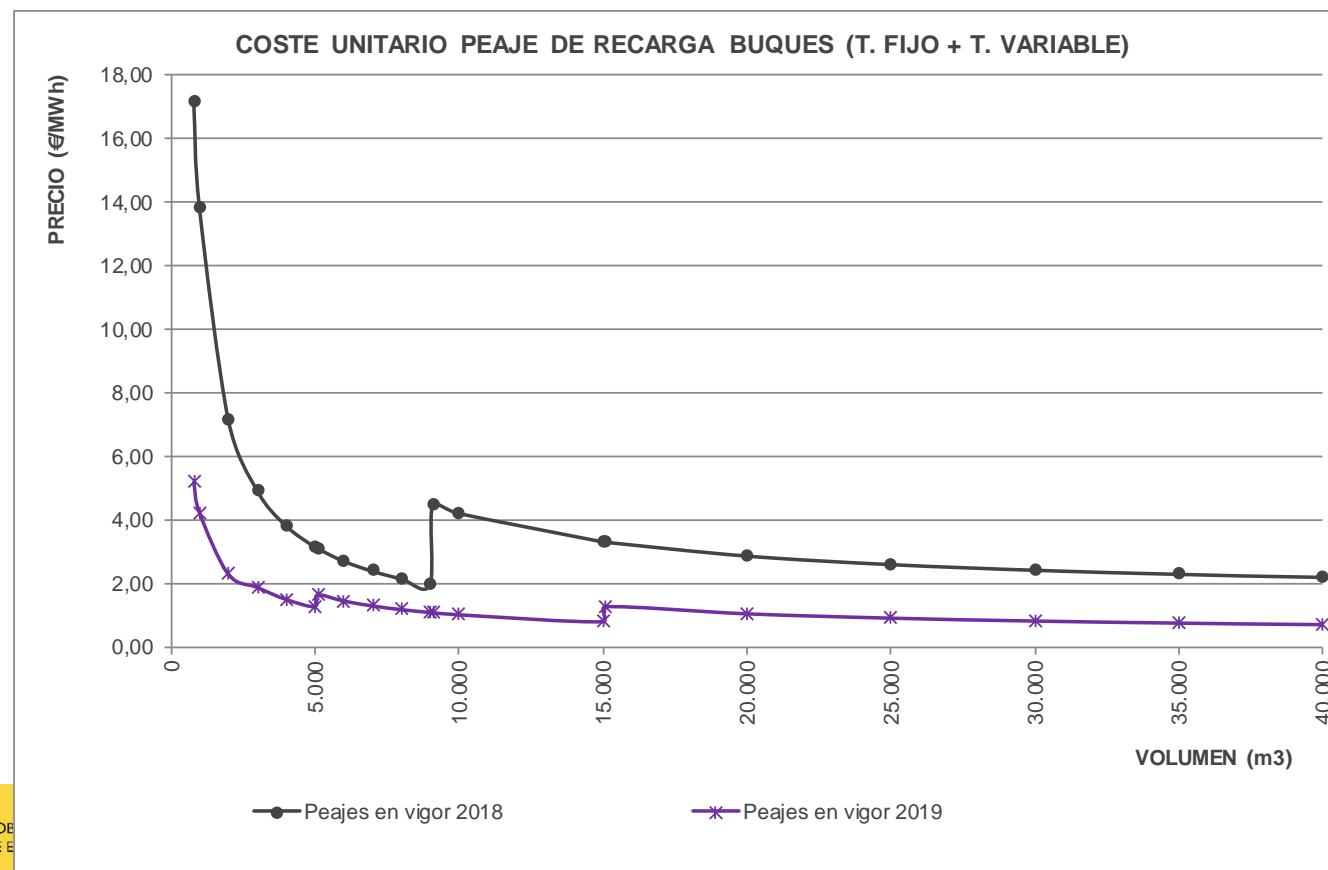
### • NEW DEVELOPMENTS IDENTIFIED IN 2018:

- **Port of Algeciras.** Build a new LNG storage for Small Scale Supply and Bunkering.
- **Port of Vigo.** Build a new LNG storage for direct bunkering to vessels (PTS).
- Build of a feeder vessel to supply in **Atlantic Area**
- Build of a feeder vessel to supply in **Mediterranean Area**
- Retrofitting of **LNG consumer vessels** operating regular services in Atlantic Area.

# Application Report and Review of NPF

## MAIN MILESTONES REACHED LINKED TO NPF MEASURES (I)

- Apply of **Royal Decree 335/2018**, May 25th, modifying various Royal Decrees that regulate the natural gas sector. **New structure of cargo tolls** (specific range from 0 to 5.000 m<sup>3</sup>).
- **Order TEC/1367/2018**, December 20th, which establishes the tolls and fees associated with third party access to gas facilities and the remuneration of regulated activities for the year 2019. Two **values of LNG cargo to vessels tolls** for small volume,  $V < 2.000 \text{ m}^3$ ,  $2.000 \leq V < 5.000 \text{ m}^3$  (values between 60-70% lower than before).





# Application Report and Review of NPF



## MAIN MILESTONES REACHED LINKED TO NPF MEASURES (II)

- Launch of **roll-out institutional strategy LNGHIVE2** (WP4.2)
- Launch the collaboration with INCUAL (National Institute of Qualifications) to develop a new official qualification about LNG bunkering activities, included maritime and port environment. Creation of a group of experts who Will develop the analysis of competences needed for that qualitications (ET6).
- Development of models for Port Authorities about PPP (**particular requirements sheets**) on port **service of fuel bunkering** (LNG included) and guide of technical requirements (ET1).
- Approval of the **Bonus for port taxes** applied to consumer vessel, to the LNG as good for the bunkering, and to regasification terminals for LNG bunkering, by certain Port Authorities.
- Published Law 6/2018, 3th July, about PGE for year 2018, which includes a € 40 million item destined for **State Guarantees for the building and retrofitting of low emission ships**.
- Approval of **Ecological Public Contracting Plan** of the General State Administration, its autonomous organisms and the entities managing Social Security (2018-2025).

# Application Report and Review of NPF

## PRIORITY AREAS IN 2019

- **Indicative plan of investments** related to the deployment of the bunkering market (Roll-out) and full definition of the LNGHIVE2 strategy, once the studies of the logistics chains and the cost simulation tool have been completed. This investment plan will allow the establishment of a financing strategy for deployment within the framework of LNGHIVE2.
- Royal Decree-law 1/2019, de 11 de enero, of urgent measures to adapt the competences of the National Commission of Markets and Competition to the requirements derived from community law in relation to Directives 2009/72/EC and 2009/73/EC of the European Parliament and of the Council, of 13th July 2009, on common rules for the internal market for electricity and natural gas. **Definition of the methodology for the calculation of LNG cargo tolls to ships.**
- Draft Law on Climate Change and Energy Transition. **Positioning of fossil fuels in the gradual reduction of emissions generated by ships.**
- COM(2018) 773 final *A Clean Planet for all. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy.* **Neutral Economy about GHGs in 2050.**
- ...



# Thank you



**CORE LNGas  
hive**

[www.corelngashive.eu](http://www.corelngashive.eu)



Co-financed by the European Union  
Connecting Europe Facility

Puertos del Estado



GOBIERNO  
DE ESPAÑA

MINISTERIO  
DE FOMENTO