CNMC
COMISIÓN NACIONAL DE LOS MERCADOS Y LA COMPETENCIA

STUDY ON PORT SERVICES (I): PILOTAGE, TOWING, MOORING AND UNMOORING, COLLECTION OF SHIP-GENERATED WASTE AND FUEL SUPPLY

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SUMMARY

The port system is of great importance for the transport of goods and passengers both nationally and internationally, with implications for consumers and all productive sectors. To identify problems of efficiency and competition and make recommendations for improvement, this study examines the framework in Spain of the technical-nautical services of pilotage, towing and mooring and unmooring; the collection of ship-generated waste and cargo residues (or MARPOL) and the *bunkering* service. It is recommended, first, to improve the framework applicable to the provision of services, adapting the specifications and the mechanisms of concessions and licenses to a competitive approach, establishing appropriate incentives and considering the creation of an independent supervisor. Second, to promote a regime of competition in access to the pilotage service. Third, to promote competition in the towing service. Fourth, to make the provision of the collection of ship-generated waste and cargo residues service more flexible in terms of the waste and ports that can be selected to provide the service, defining the charges and the use of surpluses in a way that is appropriate for competition. Finally, a framework of transparency and competition in the fuel supply service is recommended.

KEY WORDS: competition; efficiency; regulation; pilotage; towing; mooring; unmooring; collection of ship-generated waste and cargo residues; fuel supply.

JEL CODES: K23; L43; L51; L92; A4.

CONTENT

EXECUTIVE SUMMARY

Seaports are the entry and exit point for most of the trade in goods from the European Union (EU) and Spain, as well as an important node for passenger transport, of relevance for a tourism powerhouse like Spain. The importance of ports for the competitiveness of the Spanish economy makes the proper functioning of the services provided in them key. And not only for the users of these services, but also for the entire logistics sector that uses the ports and with it any other industries and activities that depend on the goods and people who transit through them.

Given its importance, the CNMC has prepared this study to analyze in depth the main services provided in ports, identifying problems and proposing reforms that promote greater competition and efficiency for the benefit of consumers and the Spanish economy. This study examines the **services provided to the ship**. They are five services: the three technical-nautical services (**pilotage**, **towing**, **mooring and unmooring**), **MARPOL** (collection of ship-generated waste and cargo residues) and the fuel supply service, also called ***bunkering***. These activities, albeit sharing some common elements and characteristics, are highly heterogeneous. Their importance in any case is crucial for the proper functioning of ports, as they affect the transit times and costs of ships, and can hinder, delay or even in certain cases paralyze the port's activity. The analysis of the sector is completed with another study by the CNMC (E/CNMC/005/24) that examines port services related to ship loading; that is, cargo-handling and passenger services.

Spain has peculiar geographical characteristics, given the nearly 8,000 km of coastline and its geographical location on a peninsula and two archipelagos. This explains both the relative importance of the large number of the so-called “ports of general interest” (46) and the great heterogeneity between them, not only in terms of their location but also in terms of the different types of traffic that passes through them, both of cargo and passengers.

The essential features of the current regulation of ports of general interest are decentralization and liberalization. Indeed, there has been a decentralization in the governance of these ports, which implies a distribution of regulatory powers between, on the one hand, a relatively autonomous Port Authority of each port and, on the other hand, Puertos del Estado at the state level as coordinator of the port system. At the same time, there has been a liberalization of most of the services provided, whereby the Port Authorities have ceded the provision of the most economically relevant services to private initiative, remaining as landlords of infrastructures and land, regulators of economic activity and directors and managers of the ports. All this has configured the current regulatory system of these services into two categories, one of regulation common to all ports, both supranational and national and materialized

in regulations, directives, laws, royal decrees, etc., and another one of specific regulation for each port, materialized in the different "specific terms and conditions" that regulate in detail the services and the use of the port public domain.

The services provided in the ports analyzed in this study encounter restrictions on competition and efficient regulation that can hinder the proper functioning of ports and maritime transport. Despite the principle of free competition enshrined in the general regulations for these services, reinforced by an express legal mandate to promote competition for regulators, **the vast majority of these services are provided under a monopoly regime** within the scope of each port in question. These services would face not only problems in the design of the current regulations (restrictions on access to the profession, explicit or tacit limitation of the number of providers, etc.) with potentially anti-competitive effects, but also problems in the application and compliance with those regulations. All this, together with the lack of transparency, generates reasonable doubts about legal certainty and about the existence of a balanced and open playing field, which has materialized in the absence of competition.

In order to promote more efficient and competitive ports, for the benefit of consumers and the many industries and activities that depend on them, the CNMC makes the following **recommendations**:

FIRST. PROMOTING AN EFFICIENT AND PRO-COMPETITIVE INSTITUTIONAL AND REGULATORY FRAMEWORK.

First, a set of recommendations common to all the services considered in this volume is made:

I. Update the Specific Terms and Conditions (PPPs) to current common regulations and design them with a pro-competitive approach.

Given that PPPs (Pliegos de prescripciones particulares, specific terms and conditions) establish the fundamental rules of the game for incumbent providers as well as potential entrants, it is recommended that these PPPs are up to date with respect to current regulations and market situation. It would also be desirable to design them in accordance with the principles of good regulation, so that all requirements are necessary, proportionate and non-discriminatory.

II. Adopt a pro-competitive approach in the design of licensing and licensing requirements.

Specifically, it is recommended: i) not to limit the number of licenses except in necessary and justified cases; ii) to establish the technical-professional and economic-financial requirements in accordance with criteria of necessity and

proportionality; (iii) to prioritize a quality control system over the requirement of minimum resources and eliminating possible redundancies; iv) to consider indefinite license in cases of unrestricted number of providers; (v) to systematize the link between licenses and concessions; vi) to publish in the Official Gazettes the granting and renewal of licenses, and vii) to regularize the flexibility mechanisms to grant licenses.

III. Promote the transparency of public concessions through a registrer.

Concessions are a major entry barrier, so it is recommended to create a public register of concessions that provides complete information on relevant variables of such concessions, as greater transparency can help foster competition.

IV. Establish systems of competition for-the-market where the existence of several providers is not viable.

Where it is demonstrated that competition in-the-market is unviable, it is recommended to adopt systems that introduce competition for-the-market. One option, already contemplated in the current regulations, would be to limit the number of providers and grant the license by competitive tender. In this case, the tender should adopt a design (in terms of deadlines, duration, advertising, etc.) that is as procompetitive as possible.

V. Strengthen the methodology in the design of regulated charges.

Tariff regulations should generally be introduced on an exceptional basis and with a rigorous design, given their adverse side effects. It is therefore recommended that tariffs be based on rigorous prior analysis and a methodology for their solid, independent and homogeneous calculation (based in turn on common guidelines) and that economic and financial studies and analyses on the adjustment of variable and maximum charges to market costs and circumstances be carried out regularly, all with a reasonable level of transparency.

VI. Establish a pro-competitive incentive system.

It is recommended: (i) to establish a "comply or explain" system with respect to annual recommendations; (ii) to develop a comprehensive, rigorous and coherent system of indicators;

VII. Consider the introduction of an independent port regulator and supervisor.

An independent regulator could help resolve conflicts and minimise the efficiency and competition problems presented by port services.

SECOND. PROMOTING MORE COMPETITION AND EFFICIENCY IN THE PILOTAGE SERVICE

VIII. Introduce free competition in the granting of pilotage licenses by eliminating of legal monopoly.

It is recommended to eliminate the limitation to only one provider per port area in the pilotage service and open it to free competition, like the rest of the port services.

IX. Promoting transparent and non-discriminatory access to the profession of port pilot.

It is recommended that access to the profession of pilot be improved to introduce more competition into the service, and boost the possibilities of access to the profession. To this end, it is proposed a greater dissemination of information and training, as well as a rethinking of the system of qualification and appointment of new port pilots.

X. Relaxing ship-specific exemptions.

It is proposed to relax one of the three elements of the exemption (to compulsory pilotage service), that relating to the ship, in particular when a new ship has similar characteristics to the previous one.

XI. Considering the introduction of pilotage from land.

It would be advisable to introduce the possibility of carrying out certain pilotage operations from land, either as an alternative or complement to traditional pilotage on board the ship.

THIRD. BOOSTING COMPETITION IN THE TOWING SERVICE

XII. Considering that the Port Authority makes tugboats available to the licensee.

It is recommended, in cases where competition in-the-market is economically unviable, to consider introducing competition for-the-market along with the acquisition of some assets by the Port Authority that can subsequently be made available to the licensee, so as to separate the competitive segment from the non-competitive segment in this service and allow a greater number of companies to apply for the license.

XIII. Ensuring proportionality in the mandatory use of the towing service.

It is recommended to ensure proportionality in the mandatory use of the towing service and, in those cases where it is deemed necessary, it is recommended to justify this decision in a transparent manner.

XIV. Rethinking the flag requirement on tugboats.

Given the restrictive nature of this flag requirement on the entry of new providers, it is recommended to consider less burdensome alternative measures aimed at making providers subject to the relevant obligations in social, labour and safety matters.

FOURTH. MAKING MARPOL'S SERVICE MORE FLEXIBLE

XV. Delimiting licenses type in a way that maximizes competition.

Given the wide possibilities in the combination of the type of waste (annexes) collected, in the modes of provision of the service (by land or sea) and, where appropriate, the selection of ports of the same Port Authority in which to provide the MARPOL service, it is recommended to allow the greatest possibilities of selection by potential provider companies.

XVI. Standardizing the items subject to the payment of the direct (maximum) charge.

It is recommended to standardise as far as possible the concepts subject to the payment of the direct tariff, sometimes divergent between Port Authorities, which in any case, must be consistent with the provisions of state regulations.

XVII. Revising charges in the face of a persistent mismatch of income and expenses and not distribute surplus except in exceptional cases.

It is recommended that the existence of such surpluses and their allocation do not have distorting effects on current and potential competition, reviewing tariffs in the event of persistent imbalances and distributing surpluses only in duly justified cases.

FIFTH. STRENGTHENING TRANSPARENCY AND COMPETITION IN THE FUEL SUPPLY SERVICE

XVIII. Clarify the legal classification of fuel supply service without increasing regulatory barriers.

It is recommended to clarify the different legal classifications of this service in European and Spanish regulations to avoid uncertainty among operators. In this study, no deficiencies have been detected in the operation of the service that could require that this reclassification must be accompanied by a tightening of the regulations.

XIX. Increasing the transparency of marine fuel prices.

It is recommended to publicise the prices of marine fuels from each provider in each port, in a similar way to the existing platform that centralises the prices of

automotive fuels, the *Hydrocarbons Geoportal of* the Ministry for the Ecological Transition and the Demographic Challenge.

1. INTRODUCTION

Seaports are the entry and exit point for most of the trade in goods from the European Union (EU) and Spain. According to data from the European Commission, ports contribute to 75% of the volume of EU external trade and 37% of domestic trade. Ports play an equally important role in linking peripheral and island areas to the mainland, facilitating passenger transport (Comisión Europea, 2017).

In the case of Spain, ports are essential for the trade of goods: about 85% of imports and 55% of exports of goods enter or leave through our ports[1]. They are also relevant in terms of passenger traffic: in addition to tourism arriving by ferry or cruise ship, there is also tourism that derives from the proximity between the Iberian Peninsula and the African continent or the connections with the island territories. More than 40 million passengers and 7 million passenger vehicles[2] passed through our ports of general interest in 2024.

The peculiar geographical characteristics of Spain strongly determine the possibilities and the relative importance of our ports. The approximately 8,000 km of coastline with very varied characteristics and the geographical configuration of the peninsula, the most southwestern in Europe, and the two archipelagos, have given Spanish ports the privilege of being one of the first refuges at the access to the Mediterranean and the last before departure, as well as exceptionally located refuges on the Atlantic and Cantabrian fronts.

The special relevance of ports for the competitiveness of the Spanish economy makes the proper functioning of the services provided in them key. This is why the port sector has been the subject of frequent attention from a competitive perspective.

Given this importance, **the CNMC has prepared this study to analyse in depth key services in ports, such as the technical-nautical services (pilotage, towing and mooring and unmooring), MARPOL (collection of ship-generated waste and cargo residues) and *bunkering* (fuel supply).** The objective of the analysis is to identify problems and make recommendations to improve the efficiency, competition and operation of these services. Given their key role in value chains, improvements in the performance of these services can have a favourable impact on the Spanish economy, facilitating better conditions for passenger transport and trade, to the benefit of companies and consumers.

This study consists of ten sections. After this introduction, a second section analyzes the background of competition advocacy and competition enforcement activities in the port services analyzed in this study. A third section describes the

1 General Dossier – Spanish state-owned port system (Puertos del Estado).

2 Port traffic overview, December 2024. (Puertos del Estado, 2025)

general framework of the system of so-called “ports of general interest”. The following five sections (sections four to eight) address the economic and legal description, as well as the restrictions on competition and efficient regulation of the following services in ports: (i) pilotage, (ii) towing, (iii) mooring and unmooring, (iv) MARPOL (collection of ship-generated waste and cargo residues) and (v) *bunkering*). Finally, the ninth section includes the main conclusions obtained from the analysis and the tenth section provides the recommendations for improving competition in each of the services in the ports analysed.

2. BACKGROUND ON COMPETITION ADVOCACY AND ENFORCEMENT ACTIVITIES

Given the importance of the port sector, the CNMC and other international institutions have spoken out on several occasions.

At the international level, the following studies could be highlighted:

- **UNCTAD** published a study on port development in 2013 and in 2016 the **World Bank** published its Port Reform Toolkit PPIAF 2nd edition, a global benchmark to assist in decision-making in port reform processes.
- The **OECD** published *"Competition in ports and port services"* in 2011. It discusses competitive restrictions in ports, as well as their possible remedies. They note that substitutability between modes of transport is limited. They also point out that interport competition (between ports) may be relevant: it is possible for different ports to operate in a geographic market, even if certain inland traffic is captive. Barriers to entry can be significant due to the existence of economies of scale, especially in ports integrated into logistics chains. As for the forms of abuse of market power by port service providers, they often take the form of excessive prices or refusal to supply the service and, in some cases, practices such as tying and bundling.
- **The *Autoridade da Concorrência* (AdC) of Portugal, in collaboration with the OECD**, published in 2018 a study on competition in the port sector. The study includes an analysis and recommendations on the pilotage service. In Portugal, pilotage is a public service with a limited role for the private sector, and its low competitiveness is attributed to various regulatory barriers. Among them, the difficulty of obtaining exemptions from the compulsory pilotage service (in 2016, only 2% of ships obtained them) or the existence of restrictions on access to the pilotage profession stand out. It is recommended that exemptions are not issued by Port Authorities and that their duration be extended, as well as the separation of the training and examination of new candidates from active pilots.
- The **OECD** has made similar recommendations in the port sector in other countries, such as Brazil, Romania, Chile, the Philippines, Indonesia, Singapore and Malaysia (the latter four also included in a study carried out on ASEAN). With regard to **pilotage**:

  In **Brazil** (2022), it is considered preferable to establish a frequency of review of the suitability of the number of pilots, rather than fixing their number. In addition, it is proposed to establish pricing by an independent entity based on objective criteria. It is also suggested to make pilotage exemption certificates more flexible and ensure that their issuing body is not subject to conflicts of interest.

In **Romania** (2016) it is recommended that the service be provided either by the Port Authority or by private operators, but not by both simultaneously. The second case is considered preferable through a non-discriminatory tendering process. The establishment of a minimum number of pilots for providers is also considered restrictive. And it is proposed to establish an independent regulator to monitor the charges established by the Port Authorities.

In **Chile** (2016), it is suggested to introduce incentives for good pilotage performance, taking as an example the award given in Singapore to the pilot of the year (according to different criteria of quality of service).

In the countries of the **ASEAN** (2021), it is recommended to limit the provision of the pilotage service by the Port Authority to those cases where it is not economically viable or there is no capacity to carry out competitive tenders. Likewise, it is proposed to regularly review the maximum prices so that they are sufficiently encouraging. And, in the case of the Philippines, facilitate access to pilots to ports other than the one where they are providing the service, as well as the possibility of obtaining licenses for several ports.

For the **towing service**, previous studies also propose measures. In **Romania** (2016), one obstacle is the high level of detail in which tugboats and their characteristics are defined in order to obtain authorization. In view of this, it is proposed to require a minimum level of service (e.g. a maximum waiting time). On the other hand, for the **ASEAN** (2021) it is proposed to regularly review the maximum prices of the service.

- In 2012**, the** European Commission commissioned a report on pilotage exemptions in different European countries. It describes the characteristics and differences in the different pilotage models existing in Europe, based on a questionnaire to different agents in the sector. Specifically, the exemptions of this port service and their possible effects are studied in detail, as well as the possibility of carrying out pilotage from land, noting notable divergences for this purpose between some countries and others (e.g. pilotage exemptions would be more common in northern Europe than in the south). It also identify differences in the assessments, often discordant, of the different stakeholders, on these matters or others, such as the convenience of common legislation at European level for the pilotage service. And that led the European Commission to suggest to Member States the creation of a regulatory framework which could facilitate pilotage exemptions.
- Ireland's competition authority carried out a study in 2013, which analyses a number of port services, including pilotage and towing. It documents a generalization in Ireland of pilotage exemption certificates, which would

reach a percentage of up to 80% of ships in the port of Dublin, where pilotage is provided by the Port Authority. It is suggested that opening up to competition could lead to more use of the service and a lower cost. Thus, it is requested to compare it with other ports in the country where the service is fully privatized or with a licensing system (such as Cork).

- The *Australian Productivity Commission* released a report in 2023 that points to the importance of adopting new technologies, such as land-based pilotage (occasionally used in Australia with different equipment), which could reduce costs and improve safety.
- In **Italy**, in 2012, an opinion was published https://www.agcm.it/dettaglio?db=C12563290035806C&uid=61A523D5EE1DE1C1C1257AD8004EBB75&view=&title=AS998%20(ex%20S1634)-REGOLAMENTAZIONE%20DEL%20SERVIZIO%20TECNICO-NAUTICO%20DI%20PILOTAGGIO%20NELLO%20STRETTO%20E%20NEL%20PORTO%20DI%20MESSINA&fs=21%20bis-Poteri%20dell%27Autorita%27%20Garante%20della%20concorrenza%20e%20del%20mercato%20sugli%20atti%20amministrativi%20che%20determinano%20distorsioni%20della%20concorrenza concerning technical-nautical services, in which it considers that the right to self-provision of navigation services could not be denied without adequate justification on safety grounds.

As for **Spain**, in **defence of competition**, numerous proceedings have been initiated:

- Collusive conduct, contrary to Article 1 of the LDC, for the adoption of a "Stability Agreement for the Mooring and Unmooring Sector in the Port of Algeciras Bay" signed by the sector's employers and the trade unions for the port mooring service in the Port of Algeciras (file S/DC/0605/17), which could restrict access to the mooring and unmooring activity and be contrary to the liberalization laid down in sectoral legislation. Specifically, this effect could be obtained by restricting the freedom to contract of companies and homogenizing wage costs, limiting the incentives of companies to compete. Several compromises were reached between the parties to resolve existing restrictions on competition.
- Merger control: (1) the mooring service of the port of Barcelona, where[3] the concentration of the two service providers at that time is authorized

[3] Fundamentally, that of not worsening commercial conditions and not increasing prices with respect to those prior to the concentration, updated annually in a justified manner based on costs.

with commitments (file C/1134/20),[4] (2) in the towing service due to the acquisition of Reyser by P&O Maritime (file C/0864/17), and (3) in the bunkering service framed in files with changes in the control of fixed fuel supply facilities in ports (files C/0033/07 and C/0550/14), barge fleets (C/1117/20)[5] or fuel storage facilities (C/0366/11).

In **promoting competition in Spain**, the following should be highlighted:

- "*Competition in Spain: balance and new proposals*" (1995), where several problems are identified, such asthe lack of agility and coordination between the various goods clearance services[6], the tariffs fixed by Port Authorities or the fact that some port services weree provided under a monopoly regime. It is suggested to give greater autonomy to the Port Authorities to develop a policy of tariff discounts, as well as to completely liberalize the pilotage service, increasing exemptions from the service, facilitating access to the profession and removing quantitative restrictions on access. It is also recommended to liberalize towing services in ports where it is feasible due to their volume of traffic and, in the remaining ports, to improve the administrative concession regime. And to liberalize the mooring service so that it can be provided by any company. Finally, changes are proposed in the provision of dock workers, consignees or terminals for private use.
- The IPN 006/09 Ports of General Interest (2009), relating to the Preliminary Draft amendment to Law 48/2003, the former ports law, states "*maintaining as a general principle the freedom to provide the various port services, but incorporating the possibility of a system of competition for-the-market,* (…) *only in those cases in which the need to limit the number of operators is perfectly proven*" and to introduce greater rigour in the justification of the restrictions on competition in place[7]. Regarding the pilotage service, it does not see sufficient justification (based on the necessary coordination and traffic management) for the limitation of a single operator per port. In the towing service, there is a warning about the

4 A penalty was subsequently imposed for failure to comply with the undertaking to deliver a surveillance report within the required time limit (file SNC/DC/065/23).

5 The report on this concentration operation is also found in the report CNE/81/08.

6 There are also recommendations from the Spanish Chamber of Commerce in the report on Measures to boost the competitiveness of the Spanish port system.

7 "*Such actions should be subject to a threefold test: firstly, of clear identification of the restriction of competition in question; secondly, justification of the need to establish the restriction in accordance with some precisely defined purpose of public interest; and, finally, of accreditation that it is not possible to resort to viable alternatives that are less restrictive of competition to achieve the same end of public interest. Failure to pass this trial, in any of these three stages, should lead to the decision not to opt for the establishment of such a restriction"* (CNMC, 2009).

possibility that the technical characteristics required in the specifications will entail a foreclosed market. In the mooring service, there are no limitations that justify limiting the number of providers.

- In the INF/CNMC/160/18, which analyses the flag requirement of port service vessels (2018), this is assessed as a practice that strongly restricts competition by limiting the entry of providers, which would also not be in accordance with Community regulations or the principles of good regulation set out in our legal system.

3. GENERAL FRAMEWORK: THE PORT SYSTEM

A port can be defined, in its simplest form, as **a place where cargo and passengers are transferred between ships and land** (Talley, 2009). However, in a broader modern conception, the port can be defined as an **industrial and logistic node in supply chains** between two areas, the *Foreland* or sea side and the *Hinterland* or land side, with a strong maritime character and a functional and spatial clustering of activities directly and indirectly linked not only to transportation, but also to transformation and information processes within these global supply chains (Notteboom, Pallis, & Rodrigue, 2022).

From this definition, it can be deduced that ports currently have multiple facets or dimensions beyond the merely geographical one associated with a specific location of the port, such as the range of traffic that pass through them, of cargo (liquid bulk, solid bulk, general merchandise, containers...) and of passengers (regular lines, cruise ships, etc.), the functions or services that generate added value in them or even their institutional or governance system. Consequently, the potential heterogeneity of ports is enormous depending on how these or other dimensions are combined.

As for Spanish ports, according to Eurostat data, Spain ranks fourth in Europe in terms of freight traffic and fifth in terms of passenger traffic (Graphs 1 and 2).

Figure 1: Gross weight of cargo handled in ports (in tonnes)

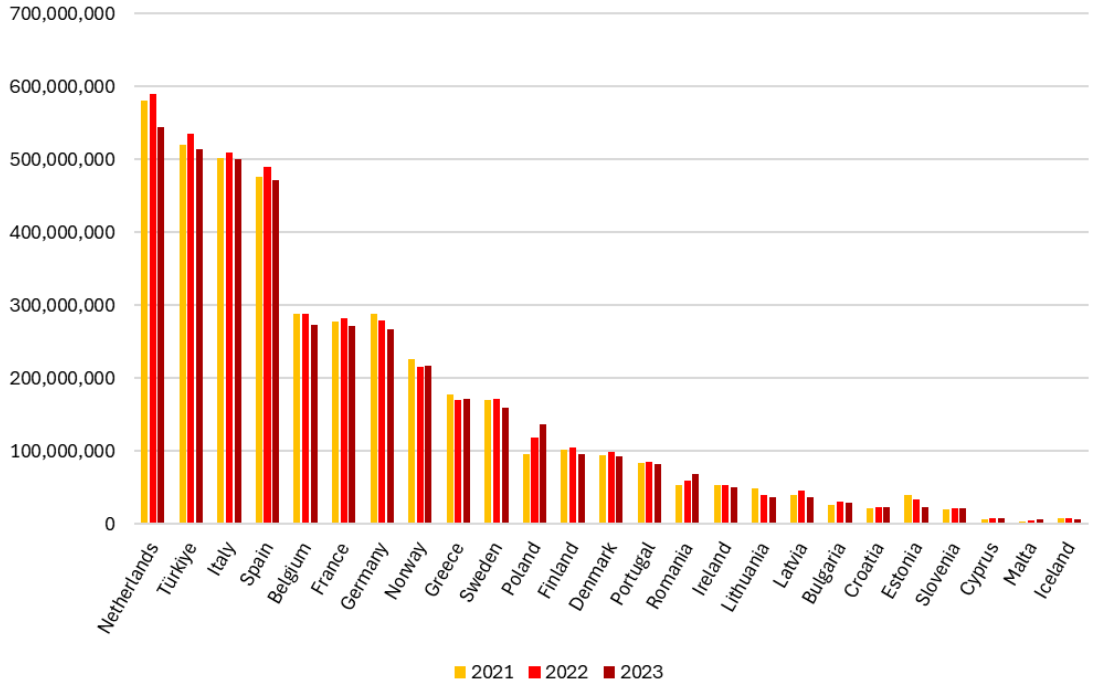
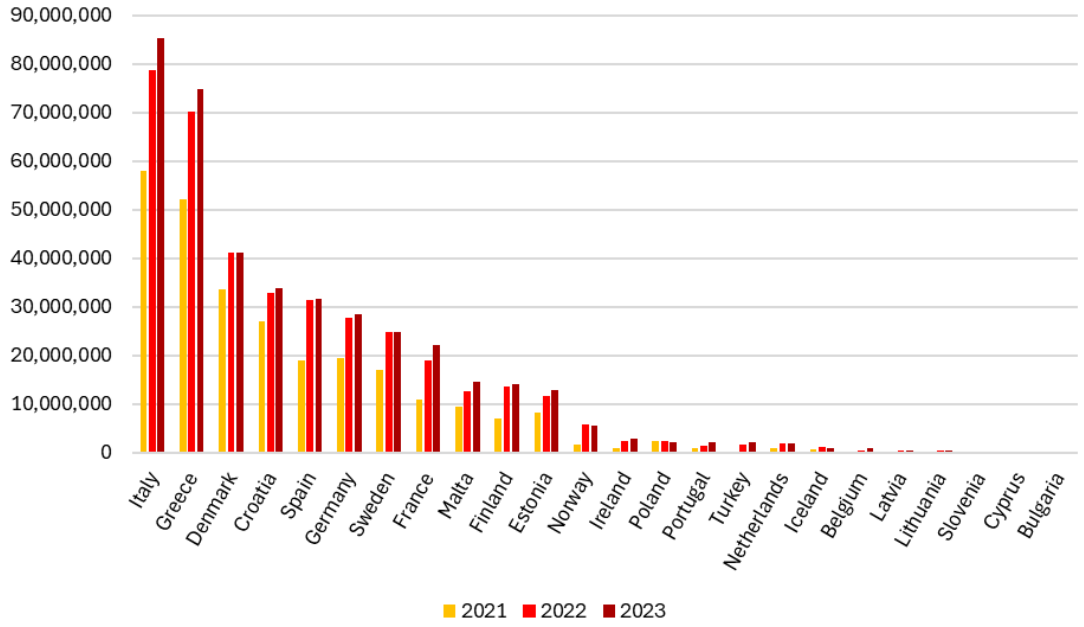


Figure 2: Passengers embarked and disembarked in ports



Source: Eurostat (2024).

In Spain, ports[8] can be divided, from the point of view of the competent authority that manages them, into two broad categories:

A. System of ports of general interest (SPIG) or state-owned port system, which is made up of ports under the exclusive competence of the central State[9], which meet any of these characteristics[10]:

a) They carry out international maritime activities.

b) Its activity has a supra-regional scope.

c) They serve industries of strategic importance to the national economy.

d) Its commercial maritime activity reaches levels or has characteristics relevant to national economic activity.

e) They are essential for the safety of maritime traffic due to their technical or geographical conditions.

8 According to Article 2 of Royal Legislative Decree 2/2011, of 5 September, which approves the TRLPEMM, a seaport is defined as the set of land spaces, maritime waters and facilities that, located on the shore of the sea or estuaries, meet the physical (natural or artificial) and organisational conditions that allow port traffic operations to be carried out and have been authorised for the development of these activities by the competent territorial administration.

9 Article 149.1.20 of the Spanish Constitution.

10 Art. 4 TRLPEMM. The law itself establishes a closed list of ports considered ports of general interest, in its annex I.

B. Marinas, fishing or refuge ports: they are managed by the Autonomous Communities[11]. They have no commercial activity or it is of minor importance.

Currently, there are 46 ports of general interest managed by 28 Port Authorities, coordinated and supervised by the public body Puertos del Estado, responsible for putting into practice the port policy designed by the Government through the Ministry of Transport, Mobility and Urban Agenda. The scope of this study is restricted to the ports of the SPIG, which concentrate most of the freight and passenger traffic in the Spanish port system.

3.1. Legal framework

3.1.1. Overview

At the **supranational level**, the different international conventions applicable in Spain stand out, emanating from various international organizations such as the International Maritime Organization (IMO), the Convention for the Prevention of Pollution from Ships or MARPOL or the International Labor Organization with respect to certain conventions relating to port work, safety and health in ports.

Secondly, a set of EU regulations apply, especially *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 adopting common rules on the financial transparency of ports*. This regulation is the most ambitious European regulation of the port sector to date, following several previous unsuccessful attempts to regulate the port sector at European level. However, although this rule overrides over national legislation, it did not introduce hardly any novelties with respect to the existing national rules. In general, as its name suggests, Regulation (EU) 2017/352 establishes a framework for the provision of a set of services in ports, allowing for further development in each country.

At the **national level,** the fundamental regulation is the Royal Legislative Decree 2/2011, of 5 September, which approves the Consolidated Text of the State Ports and Merchant Marine Law (TRLPEMM). It is a law without implementing regulatory legislation[12]. Of particular importance for the purposes of this analysis are Titles V (on the port public domain), VI (on the provision of services) and VI (on the economic regime, specifically with regard to the setting of fees). Likewise, certain services (such as pilotage or collection of ship-generated waste and cargo residues) have some specific regulations at the national level, such as the

11 Article 148.1.6 of the Spanish Constitution.

12 The exception would be the Operating and Police Regulations (as ordered by art. 295 of the TRLPEMM itself), currently in the drafting phase.

General Pilotage Regulations (Royal Decree 393/1996) or Royal Decree 128/2022, of 15 February, on port facilities for receiving waste from ships.

Special mention should be made of certain provisions of this regulation, which are unusual in the Spanish regulation of economic activities, by which Puertos del Estado and the Port Authorities have the **express mandate to promote competition between service operators** in their respective areas of competence (art. 104.1 TRLPEMM). This mandate is reiterated in the obligations to supervise and promote competition in the provision of port services (art. 125 TRLPEMM).

3.1.1.1. Types of services provided in ports from a legal perspective

The entire chain of services provided in a port is classified in accordance with the provisions of the TRLPEMM. Specifically, the services are grouped into four broad categories:

a) General services[13]: those services from which port users benefit without the need for an application, as well as those necessary for the fulfilment of the functions of the Port Authorities. These services are provided by the Port Authorities and are, among others, the service of planning, coordination and control of port traffic, the police service in common areas, lighting and cleaning services in common areas or emergency prevention and control services.

b) Maritime signalling service[14]: its purpose is the installation, maintenance, control and inspection of visual, acoustic, electronic or radioelectric devices, active or passive, aimed at improving the safety of navigation and the movements of ships in the Spanish coastal sea and, where appropriate, confirming the position of ships in navigation. The provision of this service corresponds to each Port Authority in the geographical area assigned to it for this purpose.

c) Port services[15]: those services that are necessary for the operation of ports, aimed at making possible operations associated with maritime traffic, in conditions of safety, efficiency, regularity, continuity and non-discrimination, and that are carried out within the territorial scope of the Port Authorities. These services are provided by private companies under a free competition regime.

13 Articles 106 and 107 of the TRLPEMM.

14 Article 137 of the TRLPEMM.

15 Article 108 of the TRLPEMM.

d) Commercial services[16]: the provision activities of a commercial nature that, not having the character of port services, are linked to port activity. They are provided by private companies under a free competition regime[17].

Port services include technical-nautical services, collection of ship-generated waste and cargo residues, cargo handling services and passenger services. Like commercial services, these are services provided by private companies in free competition, but they are considered essential for the operation of the port.

Likewise, depending on their provider, all these services can be divided alternatively into two large groups:

- On the one hand, there would be the services provided by the Port Authority itself (general services and maritime signalling).
- On the other hand, those provided by private companies in general under a regime of free competition (port and commercial services).

For the purposes of analysing the regulation of the Spanish SPIG, it is essential to answer who regulates and what is regulated. The answer to these two questions will make it possible to determine the two fundamental features: (i) a largely decentralized public intervention and (ii) of limited scope, following a gradual process of liberalization of the provision of services.

3.1.1.2. Who regulates: a decentralized system

The classification according to the degree of independence or regulatory autonomy (financial and organizational) of the ports by Op de Beeck (1999) and Bichou and Grey (2005) allows to identify that the organization of the SPIG fits into the category of "ports with public self-government" (*self-governing public seaports*), characterized by a high degree of autonomy held by Port Authorities that have the power to regulate, manage and improve port operations, development and finances. These Port Authorities are public law entities, not corporations or companies.

This system of self-governance materialized for the SPIG in a single **governance model at two levels**, each with its own governing bodies:

- At the state level there is Puertos del Estado (State Ports), a public law entity attached to the Ministry of Transport and Sustainable Mobility, whose main assigned competence is the execution of the port policy of the State

16 Article 138 of the TRLPEMM.

17 Article 139 of the TRLPEMM.

Government and the coordination and control of the efficiency of the port system as a whole[18].

- The **28 Port Authorities**, public law entities attached to the Ministry of Transport and Sustainable Mobility through Puertos del Estado. They have a high degree of autonomy over the administration of the ports under their competence[19], which can be a single port (most cases) or several ports (such as the Balearic Islands or the Canary Islands). However, this autonomy is subordinated to the coordinating task of Puertos del Estado. In practice, this means that certain decisions and actions must have the approval of Puertos del Estado.

This decentralised system also makes it possible to classify all SPIG regulation into two broad categories:

- On the one hand, the **common regulation** for all Port Authorities, which comes from both national and supranational authorities.
- On the other hand, the **specific regulation** of each Port Authority which, owing to its autonomy, has certain powers to regulate the activity in the ports that depend on them.

3.1.2. Common regulation

3.1.2.1. What is regulated: a liberalized system

According to the classification of the *Port Reform Toolkit* (2007) of the World Bank, the Spanish port system, following the successive reforms initiated in 1992, belongs to the category *landlord*, that is, that form of organization in which the following distribution of functions occurs:

- The public sector in general does not provide services but remains the owner of infrastructures and land that it leases to the companies providing services. In addition, it is the regulator of these services and, in certain cases, such as the Spanish one, it is the manager of the system as a whole.
- The private sector is generally responsible for the provision of services, which may require the rental of land and infrastructure by the public sector, which remains the owner.

18 Articles 17 and 18 of the TRLPEMM.

19 Article 13 of the TRLPEMM.

Therefore, public intervention in the SPIG is reflected in 4 dimensions:

- **Regulator**.
- **Owner** of physical spaces (*landlord*), both terrestrial and maritime (the so-called port public domain[20]). It is responsible for:
    - The construction and maintenance activities of the infrastructures in these spaces.
    - The provision of spaces and infrastructures for the provision of services by private-sector companies. These spaces and infrastructures can be considered rival assets[21]. To assign them, it can choose, on the one hand, to rent spaces and infrastructures to providers on an exclusive basis. This activity is carried out through the granting of concessions and authorizations[22] in exchange for a fee (the occupancy fee[23]). Alternatively, you can opt for a permit for the non-exclusive use of spaces and infrastructures, in exchange for the corresponding fees (usage fees)[24].
- **As a service provider**, the public sector maintains the provision of certain services, which in general have a marked public service nature[25]; in particular, general services and the maritime signalling service. It may also directly or

20 The fact that these assets are legally classified as "public domain" does not imply that they constitute "public goods" from an economic point of view. In fact, the public domain of ports is made up (art. 67 TRLPEMM) of real estate assets (such as land and sea spaces and fixed installations) that have an obvious rival or non-public nature in an economic sense, that is, whose use by one agent makes it impossible for them to be used simultaneously by any other.

21 The rivalry in the use of these spaces is especially increased by the fact that they are relatively very few, as they are a priori restricted to the service areas of the ports delimited for this purpose. However, in general, this limitation of space does not have to be total or absolute, since in principle ports can expand these service areas (unless it is physically impossible) or new ports could even be built (arts. 56-61 of the TRLPEMM).

22 As regulated in articles 72-103 of the TRLPEMM referring to the use of the state port public domain.

23 Articles 173-182 of the TRLPEMM.

24 According to articles 193-236 and 245 of the TRLPEMM, the fees for the vessel (T-1), the passenger (T-2), the goods (T-3), the fresh fish (T-4), the sports and recreational boats (T-5) and the special use of the transit area (T-6) are the usage fees. The fee for aids to navigation (art. 237-244) is not included here, as it is charged to finance a service, that of maritime signalling, which is mandatory for port users (it would be a public good or not a rival) and is provided by the public sector itself (Port Authorities).

25 "Public" service in the economic sense of non-rival enjoyment, being services from which users benefit without the need to be requested.

indirectly provide port services in the event of the absence or insufficiency of private-sector initiative[26].

- **System Director** (*Community Manager*), the public sector has taken an active role in promoting the economic activity of ports. It aims to actively seek the development of commercial activity in ports, sometimes adopting an overall vision beyond the physical limits of the port, that is, considering the port as one link in the logistics chains. Hence, the model is sometimes referred to as "advanced *landlord* " (De Langen, 2003).

3.1.3. Specific regulation

As for the specific regulation of each Port Authority, for the purposes of regulating the services provided by the private sector, it can be divided into two categories:

On the one hand, there is a diverse set of rules that directly affect the functioning of the different services markets and that can be grouped under the common denominator of **port "specifications".** These specifications are made up of:

a) Specific Terms and Conditions (Pliegos de prescripciones particulares, PPP), which include the detailed regulation that governs the provision of port services (technical-nautical, passengers, collection of ship-generated waste and cargo residues and goods handling) for each Port Authority. They cover a wide range of matters to be regulated, such as public service obligations, the number of service providers, port service tariffs or the design of public concessions and authorisations, among other aspects, all of which have implications in terms of competition.

b) Specific Terms and Conditions (PCP, Pliegos de condiciones particulares), which govern the provision of commercial services, such as provisioning, storage or land transport by road in the service area of the ports.

c) Terms and conditions that rule the use of the port public domain, specifically the Basic terms and conditions of competitive tenders for authorizations and concessions, and Detailed Conditions, which regulate the development of the authorization or concession[27].

The process of drafting these standards is regulated in the TRLPEMM. It distinguishes:

- On the one hand, commercial services, in which the Port Authorities have ample freedom to draw up the specific terms and conditions (PCP) that

[26] Article 109.3 of the TRLPEMM.

[27] Respecting the General Specifications of authorisations and concessions for the occupation of the port public domain approved by the Minister of Transport, Mobility and Urban Agenda.

regulate them, without the intervention of other authorities and with few general limitations on their preparation[28].

- On the other hand, port services, regulated by the PPPs, which have a legally determined procedure for development or modification[29], with a hearing of those affected[30] and with the intervention of Puertos del Estado and the General Directorate of the Merchant Marine through the issuance of binding reports.

On the other hand, the Port Authorities also have a certain margin to modify some of the **fees** that are required according to the common regulations (TRLPEMM), subject to certain limits, in the form of:

a) Reductions, which must be included in the conditions of concession or authorization.

b) Correction coefficients, only for ship (T-1), passenger (T-2) and goods (T-3) fees

3.2. Economic description

Ports are a key part of the Spanish economy. They are a way of connecting with the outside world and from different parts of the Spanish geography, which has great economic and social implications. Likewise, the sector is linked to other economic activities (such as tourism, industry or shipyards) and has a direct and indirect impact on employment and national production, especially in coastal regions.

3.2.1. The port as a link in the transport of goods and passengers

The economic importance of ports is very closely linked to the transport of goods and passengers. Both freight and passenger traffic in Spain have followed an upward trend in recent years, as can be seen in graphs 3 and 4.

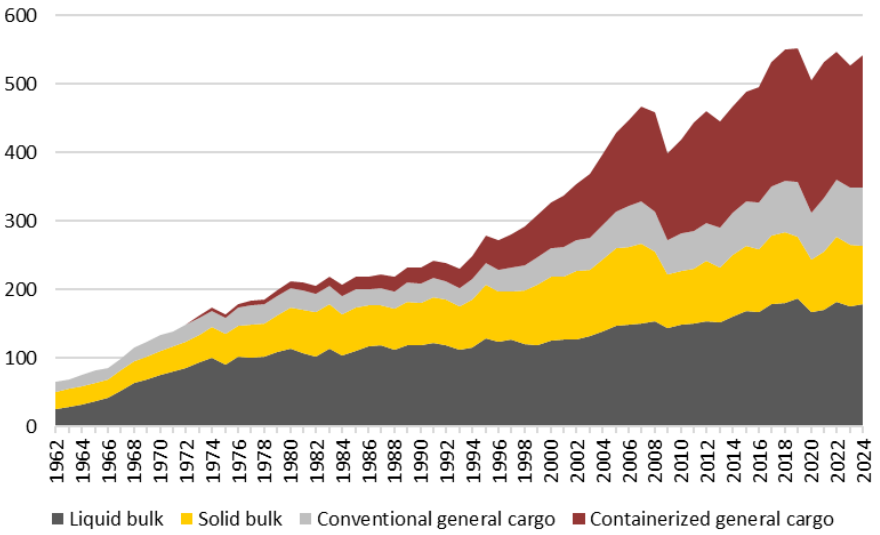
In the case of goods, traffic is highly heterogeneous and is concentrated in certain ports (Algeciras, Valencia and Barcelona). Passenger traffic is mainly cabotage (carried out between national ports), with one half concentrated in island ports and the other half in other peninsular ports such as the Bay of Algeciras or Barcelona.

28 Art. 139 TRLPEMM.

29 Art. 113 TRLPEMM.

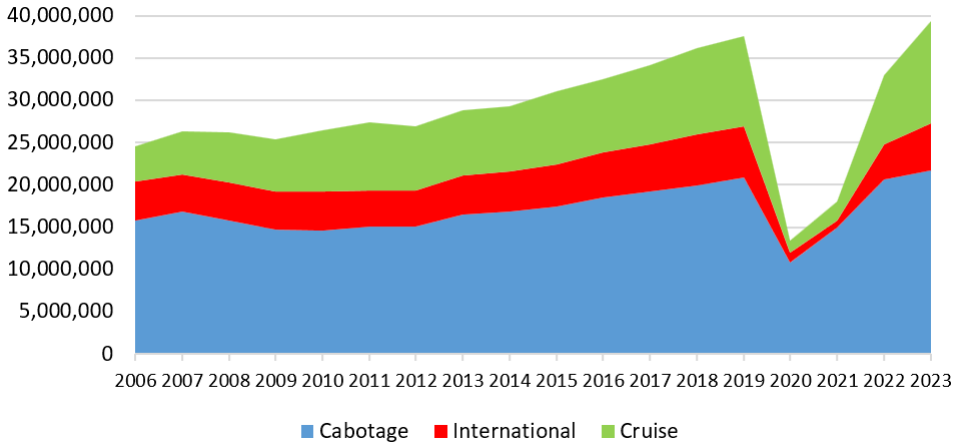
30 Through the Port Services Committee and the most representative trade union organisations and associations of operators and users.

Figure 3: Goods by presentation (in million tonnes)



Source: Authors' elaboration based on data from Puertos del Estado. Fresh fish, provisioning and inland traffic are excluded. (Cuadro Mando Datos Anuales)

Figure 4: Evolution of passenger numbers



Source: Authors' elaboration based on data from the Observatory of Transport and Logistics in Spain and the Statistical Yearbook of Puertos del Estado. (Base de datos OTLE, consultada en septiembre de 2024).

Ports are more than just a transfer point for goods and passengers, they are true industrial and logistics nodes. Specifically, three essential characteristics can be highlighted:

- **Its role as an essential link for the provision of maritime transport services.** This can mean that ports are potentially bottleneck-like in nature. Although there may be a certain ability for the user (shipping company, freight forwarders, etc.) to choose the port, there may usually

be cases of **captive traffic** when the use of a specific port is unavoidable[31]. In addition, the large investments required by ports represent very significant fixed costs that would lead the exploitation of economies of scale, i.e. the expansion of traffic passing through the port to reduce the average costs per tonne or passenger using this infrastructure.

- **Their belonging to a broader reality beyond the maritime transport service: global logistics and supply chains**. This implies that the demand facing ports is really a **derived demand**, since ports are only necessary (and their services demanded) insofar as they are chosen as an integral part of those logistics chains that transport goods, with the choice of demand for logistics services being the ultimate determinant of the demand faced by a port. Consequently, the choice of a port (and its services) will not depend so much on the cost of the ship's call at that port but on the total cost of the complete transport service from one point of origin to another of destination, in which this cost of call may be of greater or lesser importance, as the case may be (OCDE, 2011).
- **Its function as host of a set of activities or chain of services** that are provided to the different users of the port and that can go beyond the traditional or strictly necessary for the traffic of goods and passengers. This chain of services must operate with a high degree of coordination and synchronization to achieve efficiency of the resources used. It is the constraint of the **weakest link** that governs this chain, so that the interruption of any of the services that make it up would seriously compromise the entire chain, even paralyzing a large part of port activity.

3.2.2. The chain of services provided in ports

Economic activity in ports is associated with the services provided in them. Thus, when analyzing ports, it is necessary to take into account the multitude of economic activities that take place in them and the different agents that operate in them. So it is possible to treat the different services provided in the ports in a disaggregated way.

If we focus inside a port, we can see how operations are a chain of services. In practice, these services can be grouped into two broad categories:

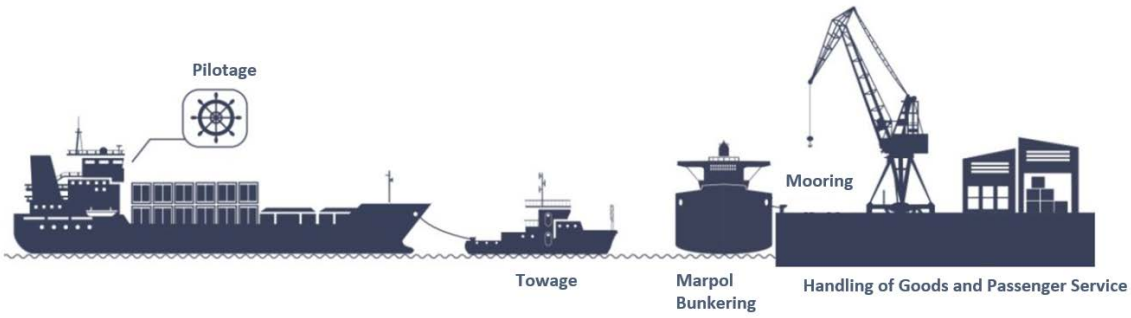
- **Services provided to cargo and passengers**, as they pass through the port to change means of transport, for example, from a maritime mode to a land mode, or vice versa. The most relevant in this category are cargo handling services (loading/unloading, stowage, transit and transhipment)

[31] An example would be the transport of liquefied natural gas or LNG, as LNG tankers can only call at a port that has very specific facilities for the reception of LNG.

and passenger services, which are the most important services, as they represent the bulk of port value added[32].

- **Services provided to ships**, necessary for the berthing and undocking of the ship carrying such goods or passengers. This includes technical-nautical services (pilotage, towing, and mooring and unmooring), ship provisioning services, fuel supply, collection of ship-generated waste and cargo residues, etc. These are essential services for the proper functioning of the port. These services are analyzed in depth in this study.

Figure 5 Services provided in ports

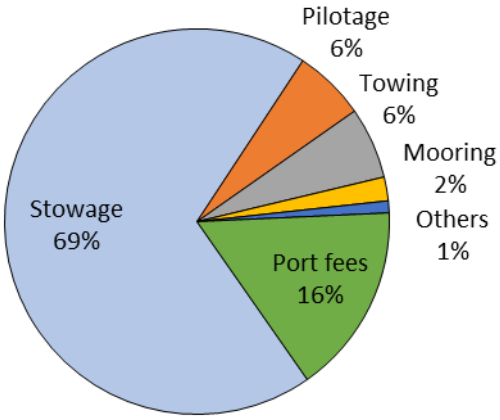


Source: Prepared by the author based on the Port Services Observatory.

The proper functioning of a port depends on each of the services that make it up and their proper coordination. However, there are differences in terms of the cost that each service represents at the port call, which is one of the factors, although not the only one, that affects the choice of port and terminal. Thus, the cargo handling service (PwC (2013)) stands out. The weight of technical-nautical services over the total average cost of calling at a port would be lower, although their importance in determining the efficiency of the port remains crucial.

[32] As an example, for a 40-foot container *import/export* Full, transported on a 35,000 GT vessel with a capacity for 2,500 TEUs, in an operation of 687 containers in an average national terminal, it was estimated with data from 2014 that about 2/3 of the ship's stopover cost would be the payment of the goods handling service (not counting port taxes).(Observatorio de los Servicios Portuarios, 2016)

Figure 6: Estimated average costs of a visit to a European port by a cargo ship



Source: Study aimed at supporting an impact assessment on: "Measures to enhance the efficiency and quality of port services in the EU", page 120 (PwC, 2013).

3.2.3. The main determinants of demand

Among the factors linked to the characteristics and operation of the port and port services, the following can be highlighted:

- The price of port services and the amount of the fees to be paid to the Port Authority.
- The quality of port services, which encompasses the safety of maneuvers, their reliability and the duration of the stopover.
- The degree, type of specialization and capacity of the port facilities and resources.
- The characteristics of port facilities and their interconnections with land.
- The regulation of port services and the port governance model.

Among the competitive forces faced by port operators, with influence on the demand for services, it is worth highlighting:

- The price and quality of substitutive services provided in other ports and in the same port, as well as the availability and conditions of alternative modes and transport routes.
- The price of complementary goods and services (such as logistics services in ports, storage, border controls, etc.).
- The specific preferences and circumstances of shippers (depending on the type of goods transported and their volume) and passengers, which influence demand.

In addition, the constraints on shipping companies can also modify the demand for port services owing to:

- The networks they have configured and the different agreements they have reached with other agents.
- Other services offered by shipping companies.
- The emergence of new technologies, as can be seen with the growing capacity of merchant vessels, which affect the characteristics of the demand for services.

Finally, other economic factors that may be affecting demand can be identified:

- In the case of freight transport, the distribution of economic activity, natural resources or industries, and in the case of passengers, the distribution of the population.
- The degree of economic development, business cycles, and economic structure.
- Cultural and social factors, but also geopolitical and defence-related factors (which drives the development of certain strategic ports).
- Geographical factors and available infrastructures.

It follows that, although the demand for services in ports is derived (it emerges from the need to transport goods and passengers by sea), ports are not a passive party in this demand but it can also attract it through improvements in their conditions and processes.

3.2.4 Types of port competition

From a general point of view, different levels can be distinguished at which competition takes place in ports:

- **Intermodal competition:** this is the competition that occurs between different alternative modes of transport. However, substitutability between modes of transport is limited by several elements:
  - The availability of infrastructures and geographical conditions.
  - The characteristics of the transported cargo, where it has been found that the average per ton value of goods that use each mode of transport differs significantly.
  - The regulatory environment.
- **Inter-port competition:** it is the one that exists between different ports, whether they are in the same country or not. This type of competition depends on the following elements:

- Demand-side substitutability, or the degree to which port users can choose between different ports in the face of changes in pricing or service. This is influenced by variables such as the preferences of demand, the cost of the call, the efficiency of the port, its facilities or connectivity.
- Supply-side substitutability, or the degree to which each port can switch between cargo types. It is related to the possibility of a port expanding its capacity or that of other ports entering the market. To this end, the location and connectivity of the port, its infrastructures and possibilities for expansion are decisive.

- **Intra-port competition:** it is that competition which takes place within the same port. It is especially relevant in some of the services provided in ports that, due to their lower weight in the total cost, are not so decisive when choosing one port or another. It is influenced by the following factors:
  - Demand-side substitutability, the degree to which port demand can alternate between different providers of each service within the port in the face of changes in prices or other conditions.
  - Supply-side substitutability, or the degree to which different service providers can provide different service providers or expand their business.

4. THE PORT PILOTAGE SERVICE

The **pilotage service** is defined as *"the guidance service to captains of ships and floating , provided on board, to facilitate their entry and exit into the port and other ship maneuvers within the geographical limits of the pilotage area, in safe conditions"* (art. 126.1 TRLPEMM, emphasis added). Therefore, the pilot advises the masters but does not command the vessel or can give orders to masters (no legal authority).

4.1. Legal framework

The main feature of the pilotage service in Spain would be its configuration as a legally liberalized service since 2003, that is to say, not provided by the Port Authorities themselves but by private companies[33]. This contrasts with other European countries where public provision predominates.

The general regulation of the pilotage service is set out in Regulation (EU) 2017/352 and in the TRLPEMM:

- In Regulation (EU) 2017/352: with specific references in recitals 8, 39 and 46 and Articles 1, 2, 10 and 12.
- In the TRLPEMM: Title VI of Book One (Provision of services), Chapter III (Port services), arts. 108 to 136 and in Book Two, Title III (Pilotage service), arts. 279-281.

The pilotage service has the singularity, among port services, of being subject to a specific state regulation, which includes:

- Law 14/2014, of 24 July, on Maritime Navigation: arts. 325 to 328 (Title V, on auxiliary navigation contracts; Chapter III, of the pilotage contract).
- Royal Decree 393/1996, of 1 March, approving the General Pilotage Regulations, in accordance with the provisions of the Law on State Ports and the Merchant Navy.
- Regulations relating to the granting of pilotage exemption certificates:
  - Order FOM/1621/2002, of 20 June, which regulates the conditions for granting exemptions from the port pilotage service.
  - Service Instruction 5/2014 of the Directorate General of the Merchant Navy (DGMM) on criteria for granting exemptions from the pilotage service.
- Regulations on access to the profession of port pilot:

[33] Art. 109.1 TRLPEMM.

  - Order FOM/2417/2007, of 25 July, which regulates the recognition of professional qualification for the provision of port pilotage services.
  - Resolution of 4 February 2013, of the DGMM, which approves the programme of subjects covered by the tests for the recognition of professional qualification for the provision of port pilotage services.
- Resolution of February 4, 2013, of the DGMM, which establishes continuous training courses for pilots.

According to the TRLPEMM, the pilotage service is categorized as a port service[34]. For this reason, it is also subject to the corresponding specific regulations of each Port Authority, the so-called PPPs (or other equivalent rules if they have not been drawn up), as well as to the other provisions of the Port Authority (port by-laws) and the maritime authority (DG of Merchant Marine and the Harbour Master of the port).

Finally, the regulation of the pilotage service contains, like all the activity that takes place in the port, **a penalty system**. Specifically, referring specifically to the provision of port services, minor[35], serious[36] and very serious[37] infringements are established. In addition, the PPPs incorporate their own penalties for non-compliance with the established quality indicators, the different deadlines for the submission of information to the Port Authority or for the absence of accounting separation in the Annual Accounts, where applicable[38].

From the point of view of competition, it can be highlighted from this regulation:

4.1.1. Mandatory use of the pilotage service

Although the general regime for the use of port services by customers is voluntary[39], the pilotage service is an exception as it is configured as a compulsory service for ships whose gross tonnage is equal to or greater than 500 G.T. (Art. 126.2 TRLPEMM, and art. 8 of Royal Decree 393/1996, General Pilotage Regulations).

34 Art. 108 TRLPEMM.

35 Art. 306.2 TRLPEMM.

36 Art. 307.5 TRLPEMM.

37 Art. 308.5 TRLPEMM.

38 This sanctioning and penalty system illustrate how the pilotage service, like other port services, resembles a traditional regulated sector, for which not only extensive regulation is established, but also the existence of a supervisory body (State Ports and Port Authorities) that ensures compliance and with sanctioning powers.

39 Art. 112 TRLPEMM.

Exemptions to this compulsory pilotage can be classified into two categories:

- **Particular exemptions**[40], granted in specific cases in which several subjective (of the captain or master) and objective (of the ship and the port) requirements are simultaneously met. Specifically, they consist of "*particular exemptions granted by the Directorate General of the Merchant Navy to certain captains and masters, which will entitle them not to use the port pilotage service on ships, ports and specific berthing areas*"[41], which is valid for one year but that period can be extended. Its granting is subject to a set of requirements applicable to the captain or master (knowledge and experience with that ship in that port, depending on the frequency), the ship (according to technical characteristics and cargo transported) and the berthing areas (if operations with dangerous goods are not authorized). According to its current wording, it is worth highlighting the "particular" feature, derived from the fact that these exemptions are granted for a trinomial captain-ship-port (or berthing area) that must be maintained to be used on a specific port call.
- **General exemptions**[42], which do not require granting by the Maritime Administration. Among these exemptions, they are provided for "*those vessels* [...] *whose crew includes a master who has worked, even on an interim basis, as a pilot in the port in question, or who has passed the theoretical and practical qualification tests in that port*". Obtaining them requires the participation of the incumbent pilots in these tests, who are part of the evaluation bodies in the general tests (2 members out of 5) and specific tests of the port (1 member of 5), and it is required that a pilot chosen by the incumbent provider is a tutor of the candidates of the trainee period in the port.

4.1.2. The regulation of access to the profession

For a company to be able to provide the pilotage service, it must inexcusably have sufficient pilots authorised (by the DG Merchant Marine) and appointed (by the Port Authority), as well as members of the professional association (Colegio de Prácticos).

40 Articles 126.2 and 279.5 a) of the TRLPEMM; art. 9 of Royal Decree 393/1996, General Pilotage Regulations; Order FOM/1621/2002 and Service Instruction 5/2014 DGMM.

41 Art. 3 Order FOM/1621/2002.

42 Art. 126.2 TRLPEMM.

To become a port pilot, there are several requirements for candidates in terms of qualifications and professional experience as a Merchant Marine Captain[43]. Theoretical tests for the recognition of training and compulsory tutored internships are also required, both of which are necessary to obtain the authorization and appointment as a new pilot. Practicing pilots are part of the evaluation bodies both in the general tests (2 members out of 5 belong to the Official National Association of Port Pilots) and specific tests in each port (1 member out of 5 belongs to the incumbent pilotage service provider or equivalent entity). Likewise, a practicing pilot chosen by the incumbent provider company is to be a tutor of the trainees during the internship period in the port.

4.1.3. The regulation of entry of new businesses

For a firm to be able to provide the pilotage service, it faces, on the one hand, a license system linked to a simultaneous system of authorization or concession for the use of the port public domain and, on the other hand, a legal limitation of the number of providers (legal monopoly).

Firstly, the requirements to access the market consist of a permit (license), granted through a legally established procedure and for which additional requirements are set in the PPPs[44]. These include requirements of good repute, compliance with tax, labor and social security obligations (for example, legislation on the prevention of occupational risks, or occupational health and safety), as well as requirements of economic-financial solvency, including guarantees and insurance[45], and technical-professional[46] requirements. These requirements must also be maintained during the validity of the license and would be justified by the dependence of the Port Authorities on these service providers for the normal operation of the port (the entry and exit of ships), which would lead to special requirements in search of the permanence and stability of the providers.

This license has a limited duration, for 10 years in the case of pilotage[47], and when it expires it can be renewed following the same application process. It is a regulated, non-discretionary grant, subject to a set of objective requirements and

43 Article 12 of the General Pilotage Regulations (approved by Royal Decree 393/1996), which establishes that the pilot candidate must be in possession of "the professional degree of Captain of the Merchant Marine and prove, at least, two years of command on ships over 1,000 G.T. within the last ten years of professional activity immediately preceding the call."

44 Art. 115 TRMPEMM.

45 Consisting of a minimum level of net worth (around 15%), constitution of a guarantee for compliance with possible obligations (for sanctions, damages or undue abandonment of the service) and civil liability insurance (EUR1,000,000).

46 Referring to the qualification of pilots.

47 Art. 114.1 TRLPEMM.

tacit acceptance procedure (3 months after its application in case of lack of response). The award must also be published in the BOE, as well as the call for tender, if applicable[48].

Likewise, like any other port service, its provision will require to a greater or lesser degree the exclusive occupation of the port public domain, for which the mandatory authorization or concession will be required (depending on the period of private use of less or more than 3 years, respectively). The granting of the permit (license) and the administrative permission to use the public domain (concession or authorization) are reciprocally linked in a single administrative procedure, being granted jointly when the provision of the service is "directly and indispensably linked to the exclusive use of a certain area of the port"[49]. This legal link between the granting of the license and the concession or authorisation is explained by the fact that otherwise the restrictive nature of the available port space may constitute an absolute barrier to entry for potential competitors, even under a regulated, non-discretionary license system such as the one in force.

And, secondly, in the entry regulation for the pilotage service there is also **the legal limitation to a single provider per port area**[50], thus configuring it as a legal monopoly. Thus, the granting of licenses is legally subject to a competitive tender system[51].

4.1.4. The regulation of operations

This regulation, set in the TRLPEMM and detailed by the PPPs, would comprise a broad set of requirements that can be categorized into three types of interventions.

48 Art. 115.3 TRLPEMM.

49 Art. 115.4 TRLPEMM.

50 Art. 126.3 TRLPEMM, which flexibly defines "port area" as "*that which is susceptible to totally independent exploitation, including its maritime accessibility and, therefore, that the geographical limits for the provision of the pilotage service corresponding to each of these areas are totally independent*". Therefore, the essential characteristic of a "port area" is that it does not overlap with any other. In practice, the "port area" corresponds to the port, so that Port Authorities managing multiple ports grant a license for each port.

51 Arts. 109.2, 114 and 115 TRLPEMM.

- Firstly, the so-called **port public service obligations**[52], a set of five obligations[53] among which, from a competition perspective, the universal coverage of all reasonable demand and the continuity and regularity of the service according to that demand stand out. These obligations are aimed at ensuring that the provision of this service does not interrupt the normal operation of the port since, as indicated in the introduction, the constraint of the weakest link also becomes binding for technical-nautical services. Indeed, although they are auxiliary services to the cargo handling or passenger services, the interruption of these services generally implies the interruption of the port's operations. These obligations imply that the provider must meet all the expected demand that arises in the normal operation of the port, which usually has to operate 24 hours a day, 7 days a week. Therefore, they eliminate any ability to choose the amount of demand that the provider wishes to meet, which will be given by the total demand for the port's pilotage service[54].
- Secondly, those interventions aimed at guaranteeing a certain **standard of quality in the provision of the service**, through the requirements of minimum resources (human and non-human) and compliance with

52 EU Regulation 2017/352 (art. 2), defines a public service obligation as "*a requirement defined or determined in order to ensure the provision of those port services or activities of general interest that an operator, if it were considering its own commercial interests, would not assume or would not assume to the same extent or under the same conditions*".

53 According to art. 110 TRLPEMM, they would be:

"*Universal coverage, with the obligation to meet all reasonable demand, under non-discriminatory conditions, except for the exceptions provided for in this law in the cases of passenger and goods terminals for private use. Continuity and regularity of services according to the characteristics of the demand, except for force majeure. To guarantee continuity in the provision of the service, the Port Authorities may establish minimum services of a mandatory nature.*

Cooperation with the Port Authority and the Maritime Administration and, where appropriate, with other service providers, in rescue work, firefighting and the fight against pollution, as well as in the prevention and control of emergencies. Collaboration in practical training in the provision of the service with the appropriate means, in the area of the port in which it carries out its activity.

Submission to the tariff power of the Port Authority, when applicable, under the conditions established in the specific prescriptions governing the permit."

54 In the case of pilotage, as it is legally limited to a single provider per port area (port), the presence of competitors that could satisfy part of the total demand of the port should not be considered.

minimum levels of "productivity, performance and quality"[55]. Regarding the regulation of these requirements and minimum levels, it can be inferred that both pursue the same thing, to supervise that the provision of the service is carried out with desirable quality standards. The former achieves that by imposing, from the supply side or *ex ante*, specific resources considered appropriate which tentatively lead to an adequate provision of the service in the port in question. And the latter promotes those standards by ensuring from the demand side that the provision of the service takes place *ex post* under appropriate conditions. Considering the recent evolution in the drafting of the PPPs, a certain regulatory hysteresis could be inferred, since in their previous versions, close to the 2010 reform, these PPPs contained minimum resources requirements (*ex ante*), but not *ex post* quality indicators, although the TRLPEMM did provide for it. Subsequently, the new pilotage PPPs have been incorporating this ex *post* regulation, but without modifying the minimum resources requirements (*ex ante*).

- And, thirdly, the regulation of the remuneration of the service, which due to its importance will be seen in a separate section below.

4.1.5. The regulation of remuneration

It consists of price regulation through the imposition of maximum charges. EU Regulation 2017/352 states that "*arrangements should be established to ensure that charges are set in a transparent, objective and non-discriminatory way and are proportionate to the cost of the service provided*" (recital 46). One of the obligations on all port service providers is to abide by the price-setting power of the Port Authorities, so that they will establish maximum charges in the PPPs for port services "*when the number of service providers is limited or insufficient to guarantee competition*"[56]. In the case of pilotage, this automatically applies given the legal limitation of the number of providers. The raison d'être of the maximum charges would be to avoid the exploitation of the high market power of these monopolists.

These maximum charges for pilotage usually increase with the gross tonnage (GT) of the vessels which demand this service , where intervals are usually

[55] Although these quality levels were already foreseen in the TRLPEMM, they had not been incorporated in a generalized way into the PPPs until the latest generation of them.

Indicators of availability of means, unpunctuality and average delay, accidentality and incidentality (respectively depending on whether there is damage to people, means, ships, etc. or not), and average response time to customer complaints are established and quantified.

[56] Art. 125.2.d TRLPEMM.

established according to the GT (of the ship, and sometimes also depending on the port) and differentiated by type of vessel, establishing different surcharges[57] and reductions[58], although their specific design depends on each Port Authority. Likewise, the Specific Terms and Conditions (PPP) provide for different forms of flexibility so that these charges adapt to changing circumstances in supply or demand, either through a methodology assessed[59] by the Port Authority or through an extraordinary review consisting of the usual procedure for modifying the PPPs[60], which must have the mandatory and binding opinion of Puertos del Estado and, in the exclusive subject of maritime safety, of the DG Merchant Marine[61].

And, in accordance with Regulation 2017/352, the charges for pilotage services that are not exposed to effective competition will be set in a transparent, objective and non-discriminatory manner and will be proportionate to the cost of the service provided.

4.2. Economic description

Beyond the advisory function assigned to them by legislation, as indicated by the competitiveness reports of the Port Services Observatory, "*at present, the functions of the pilot transcend, on many occasions, the mere advice to the captains, carrying out other tasks and functions related to maritime safety*", [62]such as:

- Navigation control (checking the status of the manoeuvring elements of each vessel and reporting any deficiencies identified).

57 Due to circumstances of the ship (manoeuvrability problems) or incidents attributable to users (delay or cancellation without due notice). However, the regulations (art. 113.4 TRLPEMM) prohibit differentiating fares based on the day or time.

58 Due to incidents attributable to the provider (delays).

59 In accordance with the provisions of the Specifications, respecting Law 2/2015 on the Deindexation of the Spanish economy and Royal Decree 55/2017 that develops it. This is a recent innovation that appeared in the latest generation of Specifications, as previously only the extraordinary revision was contemplated.

60 Art. 113.2 TRLPEMM.

61 Art. 113.1 TRLPEMM. It is a process with a hearing procedure for possible interested parties and with the approval of Puertos del Estado and the DG Merchant Marine (in the latter case, subject to positive silence). In the past, the approval or modification of these Specifications has sometimes taken place within very long periods of time, affecting the granting of new licences themselves.

62 Pursuant to Article 23 of Directive 2009/16/EC of the European Parliament and of the Council of 23 April 2009 on port State control of ships.

- Control over aspects of maritime safety and protection and the marine environment.
- The coordination of technical-nautical services.
- The communication of incidents detected in navigation in port waters, sources of pollution, failures or breakdowns in buoys, etc.
- Collaboration with the authorities in maritime emergency situations and SAR Zone[63].

This variety of functions, beyond the strict definition of the service according to the TRLPEMM, makes pilotage service providers important centers of operations and information on the daily port operation. These are functions and knowledge of special use for the Port Authority itself.

On the other hand, it should be noted that the pilotage service is usually, like many other port services, an **intermediated contracting** service, i.e. the user of the service (the vessel) does not usually contract it directly with the provider but is contracted together with other port services through the figure of the consignee. The fact that it is a **service intermediated** by the consignee adds a certain complexity to the relationship between users and providers, so that the former may have partial information on the conditions of provision of the service.

To understand the economic functioning of the service, the characteristics of its demand and supply are reviewed below.

4.2.1. Description of the service on the demand side

The pilotage service belongs to the category of technical-nautical services, that is, services that are provided to ships entering and leaving ports, which would make up their final demand. The fundamental advisory work of the pilots would lie in a superior knowledge (derived from their training and experience) of the port, specifically of the sheet of water and its conditions in terms of depths, tides, waves, currents, weather, etc., compared to the knowledge which the masters of the ships that arrive at the port may have.

The main **structural characteristics of the demand for** pilotage services would be:

- **Derivative or subordinate nature**, in the sense that such a service is only requested because of the demand for another, in this case the transport of cargo or people through a certain route and the port considered.
- **Its weight in the total cost per call of the ship tends to be low**, **of about 6%**, according to PwC (2013) estimates at the European level. The same

63 Search and rescue zone.

would be true for the other port services to the ship (technical-nautical services and the collection of ship-generated waste and cargo residues service). However, despite its reduced weight in monetary terms, it is essential for port efficiency, including the time spent by ship in port, a key variable in the cost of transport.

- The two previous points imply that **the pilotage service is demanded with relative rigidity**. Port users (shipping companies, shippers, freight forwarders, etc.) are guided by the total cost of transport on each route, choosing one port or another according to its distance and the cost of the services (in time and money) involved n a port call (OCDE, 2011).
- The fundamental component that the recipient of this service (i.e. the ship) would require is **safety**, understood as the minimization of the risks of incidents inherent in the performance of ship maneuvers in the waters of the port (collisions, groundings, etc.). Faced with the heterogeneity of the different conditions (weather, tides...) that can occur during the performance of any nautical maneuver, the superior knowledge of the port by the pilots is what would lead to greater safety.

For the pilotage service, demand can be **segmented** between recurring and non-recurring traffic:

- **Recurrent traffic,** when the captain of the ship repeats the same stopover frequently enough and can acquire a high level of knowledge of that port. In this type of traffic, the user requesting the pilotage service is in many cases captive (since she cannot change ports of call).
- **Non-recurring traffic**, in which the service is presumably necessary.

Finally, looking ahead, it should be noted that demand could experience a downward trend due to technological progress. The service is probably becoming less necessary due to advances in navigation and positioning tools.

4.2.2. Supply-side service description

4.2.2.1. Description of the operators

The companies that provide the pilotage service, usually referred to as **"pilots' corporations"** (“corporación de prácticos”, a term inherited from their situation prior to the 1992 reform[64]), have the particularity of being organized mostly in the

[64] Law 27/1992, of 24 November, on State Ports and the Merchant Marine. Until then, pilotage depended on the Ministry of Defence and was accessed by competitive examination. From this law, pilotage would become dependent on the Port Authority (technical and economic issues) and the Maritime Authority (safety issues) and would be provided by the Port Authority, either in direct or indirect management (contract with a third party). These corporations are private entities, not public law corporations(Iáñez Llamas, 2015).

form of professional limited companies[65], so that the company is controlled by its professional partners, the pilots[66]. This "professional" character is due to the fact that pilotage is a profession subject to association[67].

From the point of view of supply, the main structural characteristics of the pilotage service are the following:

- **Preponderant participation of the Skilled Labor Factor**, due to the high specialization required in terms of knowledge of the port. This high specialization is in turn derived from the highly differentiated nature of this service, since conditions can vary strongly between different ports. According to data from the latest Analysis Document of the Port Services Observatory, the number of pilots per port varies significantly, from 18 in Algeciras or Barcelona, to 1 in Gandía, La Estaca or Los Cristianos, as can be seen in map 1. According to the College of Pilots (2023)[68] there would be 241 pilots practicing in Spain, most of them for the Port Authorities, with the exception of 11 who provide the service to private entities. Given the current form of service provision, the main determining variable of this figure would generally be the number of pilotage services provided, since each service usually involves the boarding of the pilot. In addition to the volume of services, other variables that seem to influence the number of pilots per port are the special weather conditions or the special geographical location of certain ports (such as the need to go up the Guadalquivir to the port of Seville), as they affect the duration of the pilotage service and therefore the number of services that each pilot can potentially perform.

65 Law 2/2007, of 15 March, on professional societies. Professional companies are not a new corporate figure, but a particular case of any of the existing types of companies (SA, SL...) adapted to the collective exercise of these professions.

66 According to art. 4 of Law 2/207, "*The majority of the capital and voting rights, or the majority of the social assets and the number of partners in non-capitalist companies, must belong to professional partners*".

67 Law 42/2002, of 14 November, on the creation of the College of Port Pilots. Article 2.2 establishes compulsory membership as an essential requirement for practicing the profession.

68 Port Pilots (accessed December 2024).

Map 1: Number of pilots per port in 2022

Source: Analysis and conclusions of the state of the port services market (Observatorio de los Servicios Portuarios, 2023).

- **Limited media requirements**, including small boats properly equipped for approaching the ship or vehicles for moving around the port's service area. The number of pilot boats stood at 110 in 2020. (Prácticos de Puerto, 2020)
- **Low space and real estate** requirements, typically consisting of a home base or pilot station. As they are normally located in the service area of the port, they would be public port domain, whose exclusive use on a permanent basis by the provider will require an authorisation or concession (depending on whether the term is less or more than 3 years, respectively) for their occupation.

4.2.2.2. Number and distribution of licenses and level of competition

The pilotage service is characterized by the absence of competition. This conclusion is based on a double perspective:

- **There is only one company providing the pilotage service per port**. According to the General Registry of Port Service Provider Companies[69],

[69] Established by art. 120 TRLPEMM and developed by Order FOM/36/2014.

there are 45 pilotage licenses[70], all of them open to general use and granted to independent companies, in the sense of not being integrated into any business group. However, in this Register there are problems, due to duplicity, lack of updating or inconsistency with licence announcements published by the Port Authorities themselves in the BOE. According to these announcements there would be 30 working licenses, to which are added 3 situations of expired licenses in the competition phase[71].

- **There is also no potential competition.** In other words, there is no pressure derived from the possible entry of companies into the market. In the absence of competition in-the-market, the granting of a licence for the pilotage service must be carried out through competition, a procedure that in theory would allow competition to be introduced through the market. In fact, multiple Port Authorities have granted these licences in recent years through the mandatory competition. However, this system has no pro-competitive effect since only one company can apply for it, which is precisely the incumbent Pilots' Corporation. Potential competitors cannot exist in this service, given the material impossibility of accessing the profession of port pilot if it is not to be exercised within an incumbent pilotage company. The recent history of the service shows that the current providers have been so since the beginning of the current liberalized system of provision of these services, without exception. That is, there are no cases of rotation or changes of operators (departure of a company that is replaced by a different one) on the occasion of the expiration of licenses and the announcement of the mandatory tender. There have only been modifications to the corporate name or legal form of the same corporation of pilots in each port.

Finally, in pilotage, no vertical or horizontal integration is observed. In this way, it presents the highest level of atomization of all port services. The vertical integration of the pilotage service is non-existent because it is legally prohibited[72]. Regarding horizontal integration (the presence of business groups operating in multiple ports), it is not observed either; there is an independent service provider for each port, even in the case of ports that belong to the same Port Authority.

70 When only 42 of the Ports of General Interest seem to provide pilotage services. Those that appear as working hours granted to the same company are excluded from the calculation if there is a more recent one.

71 Port Authorities of Huelva, Malaga and Pasaia, the latter began the tender in September 2023.

72 According to the regime of incompatibilities of art. 121 TRLPEMM and art. 18 of the General Pilotage Regulations, approved by Royal Decree 393/1996, of 1 March.

4.2.2.3. International comparison

In most developed countries and their jurisdictions, port pilotage service is provided by a single group of pilots, either through the public sector or private companies. In Europe (including the United Kingdom and Norway), different types of provision of this service can be found, with public provision (11 countries) predominating over private provision (7 countries), in addition to a set of cases of mixed and quasi-public provision (6 countries). In practice, these models can be configured in different ways, each with its own strengths and weaknesses (PwC & Panteia, 2012) (KPMG, 2018).

Likewise, at the international level, **other differential elements** in the pilotage service are the responsibilities of the pilot, the public service obligations, the possibilities of pilotage on land and the possible exemptions in the service. In Europe, as in Spain, pilotage is generally mandatory for vessels with a GT greater than 500[73], although there are differences in service exemptions in terms of requirements, issuing body, coverage and duration.

4.2.2.4. Technological changes

Among the most notable technological changes on the supply side is "*Shore-based pilotage*". It is carried out in a place other than the ship whose navigation is intended to be secured and has become possible thanks to advances in VTS technology[74], radars and maritime traffic control. This modality of providing the pilotage service would allow efficiency gains (cost reduction, for example, due to the saving of time required for embarkation and disembarkation of the pilot) with respect to the current provision on board the ship, provided that it allows adequate levels of safety to be maintained.

According to PwC, at the time of publication of its study, systems of this type were already used in at least eleven countries - among which Spain was not included - in general in exceptional situations (in bad weather or for safety reasons, when the pilot cannot board the ship) or in a complementary way to pilotage from the ship (2012).

[73] Except in the case of transport of dangerous goods.

[74] "Vessel Traffic Services", land-based systems to communicate with ships or to be able to manage maritime traffic.

4.3. Restrictions on competition and efficient regulation

4.3.1. Lack of information on the terms and conditions of service provision derived from the lack of publication of the PPPs

In the case of the pilotage service, 5 Port Authorities still have PPPs (or their equivalent) prior to the TRLPEMM[75], when the TRLPEMM itself already established a maximum period of one year from the entry into force of Law 33/2010 for the approval of PPPs[76]. There is even a case in which, according to the available information, there is no PPP (or its previous equivalent) that can be applied[77].

The PPPs, by containing the regulations for the development of each service, establish the fundamental rules of the game for providers, so their absence or outdated state can generate doubts about the conditions of the service not only in the incumbent providers, but also among potential entrants, weakening the disciplining effect of potential competition.

4.3.2. The mandatory use of the pilotage service in a context of legal monopoly in the provision of the service

The mandatory use of the pilotage service is designed and justified on safety grounds. It also has effects on competition. In the current Spanish port system, dominated by monopolies in each port for this service, this obligation exacerbates the captive nature of the demand for the service, increasing the market power of the providers. Likewise, by affecting the costs and stay of a ship in port, it affects port efficiency.

Service exemptions are the exception to this obligation. By exempting the ship, they can facilitate the reduction of costs and times and, thus, increase port efficiency. This may be particularly relevant for those ships that call at certain ports with high regularity. However, the ability of exemptions to act as a counterweight is restricted by certain factors:

- **Obtaining exemptions requires some investment on the part of shipping companies or shipowners**. In the case of particular exemptions (granted by the DGMM to certain masters and captains, on specific ships, ports and berthing areas),[78] the shipping company or shipowner would have to specifically assign the same captain to the same

[75] Port Authorities of Almería (Carboneras), Melilla, Motril (no known PPP), Tarragona and Vilagarcía de Arousa.

[76] Twenty-ninth additional provision, TRLPEMM.

[77] Port Authority of Motril.

[78] Articles 126.2 and 279.5 a) of the TRLPEMM.

ship to make the different calls in that port, which implies a waiver of flexibility. On the other hand, in the case of a general exemption (for those ships with a master who has worked as a pilot in the port in question or has passed the qualification tests in it), [79]the master himself, either on his own account or financed by the shipping company or the shipowner, would have to invest in obtaining the qualification as a pilot of a given port.

- The granting of exemptions is subject to different limitations:
    - In the case of **particular exemptions,** the decisive report issued by the Port Authority[80] could face a conflict of interest. Exemptions have an impact on the economic sustainability of the service, which is almost entirely determined by the conditions set out in the Port Authority's PPP. The reduction in income for pilotage companies derived from exemptions may in certain cases mean that the Port Authority needs to review the charges (upwards) and the PPPs as a whole. Likewise, the income from fees (for example, the activity fee depends on the number of services provided) for the Port Authority would be reduced, making the granting of such exemptions less attractive. However, this problem of economic sustainability of the service could be tackled via availability charges, already provided for in some PPPs.
    - In the case of **general exemption**, as the qualification of the captain as a pilot is required, in addition to this it can be highlighted: (i) the potential conflict of the Port Authority when calling the specific tests for access to the profession of pilot owing to the decrease in income if the exemption is granted and (ii) the same competitive limitations as those identified in access to the profession. Regarding the latter, the participation of the incumbent pilots in the tests and in the internship period could give rise to a conflict of interest, since the passing of these qualification tests for a captain who wishes to obtain a general exemption will entail a potential loss of income for the incumbent provider company and its pilots.

4.3.3. Barriers to access to the profession of practical

In the absence of competition in-the-market derived from the legal monopoly, the regulation provides for the granting of the license for the pilotage service by means of competition, in order to introduce competition *for*-the-market. However,

79 Art. 126.2 TRLPEMM.

80 Art. 9 Order FOM/1621/2002.

in practice there is no possibility of any competitor other than the incumbent tendering for the license because of the combination of two elements:

- **Any potential competitor must have enough authorized and appointed pilots**. However, the title of port pilot has a specific nature, so that it is only granted to be able to practice in a specific port and only in that port.
- **In practice, new pilots are only authorized and appointed to fill vacancies in the incumbent providers**, so there are no pilots for a port outside the incumbent corporation who can compete for the market on the occasion of the tender.

The barriers to access to the profession of pilot are specified in both *de jure* and *de facto* restrictions.

Regarding the *de jure* restrictions, apart from the requirements for candidates in terms of qualifications and professional experience as a Merchant Marine Captain[81], there is a conflict of interest arising from the participation of incumbent pilots in the theoretical and practical tests for access to the profession. In effect, it is established that incumbent practitioners participate both in the theoretical tests for the recognition of training, and in the compulsory tutored internship, both necessary to obtain the authorization and appointment as a new pilot.

- Regarding the theoretical tests, the pilots are part of the evaluation bodies both in the general tests (2 members out of 5 belong to the Official National Assotiation of Port Pilots) and specific tests in each port (1 member out of 5 belongs to the pilots' corporation or equivalent entity).
- It is also required that a pilot chosen by the incumbent provider company be a tutor of the candidates during the internship period in the port.

All of this can pose a conflict of interest for pilots to evaluate future pilots who may be their potential competition.

With respect to the *de facto* restrictions, they refer to the fact that the qualification and appointment processes carried out in practice are aimed at filling vacancies and not at increasing the number of pilots. Hence, in practice, the potential conflict of interest would not in principle arise because, in filling vacancies, the new pilots do not pose potential competition for incumbent pilotage providers. While the

81 Art. 12 Royal Decree 393/1996, General Pilotage Regulations, which establishes that the applicant for practice must be in possession "*of the professional title of Captain of the Merchant Marine and accredit, at least, two years of command on ships over 1,000 G.T. within the last ten years of professional activity immediately preceding the call*."

general tests are convened by the DGMM twice a year[82] without any limitation[83], the specific tests can be convened in each port four times a year by the DGMM, but only at the request of the Port Authority[84]. The law determines that the Port Authority will establish the "*number of pilots necessary for the provision of the service*",[85] which would not necessarily imply that it should only promote the selection and appointment of the pilots necessary to fill vacancies of the current provider. However, in practice it is observed that a limited number of positions are made available, due to the replacement of pilots who leave the aforementioned ports[86].

All this would have the consequence that, if today a new pilotage company wanted to be constituted in order to compete for the market with a company already installed in any port, it would be practically unfeasible to have the necessary pilots. And, without the appointed pilots, it is impossible for any company to compete with the incumbent.

4.3.4. Legal limitation of the number of providers in each port

The TRLPEMM establishes the legal limitation to a single provider per port area[87], thus configuring a legal monopoly. The current regulations do not provide any

82 Art. 6.1 of Order FOM/2417/2007, "*The Directorate-General of the Merchant Marine will annually convene, by publication in the Official State Gazette, two general tests, to be held in the months of March and October of each year*".

83 Art. 126.4.a). 1st TRLPEMM, "*there is no limitation on the number of candidates who can pass the tests*".

84 Art. 6.2 of Order FOM/2417/2007: "*With regard to the second part of the tests or specific tests in each port, the Directorate General of the Merchant Marine, at the request of the port authorities or concessionaire of the corresponding private port, will annually convene four specific tests to be held in the ports that must coincide with the months of January, April, July and November of each year and will be published in the "Official State Gazette"*."

85 Art. 126.4.b). 1st TRLPEMM. Apparently, this system would be a legatee of the one that existed before the 1992 reform, when pilotage depended on the Ministry of Defence and was accessed through a competitive examination system.

86 For example, the call dated October 15, 2024 of the DGMM for specific tests was limited to the ports of Burela/Viveiro-Celeiro/Cariño (1 position), Marín and Ría de Pontevedra (3 positions), Seville and Ría del Guadalquivir (2 positions), Algeciras (6 positions), Sagunto (1 positions) and Castellón (1 position).

87 Art. 126.3 TRLPEMM, flexibly defining "port area" as "*that which is susceptible to totally independent exploitation, including its maritime accessibility and, therefore, that the geographical limits for the provision of the pilotage service corresponding to each of these areas are totally independent*". Therefore, the essential characteristic of "port area" is that it does not overlap with any other. In practice, the "port area" corresponds to the port, so that Port Authorities managing multiple ports grant a license for each port.

justification for this limitation, nor are the reasons why the provision of the pilotage service should be limited to a single provider per port evident[88].

One might think that this limitation would be justified by the security of port operations. However, greater competition should not translate into less safety of nautical operations, since the specific knowledge of the port can be held simultaneously by multiple companies. If there is a need for a specific reinforcement of security in a competitive context, it could be adopted through regulation.

4.3.5. Limitations of the system of licenses and concessions

The system of access to the pilotage service is subject to a licensing system. Five important limitations associated with licenses in this service have been detected:

- **Failure to publish tender notices and granting of licenses**: although the granting must be published in the BOE, as well as the call for tender, where appropriate, in practice about half of the Port Authorities had not published the mandatory tender and license notices for the pilotage licenses in force[89]. This lack of transparency negatively affects the decisions of agents to enter the market and makes it impossible to determine even whether there has been tender or not.
- **Use of permits that are not established in the common regulations** (provisional and temporary licenses, extensions of licenses, etc.). These titles, although granting a certain flexibility to the Port Authorities in exceptional circumstances, are not supported by the common state regulations that enable their use by Port Authorities. Their use therefore generates mistrust and lack of legal certainty among the companies installed and especially on potential entrants.
- **Defined duration**: despite their regulated, non-discretionary grant and theoretically open to new competition at any time, it is inconsistent for licenses to have a defined duration (10 years), unless the number of providers is explicitly limited. The periodic renewal of licenses is an

88 The CNC criticized in 2009 (IPN 006/09) the monopoly of pilotage: "*The limitation of the current Law (which refers in its art. 64.6 to "the singularity and special impact of the pilotage service on maritime safety") to a single operator in each port area is maintained. The Council does not appreciate reasons derived from the necessary coordination and organization of traffic approaching and leaving ports, which is the competence of the Maritime Master, for which such limitation is necessary. Such coordination must exist in any case to organize the maneuvers of each vessel, regardless of whether or not each pilot belongs to the same company.*"

89 Some improvement can be seen here, as this number was even higher in previous years.

unnecessary bureaucratic burden if the Port Authority has the power to supervise continuously compliance with the requirements.

- **Ineffectiveness of tenders for the granting of licenses as a pro-competitive mechanism.** Given that the TRLPEMM establishes the legal limitation to only one provider per port area (legal monopoly), the granting of licenses is legally subject to a competitive bidding system[90]. Regardless of its design[91], the tender lacks a pro-competitive effect (competition for-the-market) since only one bidder can apply for it, the incumbent provider of the pilotage service. This is because this incumbent provider brings together the only pilots appointed and authorized to practice in the port in question.

On the other hand, the occupation of public port domain requires an authorization or concession. A lack of transparency has been detected in the announcements of concessions and an apparent lack of compliance with the linking of licenses to port public domain concessions in a single procedure. The legal link in a single administrative procedure of the granting of the license and the concession or authorization is legally required only in the case of a "direct and indispensable" link between the provision of the service and the occupation of the public domain. However, the mere occupation of the public domain to provide the service, without this being indispensable[92], would already imply an advantage for an incumbent provider over any potential entrant who lacked such an administrative title of occupation of the port public domain. Therefore, the occupation of the public domain represents in itself a barrier to entry for the provision of the service. Consequently, the lack of such a link, whether or not it is essential for the provision of the service, has negative implications in terms of competition.

On the other hand, of the few cases in practice of official notices of concessions to pilotage companies, there is hardly any record (according to the BOE) of cases of granting licenses linked to concessions as prescribed by the TRLPEMM. Specifically, with the information available, only 4 Port Authorities have published a notice of concession to pilotage companies, of which only one (Port Authority of A Coruña) could be linked to the license. In the remaining cases, such

90 Arts. 109.2, 114 and 115 TRLPEMM.

91 In these tenders, the provider's possible offers usually consist of improvements with respect to what is required by the TRLPEMM or by the Specific Specifications, such as reductions with respect to the maximum charges established, reductions in the term of validity of the license, increases in the tax rate of the activity fee to be paid by the provider and improvements of any kind with respect to what is required in the Specific Specifications (greater or better means, availability...).

92 For example, in the case of certain assets such as offices, which could be located in the service area of the port or outside it, in its vicinity.

concessions usually have terms that do not coincide with the corresponding licenses or are granted at different times than the granting of licenses.

4.3.6. Limitations on competition associated with the inclusion of minimum resources in PPPs

Since pilotage is a legal monopoly, the use of regulation to promote desirable quality standards may be justified. In practice, this is carried out with two simultaneous instruments included in the PPPs: the minimum resources and the levels of "productivity, performance and quality".

The simultaneous use of these instruments can be redundant and create inefficiencies. On the one hand, it could be redundant because in the presence of "productivity, performance and quality" requirements (measured *ex post*) the need for minimum resources regulation (*ex ante*) is reduced. On the other hand, it can increase inefficiencies since *ex ante* regulation, by imposing very specific minimum resources, predetermines the cost structure of the provider and prevents it from being able to choose the most efficient way to achieve the required levels of quality.

But, above all, the requirement of minimum resources can limit competition because they can tacitly predetermine how many operators will fit in the market in question. Thus, the higher the requirements and the greater the degree of specificity of the minimum resources requirements, the greater the negative effect on competition. The TRLPEMM[93] already establishes that these minimum resources *"will be those strictly necessary to carry out the unit operations normally expected in the port, both the simplest and the most complex, object of the service in conditions of safety, quality, continuity and regularity depending on the characteristics of the demand, in such a way that they do not alter the conditions of competition, without prejudice to the requirements to meet public service obligations under the conditions established in this law.* For this reason, it goes on to establish that PPPs "*may not require a greater number of human and material resources than those necessary for the unitary operations indicated in order not to prevent a sufficient number of operators from competing in the market, without prejudice to those that may be required to meet public service obligations*". It should be noted that the various PPPs in force specify these minimum resources, but not the simplest and most complex unit operations that must justify them.

93 Art. 113.4.g) TRLPEMM.

4.3.7. Limitations on the design of maximum charges

Both from a theoretical and empirical point of view it has been warned about the distorting effects of maximum prices. Indeed, the establishment of maximum prices suffers from serious technical difficulties in its design, similar to any other type of price regulation. The most relevant difficulties are the existence of asymmetric information between the regulator and the regulated company that makes it difficult for the former to identify and set appropriate price levels, as well as the different distortions of incentives on the regulated company depending on the type of price regulation adopted[94]. Added to this is the specific problem of maximum prices, which have been regarded as a source of allocative costs, in the event that these maximum prices are below the free market price (for a summary of these costs see Davis and Kilian (2011)). There is also a risk that such price cap levels will end up acting as a "focal point" to which the prices of regulated firms converge regardless of market circumstances, even generating situations of tacit collusion when there are several regulated firms acting as competitors (for a summary of such theoretical and empirical literature on this effect see Engelmann and Müller (2011)).

In any case, different limitations have been identified in the setting of maximum charges in the pilotage service:

- **Lack of information on the adjustment of maximum charges to costs:** EU Regulation 2017/352 requires the setting of maximum charges proportional to the cost of the service provided. Thus, the Analysis Documents published by the Observatory have been collecting every year at least since 2014-2015 the practically identical recommendation that it should continue to " *determine, update or revise maximum charges for port services, so that they are adjusted and proportional to the costs and circumstances of each port service in each port".* The annual nature of this recommendation can be explained by the dynamic nature of the process of determining and revising charges. However, the progress that has been made with respect to this recommendation from one year to the next is not detailed annually. On the other hand, there are no recent public studies for this service that assess the adjustment of the maximum charges to the costs, which makes it impossible to assess the current state of affairs. Nor

94 In general, following Schmalensee's benchmark analysis (Schmalensee, 1989), they can be classified into two major strategies or categories of price regulation. On the one hand, they can be aimed at recovering past costs (*cost of service*) in order to ensure the viability of companies, which is essentially a disincentive to future cost reduction. On the other hand, such future cost reductions can be encouraged by a system of price caps, but this requires making estimates on the expected evolution of costs and demand. This in turn generates greater uncertainty for the regulated company, potentially distorting its future investment and innovation decisions seeking future cost reduction and, with it, undermining the objective initially pursued.

can it be deduced whether the existing differences between Port Authorities may have any relationship with the lack of adjustment to costs based on the comparison of the maximum charges in force, since their analysis reveals that there is a high disparity in the charge structures of the Port Authorities, in their calculation formula, surcharges and discounts, and, therefore, in many cases they are not easily comparable. On the other hand, although an economic-financial study has recently been required in the new PPPs, the studies consulted do not include an analysis that allows the proportion of the maximum charges to the costs to be clearly determined.

- **Lack of uniform guidance for the determination of maximum charges.** Many of the most recent PPPs emphasize the need to support the maximum charges in a duly substantiated and detailed economic and financial study. For its part, Puertos del Estado has a database that is used to calculate maximum charges. However, there are no common guidelines for the calculation of maximum charges that, in a transparent manner and respecting the particularities of each Port Authority, can help to guide or serve as a basis for the calculations.
- **Possible existence of market failures associated with the setting of maximum charges.** Information asymmetry, as pilotage service providers (regulated companies) are usually better acquainted with their costs, margins and cost reduction possibilities than Port Authorities (the regulator), and those providers may have no incentive to provide accurate information to Port Authorities. This asymmetry and the limitations of the Port Authorities in the collection of information may prevent them from setting the maximum charges in the most appropriate way to the detriment of the final user of the service.

5. THE PORT TOWING SERVICE

The **towing service** is defined as the service "*whose purpose is the ship maneuver of assisting the manoeuvring of a vessel, called towed, following the instructions of its master, by means of the assistance of another or other vessels, called tugboats, which provide their driving force or, where appropriate, the accompaniment or its availability within the limits of the waters included in the service area of the port*".[95] Accompaniment is understood as "*the ship maneuver by which a tugboat escorts a ship in the event its intervention is necessary, through navigable canals and inland waterways, till the point of berthing, or from the point of undocking by the same routes, until the moment when the ship can sail safely*".[96]

5.1. Legal framework

The general regulation of the towing service is set out in Regulation (EU) 2017/352 and in the TRLPEMM:

- In Regulation (EU) 2017/352: with specific mentions in recital 17 (flag requirement) and Articles 1, 2 and 4.3 (on flag).
- In the TRLPEMM: in Title VI of Book One (Provision of services), Chapter III (Port Services), arts. 108 to 136.

The towing service is classified in the TRLPEMM as a port service[97]. Therefore, it is also subject to the corresponding specific terms and conditions of each Port Authority, i.e. the PPPs (or equivalent if they have not been drawn up), as well as to the other provisions of the Port Authority (port by-laws) and the maritime authority (DG of Merchant Marine and Harbour Master of the port). Finally, the regulation of the towing service is also subject to a penalty system by the TRLPEMM and a set of penalties in cases of non-compliance with certain obligations established in the PPPs, as in a traditional regulated sector.

5.1.1. Mandatory use of the service

The general regime for the use of port services is voluntary, at potential customers' request by[98]. However, in some cases **the towing service will be**

95 Art. 127.1 TRLPEMM. Emphasis added.

96 As it appears in the PPPs. Emphasis added.

97 Art. 108 TRLPEMM.

98 Art. 112 TRLPEMM.

mandatory under certain circumstances[99]. Likewise, the Port Authority or the Maritime Authority (Harbor Master) may impose the obligation of the service when the performance, operability or security of the port is at risk[100]. For practical purposes, although the service is compulsory in Melilla and Almeria, the request for the towing service is usually voluntary.

5.1.2. The regulation of entry of new businesses

A license system is in force together with a simultaneous system of authorisation or concession of the port public domain, as in any service classified as port service according to the TRLPEMM. On the other hand, the regulations allows the possibility, but not the obligation, of limiting the number of providers. In particular:

- As in any port service, an access system is established subject to a **permit (license),** for which a regulated, non-discretionary granting procedure is established[101]. To this end, the PPPs set requirements of good repute, compliance with fiscal, labor and social security obligations (for example, legislation on the prevention of occupational risks, or occupational health and safety), as well as requirements of economic-financial solvency (including guarantees and insurance)[102] and technical-professional[103] solvency, as well as other requirements that affect the operation (public service obligations, minimum resources and maximum charges) and that will be categorized separately. These requirements must also be maintained during the validity of the license and would be justified by the dependence that a Port Authority has on these service providers for the normal operation of the port (specifically, the entry and exit of ships), which would lead to special requirements on the permanence and stability of these providers. This license has a limited duration, for 10 years in the case of towing[104], and when it expires it can be renewed following the same

99 Art. 112.1 TRLPEMM: "*In addition, the Operating and Police Regulations or the Port Ordinances may establish the mandatory use of other port services depending on the conditions and characteristics of the port infrastructures, the size and type of vessel and the nature of the cargo transported, as well as oceanographic and meteorological conditions*".

100 Art. 112.2 TRLPEMM.

101 Art. 115 TRMPEMM.

102 Consisting of a minimum level of net worth (as a percentage of the acquisition cost of the minimum means and total assets, around 20-30%), provision of a guarantee for the fulfilment of any obligations (for penalties, damages or undue abandonment of the service) and, where appropriate, civil liability insurance (€3,000,000).

103 In this case, the accreditation of the minimum human and material resources requirements is usually considered to have been met.

104 Art. 114.1 TRLPEMM.

application process. Its granting must also be published in the BOE, as well as the call for tender, if applicable[105].

- On the other hand, like any other port service, its provision will require to a greater or lesser degree the exclusive occupation of the port public domain, for which the mandatory authorization or concession will be required (depending on the period of private use of less or more than 3 years, respectively). The granting of the permit (license) and the administrative permission to make private use of the public domain (concession or authorization) must be reciprocally linked in a single procedure, being granted jointly when the provision of the service is "*directly and indispensably linked to the exclusive use of a certain area of the port*"[106]. This legal link between the granting of the license and the concession or authorization is justified by the restrictive nature of the available port space, whose private occupation may constitute an absolute barrier to entry for potential competitors, even under the regulated, non-discretionary license system in force.
- In addition, among the entry regulation for the towing service is also the possibility for a Port Authority to limit the number of providers, according to the TRLPEMM "*solely for reasons of availability of spaces, capacity of the facilities, safety, environmental standards or for other objective reasons related to the conditions of competition and, in all cases, duly motivated*".[107] Added to this are the cases of Regulation 2017/352, specifically that free entry hinders compliance with public service obligations and that "*pursuant to Article 35 of Directive 2014/25/EU, that a port sector or subsector, together with its port services, within a Member State carries out an activity that is directly exposed to competition in accordance with Article 34 of that Directive*"[108]. The regulation of this alternative would scrupulously observe the principles of necessity and proportionality[109], in addition to having the appropriate regulatory checks

105 Art. 115.3 TRLPEMM.

106 Art. 115.4 TRLPEMM.

107 Art. 111 TRLPEMM.

108 Art. 6.1(b) and (e) of Regulation 2017/352.

109 "*The statement of reasons shall include a clear identification of the restriction of competition in question, justification of the need for the establishment of the restriction in accordance with the public interest and evidence that it is not possible to resort to viable alternatives that are less restrictive of competition in order to achieve the same aim in the public interest*" (art. 111 TRLPEMM)

and balances[110] and being subject to review (ex officio or at the request of a party) in case circumstances change. In these cases, the licenses must be awarded by competition, since by renouncing competition in-the-market, competition for-the-market is sought. However, in practice this system would not be used, even though the towing service is generally provided under a *de facto* monopoly regime.

5.1.3. The regulation of operations

The regulation of operations, established in the TRLPEMM and detailed by the PPPs, would comprise a wide range of requirements that can be grouped into three categories of interventions:

(i) The so-called **port public service obligations**[111], or a set of five obligations,[112] among which, from a competition perspective, the universal coverage of all reasonable demand and the continuity and regularity of the service according to that demand stand out. These obligations seek to prevent the defective provision of this service from unduly interrupting the normal operation of a large part of the port's activities (constraint of the weakest link). They oblige the provider to meet all the expected demand that arises in the normal operation of the port, which usually operates 24 hours a day, 7 days a week. Therefore, they cancel the provider's ability to choose the quantity or type of demand they want to meet. In a *de facto* monopoly, this volume of demand is easy to determine and consists trivially of the total demand for towing at the port, but were 2 or more providers to compete for that demand, the very estimation of that "reasonable demand" for each individual competitor would be complex[113].

(ii) The requirements aimed at guaranteeing a certain **standard of quality in the provision of the service**, through the requirements of minimum resources (human and non-human) and compliance with minimum levels

110 Adopted by the Board of Directors of the Port Authority, after consultation with the Port Services Committee and a report from Puertos del Estado and, where appropriate, a binding report from the Directorate General of the Merchant Marine (on safety grounds) and a report from the competent Environmental Administration (environmental reasons), and will be published in the Official State Gazette (BOE).

111 EU Regulation 2017/352 defines a public service obligation as the "*a defined or determined requirement in order to guarantee the provision of those port services or activities of general interest that an operator, if it considered exclusively its own commercial interest, would not assume or would not assume to the same extent or under the same conditions*".

112 According to art. 110 TRLPEMM.

113 In fact, there would be no obvious objective criterion for assigning each operator its reasonable demand, beyond the fact that the Authority made an allocation. In addition, the indeterminacy of this variable in turn poses problems for the design of other elements of the regulation, such as the determination of minimum means and maximum charges.

of "productivity, performance and quality".[114] It can be seen that both pursue a common objective, either by imposing *ex ante* and from the supply side some specific resources considered adequate[115], or by supervising *ex post* and from the point of view of demand that the provision of the service has taken place under appropriate conditions.

(iii) **As a particularity in the towing service, tugboats have been required to have a Spanish flag, although in certain cases the flag of the European Economic Area has been allowed**. The flag requirement is based on the TRLPEMM (flag requirement for inland navigation)[116] and Regulation 352/2017. The latter establishes in its art. 4.2.g that Member States may establish minimum requirements for "*compliance with the obligations in the field of social and labour law that apply in the Member State of the port concerned*". However, it states in Article 4.3 that "*where a Member State deems that it necessary to impose a flag requirement in order to ensure full compliance with point (g) of paragraph 2 for waterborne vessels predominantly used for towage or mooring operations in ports located on its territory, it shall inform the Commission of its decision prior to the publication of the contract notice or, in the absence of a contract notice, prior to imposing a flag requirement*". The PPPs show an overwhelming tendency to require that the tugboats necessary to provide the service have a Spanish flag and be registered in the Ordinary Registry[117]. In fact, in 2019 the DG of Merchant Marine communicated to the European Commission[118] the decision to establish the flag requirement for vessels used in technical-nautical services through PPPs. In total, 20 PPPs approved from 2016 onwards[119] have included this requirement, while in the PPPs in force issued previously, this requirement was either not established (4 Public Authorities), or it was extended to allow the flag of countries of the European Economic Area that exhibit reciprocal

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114 Although these quality levels were already foreseen in the TRLPEMM, they have not been incorporated in a generalized way into the Specifications until the latest generation of them.

115 Leaving out of these means those aimed at strictly guaranteeing safety, such as the safety and communication and navigation equipment of the vessels, or the equipment of the pilots.

116 Articles 8 and 256 of the TRLPEMM.

117 Article 1.2 of Royal Decree 2221/1998, of 28 July, on flagging, ship registration and maritime registration.

The almost unanimous tenor of this demand in the different PPPs is: "*By virtue of the provisions of Article 4.3 of Regulation (EU) 2017/352 and in accordance with the provisions of Articles 8 and 256 of the TRLPEMM, tugboats shall be under the Spanish flag and shall be registered in the ordinary register*"

118 As required by Article 4.3 of Regulation (EU) 2017/352.

119 The PPP of the towing service of the Tarragona AP, from 2021, is not published.

treatment, i.e. countries that allow the use of Spanish-flagged tugs to provide this service.

5.1.4. The regulation of remuneration

The regulation of the remuneration of the service also takes the form of maximum charges applicable in the event of limitation of the number of providers or insufficient competition of its number[120]. In the case of towing, the latter is the case, given the monopoly regime in all ports, justified to avoid the exploitation of this high market power.

These maximum charges for towing exhibit a certain heterogeneity in their design between the different Port Authorities, although they are typically increasing with the GT of the vessels tugged, establish GT intervals and differentiate by type of vessel and maneuver (berthing, unberthing or change of berth). The towing service has the particularity of incorporating the possibility of availability charges, a formula that would guarantee the sustainability of the resources necessary for the provision of the service in the event of absence or insufficiency of activity. Likewise, the PPPs provide for different forms of flexibility so that these charges can adapt to changing circumstances in supply or demand, either through a methodology assessed[121] by the Port Authority, or through an extraordinary review consisting of the usual procedure for modifying the PPPs[122], which must have the mandatory and binding opinion of Puertos del Estado and, in the exclusive subject of maritime safety, of the DG of Merchant Marine[123].

5.2. Economic description

Towing is an auxiliary service for the entry, exit and movement of ships in the service area of the port. It may be required by the difficulties of certain ships to manoeuvre safely, for example, if the dimensions or characteristics of the vessel, or the influence of wind, waves or currents, do not allow manoeuvres to be carried out with sufficient precision in relatively small spaces. The towing service may

120 Art. 125.2.d TRLPEMM.

121 In accordance with the provisions of the Specifications, respecting Law 2/2015 on the Deindexation of the Spanish economy and Royal Decree 55/2017 that develops it. This is a recent innovation that appeared in the latest generation of Specifications, as previously only the extraordinary revision was contemplated.

122 Art. 113.2 TRLPEMM.

123 Art. 113.1 TRLPEMM. It is a process with a hearing procedure for possible interested parties and with the approval of Puertos del Estado and the DG Merchant Marine (in the latter case, subject to positive silence). In the past, the approval or modification of these Specifications has sometimes taken place within very long periods of time, affecting, for example, the granting of new licenses themselves.

also be provided at the initiative of the pilot, with the authorization of the bridge. During manoeuvres, the tug and its crew are directed by the master of the towed vessel or the pilot with the authorisation of the same.

5.2.1. Description of the service on the demand side

According to the analysis document of the Port Services Observatory, 67,853 towing services were provided in 2022 (2023)[124], significantly lower than that of pilotage and mooring services.

The main **structural characteristics of the demand for** the towing service would be the following:

- **Its derived or subordinate nature.** The demand for this type of service is largely subordinated to the choice based on the services that weigh most in this cost of stopover (handling, passage). This means that these services are demanded with relatively greater rigidity.
- **Its weight typically reduced in the total cost per scale.** Within the cost of the medium scale, its weight has been estimated at the European level at 6% (PwC, 2013). However, this aggregate may be considering vessels that do not use the towing service and, therefore, if used, their weight would actually be greater. Within the category of port services to the ship (technical-nautical services and collection of ship-generated waste and cargo residues service), towing accounts for an average of 80% of the turnover of the total of these services (Observatorio de los Servicios Portuarios, 2023).
- The client of this service (shipowners and shipping companies) seeks greater **safety** (the minimization of the risks of incidents during the performance of nautical maneuvers in the waters of the port). This variable is changing, given the heterogeneity of the different conditions (weather, tides...) that can occur during the performance of any nautical manoeuvre by the same vessel in the same port.
- The demand would be susceptible to **segmentation** following different criteria, which may lead to requiring one type of trailer or another. In addition, in towing it could be differentiated, all weather conditions being equal, between: (i) captive demand, such as that of dangerous goods vessels and typically that of larger vessels that require taking tugs due to the impossibility of manoeuvring safely on their own, and (ii) demand that

[124] It does not include services provided under a service integration regime or in terminals restricted to private use.

has the ability to choose whether or not to take towing (determined, for example, by weather conditions).

- It is a **contracting service intermediated** through the figure of the consignee.

5.2.2. Supply-side service description

5.2.2.1. Description of the operators

From the point of view of supply, the towing service would have the following characteristics:

- The preponderant participation of the factor **Non-Human Capital**. The main factor is highly specific assets (tugboats), which means that they have limited alternative uses. According to data from the latest Analysis Document of the Port Services Observatory, for the year 2022, the number of tugboats per port varies significantly, from 12 tugboats in Huelva to 1 tugboat in Melilla and in some island ports (Mahón, Arrecife...), or even the same tugboat shared by several ports (for the Granadilla dock and the ports of Los Cristianos, La Estaca and S. Sebastián de la Gomera, all of them in the Port Authority of Sta. Cruz de Tenerife). In 2022, the average number of services per tugboat (average productivity) was 455, although there is a great disparity between ports, from 28 in Gandía to 2,577 in Melilla (2023)[125]. The main determining variable for the number of tugboats would be the number of calls made in each port (as an approximation of the volume of services), together with climatological factors, the specific complexity for the entry and exit of ships from the port[126] or the type of traffic[127]. On the other hand, it is worth emphasizing the diversity of tugboat models (appreciable in elements such as their power) to adapt to the different possible operations.

[125] In this port the use of the tugboat is mandatory for safety reasons.

[126] Cases of Seville or Bilbao.

[127] Such as the average size of ships (GT), as smaller ships can do without the service, the presence of dangerous goods traffic, etc.

Map 2: Number of tugboats per port in 2022

Source: Analysis and conclusions of the state of the port services market (Observatorio de los Servicios Portuarios, 2023).

- Relatively moderate human capital **requirements, consisting mainly of the crews specialised in the operation of these tugboats.**
- A relatively low importance of the **less qualified labour factor**, such as auxiliary staff for administrative tasks.
- **Low space and real estate requirements**, typically consisting of office, warehouse, berths... Its location in the service area of the port will require an authorisation or concession (depending on the term of less or more than 3 years, respectively) for its occupation.

5.2.2.2. Number and distribution of licenses and level of competition

The towing service is characterized by the absence of competition. This conclusion is based on a double perspective:

- **From the point of view of effective competition (installed operators), there is only one provider or licence in each Port Authority, with two exceptions, Santander and Huelva.** However, in these two cases there is no real competition, since either both licenses belong to the same group

(Santander) or both licenses are specialized in different types of services (Huelva).[128]

In the case of multi-port Port Authorities[129], a single licence is established for all ports. This option could be justified by a strategy of cross-subsidies between profitable and loss-making ports, since the problems of economic sustainability of the service may arise due to insufficient demand to cover costs due to the presence of significant economies of scale, linked to the high fixed costs derived from tugboats.

- **From a dynamic perspective, competition is also limited.** The current providers have been so for decades, without rotation or substitution of an incumbent provider for an incoming one. And there is a trend towards monopoly, since in past experiences of some competition in some ports (A Coruña, Bahía de Algeciras, Barcelona, Ferrol, Santander) they have ended up in a monopoly situation, generally through joint ventures. The only recent experience of entry of a new provider to dispute the market with the incumbent monopolist in Las Palmas de Gran Canaria resulted in the exit of said entrant[130].

As for horizontal and vertical integration, both are high:

- **A notable horizontal integration is observed**, as Grupo Boluda participates in 38.7% of the existing licenses, Grupo Financiero Ibaizabal and Grupo Nosa Terra 21 each participate in 15.6%, followed by P&O Reyser (Dubai Ports World, DPW) in 9.4% of the licences and Inversiones Marítimas del Cantábrico (parent company of Rusa Santander and Rusa Málaga) which holds 6.3% of the licenses.
- **In terms of vertical integration, the trailer has the highest level of integration of all technical-nautical services**. According to the latest

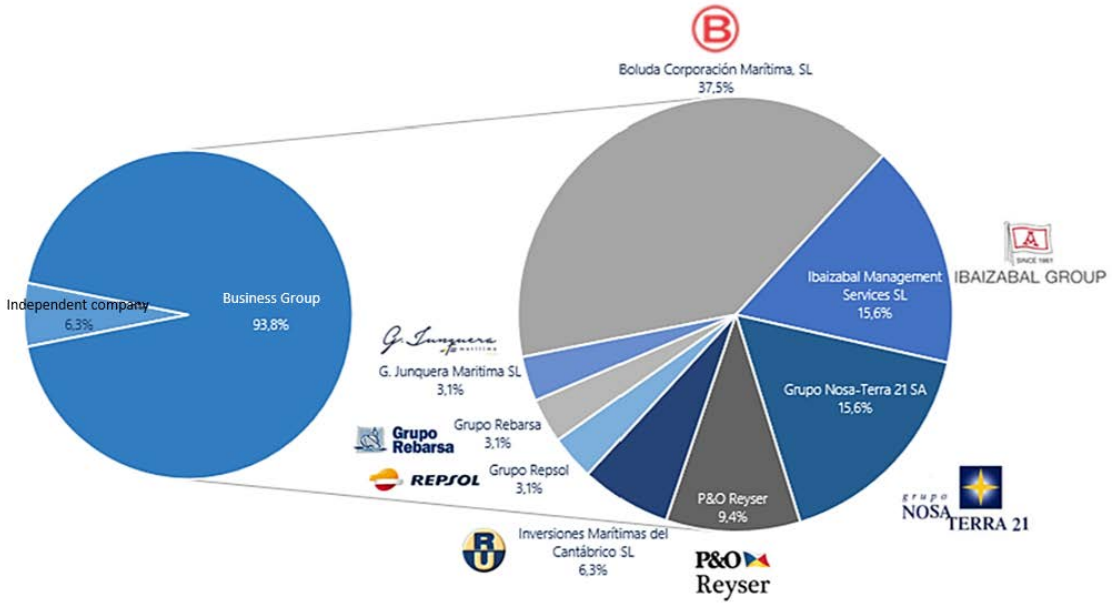
128 These are 2 anomalies also in the legal field. In the case of Santander, because the incompatibilities regime of art. 121.1 TRLPEMM prohibits concentration operations ("effective influence") within the same port service, and in April 2024 RUSA announced that it acquired its competitor Remolques y Servicios Marítimos de Santander. And in the case of Huelva, where one provider (Amadesam) only attends to the "minor" trailer (in shallow waters during low tide) and the other to the rest of the market (Boluda), while the OSP of universal coverage to all "reasonable" demand under non-discriminatory conditions would be a priori incompatible with market segmentation.

129 Balearic Islands, Las Palmas de Gran Canaria, Sta. Cruz de Tenerife, Ferrol-San Cibrao, Bay of Cadiz, Bay of Algeciras, Almeria and Valencia.

130 Entry of Fairplay Towage to operate in the port of Las Palmas, which coincided with the process of substantial reform of the Specifications that modified the system, moving from a licence per port to an integrated licence for all ports of the Port Authority.

Analysis Document of the Port Services Observatory, 93.8% of the licenses[131] belong to business groups that integrate various activities in the maritime sector, both port (mooring, other commercial services in ports...) and extraport (maritime transport, auxiliary services...).

Graph 7: Towing licenses by business group in 2022



Source: Analysis and conclusions of the state of the port services market (Observatorio de los Servicios Portuarios, 2023).

Transferring these figures to the level of Port Authorities, the same business group (Grupo Boluda) is the provider in 12 Port Authorities, followed by Grupo Ibaizábal and Grupo Nosa-Terra 21, providers in 5 Port Authorities each, P&O (Dubai Ports World) in 4 and Remolques Unidos in 2. In total, these 5 groups account for the provision of the service in 26 of the 28 Port Authorities[132]. From a geographical point of view, there is also a certain regionalisation of business groups (Map 3).

131 Most of them are licenses and this term should be used, but there are still certain cases of providers who still lack a license and provide service by virtue of a permit that dates back to a time prior to the current licensing system.

132 Only in Marín and Ría de Pontevedra and in Ferrol-San Cibrao would there be provider companies not integrated into business groups.

Map 3: Distribution of towing licences by business group in 2022

Source: Analysis and conclusions of the state of the port services market (Observatorio de los Servicios Portuarios, 2023).

Service integration licences[133] could serve as an escape mechanism or counterweight to the provider's market power, although this does not apply in the case of towing. This is due to the high fixed costs of this service (investment in tugboats), which discourage the possibilities of using this system, as a very high volume of use would be required to make it profitable. Thus, there is no such license.

5.2.2.3. International comparison

In Europe, the towing service is mainly provided by private companies in about 90% of ports, both inside the port and outside the port area. Two models can be distinguished: (i) free competition, with no limitation on the number of providers, and (ii) provision through licensing or concession contracts. In the latter, there are ports in which the number of providers is restricted to one and

[133] According to article 134.1 of the TRLPEMM, "*Service integration is considered to exist when **the concessionaire or the holder of a terminal authorisation** of passengers or goods for private use **it may provide ships operating in it with one or more technical-nautical services**, with its own personnel and material, without entering into a contract with third parties whose purpose is the provision of said services. In this case, the shipowner operating in this type of terminal will be able to choose between integrated port services and those open to general use*".

others in which there is no restriction. (ESPO, 2022) (Observatorio de los Servicios Portuarios, 2016)

In ports where there are several providers, such as Hamburg and Rotterdam, the greater degree of competition has also led to the existence of private prices, compared to what happens in other ports in the area where the regulator sets or negotiates tariffs with the providers. charges between ports at the international level seem hardly comparable. Sometimes the charges are set per tug and per section (GT, length), although there are others that also rate per hour of service and tugboat. On the other hand, in various ports in Spain the charges are flat (regardless of the duration of the service and the tugboats used). This tariff in principle would promote safety since it does not encourage a reduction in the number of tugboats in operations as there is no additional cost. (Observatorio de los Servicios Portuarios, 2016) (Observatorio de los Servicios Portuarios, 2016)

5.3. Restrictions on competition and efficient regulation

5.3.1. Lack of information on the terms and conditions of service provision derived from the absence or non-publication of the PPPs

In the SPIG towing service, 8 Port Authorities still lack a PPP or equivalent regulating the post-TRLPEMM towing service, despite the legal obligation to update it[134]. Even in one case there is no public PPP (or its previous equivalent) that can be applied[135].

PPPs are essential, as they establish the fundamental rules of the game for providers, so their absence or outdated state generates enormous doubts not only among incumbent providers, but also among potential entrants, weakening the disciplining effect of potential competition.

5.3.2. The mandatory use of the towing service in the context of de facto monopoly in the provision of the service

The mandatory use of the towing service, in a similar way to pilotage, would be justified for safety reasons. However, this obligation also has effects on competition. In the current system of ports of general interest, dominated by *de facto* monopolies in each port for the towing service, this obligation exacerbates the captive nature of the demand for the service, strongly reinforcing the market power of the incumbent providers.

134 Twenty-ninth additional provision, TRLPEMM.

135 Port Authority of Seville.

The mandatory use of the towing service could facilitate the economic sustainability of the service, by artificially increasing the volume of demand to the maximum and possibly allowing lower maximum charges to be established. However, it has the disadvantage, not only of distorting the market in the long term and thus the objective signals about the real need for the service, but also of unnecessarily imposing in the short term higher costs and times of entry and exit of ships in the port in question, thus having a negative impact on port efficiency.

5.3.3. Tacit limitation of the number of providers without a competitive procedure

The coincidence of a regulation of the operation (public service obligations and minimum resources) and a price regulation (maximum charges) limit the choices of towing companies. Total revenues are determined on the one hand by public service obligations (universal coverage and continuity/regularity of service), which determine the volume of services provided. And, on the other hand, by the maximum charges that remunerate each of these services provided. The total costs would also be conditioned both in terms of the volume of services (as well as on the revenue side) and in their cost structure due to the requirements of minimum material and human resources. The sum of both issues restricts how many providers can operate simultaneously in a specific port. This results in a tacit limitation of the number of providers, which can be fixed to only one, without really being able to count on competition for-the-market, since this limitation of the number of providers is not express (no legal limitation).

5.3.4. Restrictions on the licensing and concession system

The system of access to the towing service is subject to a licensing regime. Four important limitations associated with licenses in this service have been detected:

- **Failure to publish official notices of the granting of licenses**: although the granting of current towing licenses[136] must be published, as established by the TRLPEMM, 9 Port Authorities have not yet published such grants.
- **Use of permits that are not established in the common regulations** (provisional and temporary licenses, extensions of licenses, etc.). These titles, although granting a certain flexibility to the Port Authorities in exceptional circumstances, are not supported by the state regulations that

[136] Here too there is some improvement, since this number was lower in previous years.

enable their use. Their use can create a lack of legal certainty between established companies and potential entrants.

- **Defined duration and notice**: the towing service in theory does not have an explicit limitation on the number of providers by any Port Authority. However, the license has a defined duration, which could entail an unnecessary bureaucratic burden if the Port Authority has the power to supervise compliance with the requirements.
- **Absence of market competition mechanisms**: despite the *de facto* monopoly regime in the towing service for many years, no Port Authority has decided to introduce competition for-the-market through the limitation of the number of providers and the subsequent granting of licenses by competitive tender.

On the other hand, the private use of port public domain requires an authorization or concession. A lack of transparency has been detected in the official notices of the concessions and lack of compliance with the linking of licenses to public concessions in a single procedure.

- The legal link in a single administrative procedure of the granting of the license and the concession or authorization is legally required only in the case of a "direct and indispensable" link between the provision of the service and the occupation of the public domain. However, the mere occupation of the public domain to provide the service, without it being indispensable[137], would already imply a significant advantage for an incumbent provider over any potential entrant who lacked such an administrative permit of occupation of the limited public domain. Consequently, the lack of such a link, whether or not it is essential for the provision of the service, has negative implications in terms of competition.
- On the other hand, under the current legal framework (direct and indispensable link) currently only 7 Port Authorities[138] have published a concession notice to towage companies, of which only one (Port Authority of A Coruña) exhibits a possible link with the corresponding license as established by the TRLPEMM. In the remaining cases, the concessions granted to towing providers have deadlines or dates of granting that do not coincide with the corresponding licenses.

[137] For example, in the case of certain assets such as offices, which could be located in the service area of the port or outside it, in its vicinity.

[138] Port Authorities of A Coruña, Bay of Cadiz, Barcelona, Bilbao, Castellón, Las Palmas and Valencia.

5.3.5. Limitations associated with the inclusion of minimum resources in PPPs

The PPPs for the towing service may include provisions that affect the degree of competition in the service, in particular, those relating to the regulation of minimum resources (human and material) and levels of "productivity, performance and quality".[139] It can be seen that both pursue a common objective, either by imposing *ex ante* and from the supply side specific resources considered adequate[140], or by supervising *ex post* and from the point of view of demand that the provision of the service has taken place under appropriate conditions.

The simultaneity of both types could be redundant. In addition, the combination of the two can be inefficient if the imposition of very specific minimum resources avoids efficiently achieving the quality levels required by the *ex post* quality regulation. Likewise, a high requirement and specificity in the minimum resources will have a greater anti-competitive effect by indirectly predetermining the number of providers that will be able to operate profitably in the market in question. The recent evolution in the wording of the PPPs for the towing service would denote a certain regulatory rigidity, since the most recent PPPs have been incorporating *ex post* quality indicators, while maintaining requirements (*ex ante*) minimum resource requirements.

5.3.6. Limitations on the design of maximum charges

For the towing service, the same limitations have been identified in the setting of maximum charges as in the pilotage service. In particular, the lack of information on the adjustment of maximum charges to costs, the lack of uniform guidance for the determination of maximum charges and the possible existence of information asymmetry.

5.3.7. The Spanish flag requirement for tugboats

The requirement that tugboats have a Spanish flag would be justified by the fact that the flag of a ship determines the laws that apply to it, including its crew (rights and obligations of a fiscal, labour, safety nature[141], etc.). Therefore, a ship with a

[139] Indicators of availability of means, unpunctuality and average delay, accident and incidentality (respectively depending on whether or not there is damage to people, means, ships, etc.), and average response time to customer complaints are established and quantified.

[140] Leaving out of these means those aimed at strictly guaranteeing safety, such as the safety and communication and navigation equipment of the vessels, or the equipment of the pilots.

[141] For example, the assignment of minimum safety crew by the Harbour Master (DGMM Service Instruction 7/2020 on the assignment of minimum safety crew on tugboats).

flag other than the Spanish flag would not be subject to Spanish regulations, but to that of the country whose flag it flies. This has generated for decades the phenomenon of flags of convenience, a regulatory arbitration with the aim of lowering the costs of shipping companies and shipowners. In the present case, if the tugboats did not have a Spanish flag, certain requirements demanded by the PPPs and by the Maritime Administration would hardly be applicable to them.

However, this requirement could also be a restriction on competition, as it would hinder the potential entry of companies whose tugboats are foreign-flagged, since they would have to register them in Spain[142]. This procedure requires a huge bureaucratic burden for the submission of the flag application, especially when a flagging project is required[143], consisting of a detailed technical audit of each tugboat prepared by a naval engineer (duly authorized to practice in Spain) and endorsed by the national Assotiation of Naval and Oceanic Engineers. In addition, as much of this documentation will not be written in Spanish, it will be necessary to proceed with a sworn translation into Spanish and, in addition, if required, to notarize and legalize it. To all this would be added the administrative registration procedure itself in Spain, which lacks a defined deadline for its processing and resolution and without positive tacit acceptance mechanism[144]. This entire procedure would seek to establish a control over imported tugboats equivalent to that imposed for the flagging and registration of tugboats built in Spain.

142 Procedure regulated in Royal Decree 1027/1989, of 28 July, on ship flagging and maritime registration and in Law 14/2014, of 24 July, on Maritime Navigation.

143 When the regulation contained in Regulation (EC) 789/2004 of the European Parliament and of the Council, of 21 April, on the transfer of cargo and passenger ships between Community registers does not apply.

144 From recent experience, it is estimated that the entire process could take around six months.

6. THE PORT MOORING AND UNMOORING SERVICE

The **mooring and unmooring service consists of** the service "*whose purpose is to collect the moorings of a ship, carry them and fix them to the elements arranged in the docks or berths for this purpose, following the instructions of the captain of the ship, in the mooring sector designated by the Port Authority, and in the appropriate order and arrangement to facilitate berthing operations, untie and undock*".[145] And unmooring would therefore be the service "*whose purpose is to release the moorings of a ship from the fasteners to which it is moored following the sequence and instructions of the captain and without affecting the mooring conditions of the adjacent ships*".[146]

6.1. Legal framework

The general regulation of the mooring and unmooring service is set out in Regulation (EU) 2017/352 and in the TRLPEMM:

- In Regulation (EU) 2017/352: with specific references in Articles 1 and 2.
- In the TRLPEMM: in Title VI of Book One (Provision of services), Chapter III (Port Services), arts. 108 to 136.

The mooring and unmooring service is classified in the TRLPEMM as a port service[147]. Consequently, it is also subject to the corresponding specific terms and conditions of each Port Authority, i.e. the PPPs (or equivalent if they have not been drawn up), as well as to the other provisions of the Port Authority (port by-laws) and the maritime authority (DG of Merchant Marine and the port's Harbour Master). Finally, the mooring and unmooring service is also subject to **a penalty system** by the TRLPEMM and to a set of penalties in cases of non-compliance with certain obligations established in the PPPs, like in a traditional regulated sector.

The highlights of this regulation are outlined below.

6.1.1. Mandatory use of the service

Although the general regime for the use of port services is voluntary request by potential customers[148], there is the possibility that the **mooring and unmooring**

[145] Art. 128.1 TRLPEMM.

[146] Art. 128.2 TRLPEMM.

[147] Art. 108 TRLPEMM.

[148] Art. 112 TRLPEMM.

service will be mandatory under certain circumstances[149]. It also requires that the Port Authority or the Maritime Authority (Harbor Master) may impose the obligation of the service when the performance, operability or safety of the port is at risk[150]. However, there are no known cases in which this obligation has been imposed to date, possibly because it is not a service that can be easily dispensed with at will.

6.1.2. The regulation of entry of new businesses

It is based on a licensing system linked to a simultaneous one of authorization or concession of the port public domain, as in any service classified as port in the TRLPEMM. Secondly, the regulations contemplate the possibility, but not the obligation, of limiting the number of providers. Both aspects will be detailed below.

- As in other port services, there is an access system through a permit (license), granted by the Port Authority[151] on a regulated, non-discretionary basis. The PPPs establish requirements of good repute, compliance with tax, labor and social security obligations (for example, legislation on the prevention of occupational risks, or occupational health and safety), as well as requirements of economic-financial solvency (including guarantees and insurance)[152] and technical-professional[153] solvency, and another series of requirements that affect the operation (public service obligations, minimum resources and maximum charges) and that will be seen separately, given their relevance. These requirements must also be maintained during the term of validity of the license and would be justified by the dependence that a Port Authority has on these service providers for the normal operation of the port (the entry and exit of ships), which would lead to a special requirement on the permanence and stability of the providers. This license has a limited duration, for 6 years in the case of

149 Art. 112.1 TRLPEMM: "*In addition, the Operating and Police Regulations or the Port Ordinances may establish the mandatory use of other port services depending on the conditions and characteristics of the port infrastructures, the size and type of vessel and the nature of the cargo transported, as well as oceanographic and meteorological conditions*".

150 Art. 112.2 TRLPEMM.

151 Art. 115 TRMPEMM.

152 Consisting of a minimum level of net worth (as a percentage of the acquisition cost of the minimum means and total assets, with percentages that vary between Port Authorities from 10% to 50%), constitution of a guarantee for compliance with possible obligations (for sanctions, damages or undue abandonment of the service) and, where appropriate, of civil liability insurance (between €100,000 and €2,000,000).

153 In this case, the accreditation of the minimum human and material resources requirements is usually considered to have been met.

mooring[154], and when it is about to expire it can be renewed through the same application process- for a new one. The grant must also be published in the BOE, as well as the call for tender, if applicable[155].

- On the other hand, like any other port service, the provision of the mooring and unmooring service will require to a greater or lesser degree the private occupation of the port public domain, for which the mandatory authorization or concession will be required (depending on the period of private use of less or more than 3 years, respectively). The granting of the permit (license) and the administrative permission to make private use of the public domain (concession or authorization) are reciprocally linked in a single procedure, being granted jointly when the provision of the service is "directly and indispensably linked to the exclusive use of a certain area of the port"[156]. As in pilotage and towing services, this legal link is justified by the limiting nature of the available port space, the private occupation of which may constitute an absolute barrier to entry for potential competitors, even under a regulated, non-discretionary licensing system such as the one in force.
- As part of the entry regulation for the mooring and unmooring service, there is also the possibility for a Port Authority to limit the number of providers "*solely for reasons of availability of spaces, capacity of the facilities, safety, environmental standards or for other objective reasons related to the conditions of competition and, in all cases, duly motivated*".[157] The regulation of this alternative would scrupulously observe the principles of necessity and proportionality[158], in addition to having the appropriate regulatory checks[159] and balances and being subject to review (ex officio or at the request of a party) in case circumstances change. In these cases, the licenses must be granted by competitive tender, since by renouncing competition in-the-market, competition for-the-market is

154 Art. 114.1 TRLPEMM.

155 Art. 115.3 TRLPEMM.

156 Art. 115.4. TRLPEMM.

157 Art. 111 TRLPEMM.

158 "*The statement of reasons shall include a clear identification of the restriction of competition in question, justification of the need for the establishment of the restriction in accordance with the public interest and evidence that it is not possible to resort to viable alternatives that are less restrictive of competition in order to achieve the same aim in the public interest*" (art. 111 TRLPEMM).

159 Adopted by the Board of Directors of the Port Authority, after consultation with the Port Services Committee and a report from Puertos del Estado and, where appropriate, a binding report from the Directorate General of the Merchant Marine (safety reasons) and a report from the competent Environmental Administration (environmental reasons), it will be published in the Official State Gazette.

needed. However, in practice, this system would never have been used, even though the mooring and unmooring service is provided under a de facto monopoly regime in almost all ports[160].

6.1.3. The regulation of operations

The rules on how to operate are established in the TRLPEMM and detailed in the PPPs. It would comprise, as in pilotage or towing services, an extensive set of requirements, classified into three types of interventions:

- Firstly, the so-called port public service obligations[161], a set of five obligations[162], among which two stand out from a competitive perspective, the universal coverage of all reasonable demand and the continuity and regularity of the service according to this demand. The most relevant public service obligations from the point of view of competition (universal coverage and continuity and regularity of the service) seek to prevent the defective provision of this service from unduly interrupting the normal operation of a large part of the port's activities (constraint of the weakest link). These obligations force the provider to meet all the expected demand that arises in the normal operation of the port, which usually operates 24 hours a day, 7 days a week. Given these restrictions, the provider's ability to choose the quantity or type of demand they want to meet disappears. In a de facto monopoly, this amount is easy to determine and trivially amounts to the total demand for mooring in the port, but if there were 2 or more providers competing for that demand, the very identification of that "reasonable demand" for each individual competitor would be complex[163].
- Secondly, those aimed at guaranteeing a certain level of quality in the provision of the service, through the requirements of minimum resources (human and non-human) and compliance with minimum levels of

160 With the exception of Carboneras, Bahía de Algeciras, Tarifa, Ceuta, Ferrol, La Estaca, Los Cristianos, San Sebastián de La Gomera, Santa Cruz de Tenerife and Santander.

161 According to EU Regulation 2017/352, which defines a public service obligation as the "*a defined or determined requirement in order to guarantee the provision of those port services or activities of general interest that an operator, if it considered exclusively its own commercial interest, would not assume or would not assume to the same extent or under the same conditions*".

162 According to art. 110 TRLPEMM.

163 In fact, there would be no obvious objective criterion for assigning each operator its reasonable demand, beyond the fact that the Authority made an allocation. In addition, the indeterminacy of this variable in turn poses problems for the design of other elements of the regulation, such as the determination of minimum means and maximum charges.

"productivity, performance and quality".[164] With regard to the regulation of minimum resources (human and non-human) and levels of "productivity, performance and quality",[165] as in the previous cases, both would pursue the same objective, either by imposing *ex ante* or from the supply side specific resources considered adequate[166], or by supervising *ex post* or from the point of view of demand that the provision of the service has taken place under adequate conditions.

- And, thirdly, the regulation of the remuneration of the service, which owing to its importance will be seen in the following subsection.

6.1.4. The regulation of remuneration

Remuneration takes the form of maximum charges applicable if the number of providers is limited or insufficient to ensure competition[167]. This would be justified to avoid exploitation of this elevated market power. In the case of mooring and unmooring service, Spanish ports exhibit a mixed situation, with ports with a single provider where there is clearly the second case, and ports in which there are multiple competing licenses.

These maximum charges for mooring and unmooring are heterogeneous in their design between different Port Authorities, although they are typically increasing with the GT of the vessels which demand this service, by establishing GT intervals and differentiating by type of vessel and type of manoeuvre. The mooring and unmooring service also usually provides for the possibility of availability fees, a formula that would guarantee the sustainability of the business in the event of lack or insufficiency of activity. In some cases, there are also different surcharges and discounts for the service, and the tariff structure can be modulated according to the overall traffic of the port. Likewise, the PPPs provide for different forms of flexibility so that these charges adapt to changing circumstances in supply or demand, either through a methodology assessed[168]

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164 Although these quality levels were already foreseen in the TRLPEMM, they have not been incorporated in a generalized way into the Specifications until the latest generation of them.

165 Indicators of availability of means, unpunctuality and average delay, accident and incidentality (respectively depending on whether or not there is damage to people, means, ships, etc.), and average response time to customer complaints are established and quantified.

166 Leaving out of these means those aimed at strictly guaranteeing safety, such as the safety and communication and navigation equipment of the vessels, or the equipment of the pilots.

167 Art. 125.2.d TRLPEMM.

168 In accordance with the provisions of the Specifications, respecting Law 2/2015 on the Deindexation of the Spanish economy and Royal Decree 55/2017 that develops it. This is a recent innovation that appeared in the latest generation of Specifications, as previously only the extraordinary revision was contemplated.

by the Port Authority, or through an extraordinary review consisting of the usual procedure for modifying the PPPs[169], which must have the mandatory and binding opinion of Puertos del Estado, and in the exclusive subject of maritime safety, of the DG Merchant Marine[170].

6.2. Economic description

The **mooring and unmooring service consists**, as its name suggests, of two opposite operations. One for the docking of ships typically on arrival at the port and another for undocking when they leave it. Therefore, for each ship call, at least two services will be produced, mooring at berthing and unmooring at unmooring. It is an auxiliary service for the entry, exit and movement of ships in the service area of the port, which has the particularity of being practically obligatory for any ship, since without mooring it would run the risk of displacement, making it difficult to handle goods and transfer passengers.

6.2.1. Description of the service on the demand side

The mooring and unmooring service belongs to the category of technical-nautical services, i.e. these are services provided to ships entering and leaving ports. The captain of the vessel, as in the other technical-nautical services, is the one who gives the orders to the boatmen and has the advice of the pilot. According to the analysis document of the Port Services Observatory, in 2022 228,533 mooring and unmooring services were provided (2023)[171].

Similar to the other technical-nautical services, the main characteristics would be the following:

- **Its derivative or subordinate nature:** the demand for this type of service is largely subordinated to the choice of port, mainly based on the services that weigh most heavily on the cost of stopover (handling and passage). This means that these services are demanded with relatively greater rigidity.
- **Typically reduced weight** in the total cost of the scale. At the European level, its weight in the cost of the average scale was estimated at 2% (PwC,

169 Art. 113.2 TRLPEMM.

170 Art. 113.1 TRLPEMM. It is a process with a hearing procedure for possible interested parties and with the approval of Puertos del Estado and the DG Merchant Marine (in the latter case, subject to positive silence). In the past, the approval or modification of these Specifications has sometimes taken place within very long periods of time, affecting, for example, the granting of new licences themselves.

171 It does not include services provided under a service integration regime or in terminals restricted to private use.

2013). Within the category of technical-nautical services, it is the least important of all of them, since on average it barely accounts for 5% of the turnover of the total port services to the ship (technical-nautical services and collection of ship-generated waste and cargo residues service) (Observatorio de los Servicios Portuarios, 2023).

- In a similar way to pilotage and towing, the client of this service (shipowners and shipping companies) would demand **security** through it (the minimization of the risks of incidents during the stay of the ship docked in the port).
- Given its indispensable nature and unlike other technical-nautical services, this demand would no longer be susceptible to **segmentation** in order to determine its volume of effective demand, given a volume of calls in the port. However, if such demand is very recurrent, it may lead the shipowner or shipowner to provide the service to himself with his own resources (service integration regime).
- It is a **contracting service intermediated** through the figure of the consignee.

6.2.2. Supply-side service description

6.2.2.1. Description of the operators

Mooring companies are those that provide this service. From the point of view of supply, the main characteristics are the following:

- **High requirements for the labour** factor, i.e. mooring workers who provide the service, and to a lesser extent other types of auxiliary and managerial personnel of the mooring companies. Map 4 shows the distribution of the number of moors in Spanish ports and reflects a positive relationship between the number of boatmen and the mooring services provided in each port. These in turn depend positively on port calls, although there may be notable differences in service productivity for one and the other[172].

[172] According to the Analysis Document of the Port Services Observatory, in 2022 the number of mooring services provided by mooring ranged considerably, from 1,061 in Tarifa or 648 in Motril, to 35 in Ferrol or 12 in Carboneras.(2023)

Map 4: Number of berths per port in 2022

Source: Analysis and conclusions of the state of the port services market. (Observatorio de los Servicios Portuarios, 2023)

- **A limited weight of the non-human capital** factor: moorings require land vehicles to move around the port, as well as motorboats and other equipment necessary to carry out the mooring activity.

A priori, the cost structure does not seem to indicate the existence of major barriers to entry in terms of cost advantage over potential competitors.

6.2.2.2. Number and distribution of licenses and competition in the mooring and unmooring service

Within the technical-nautical services, the mooring and unmooring service presents, even with significant limitations, the highest level of competition. In most ports there is only one service provider, although there are several cases in which there are multiple providers[173]: Carboneras, Bahía de Algeciras, Tarifa, Ceuta, Ferrol, La Estaca, Los Cristianos, San Sebastián de La Gomera, Santa Cruz de Tenerife and Santander. However, this is not always equivalent to a situation of competition, as some of these licences are in the integration of services (this is the case of 3 in Algeciras, 2 in Santa Cruz de Tenerife and 2 in

[173] General Register of Port Service Provider Companies, accessed November 2024.

Los Cristianos) or restricted to a terminal (there is one in San Cibrao and another in Santa Cruz de Tenerife).

Figure 8: Number and distribution of mooring licences by port

	Total	Open to general use
A Coruña	1	1
Alcudia	1	1
Alicante	1	1
Almería	1	1
Arrecife	1	1
Avilés	1	1
Bahía de Algeciras	5	2
Barcelona	1	1
Bilbao	1	1
Cádiz y su Bahía	1	1
Carboneras	2	2
Cartagena	1	1
Castellón	1	1
Ceuta	2	2
Eivissa	1	1
Ferrol y su Ría	2	2
Gandía	1	1
Gijón-Musel	1	1
Huelva	1	1
La Estaca	2	2
Las Palmas	1	1
Los Cristianos	2	0
Maó	1	1
Marín y Ría de Pontevedra	1	1
Melilla	1	1
Motril	1	1
Palma	1	1
Pasaia	1	1
Puerto del Rosario	1	1
Sagunto	1	1
San Cibrao	1	0
San Sebastián de la Gomera	3	3
Santa Cruz de la Palma	1	1
Santa Cruz de Tenerife	4	1
Santander	2	2
Sevilla y su Ría	1	1
Tarifa	1	1
Tarifa, Bahía de Algeciras	1	1
Tarragona	1	1
Valencia	1	1
Vigo y su Ría	1	1
Vilagarcía de Arousa y su Ría	1	1

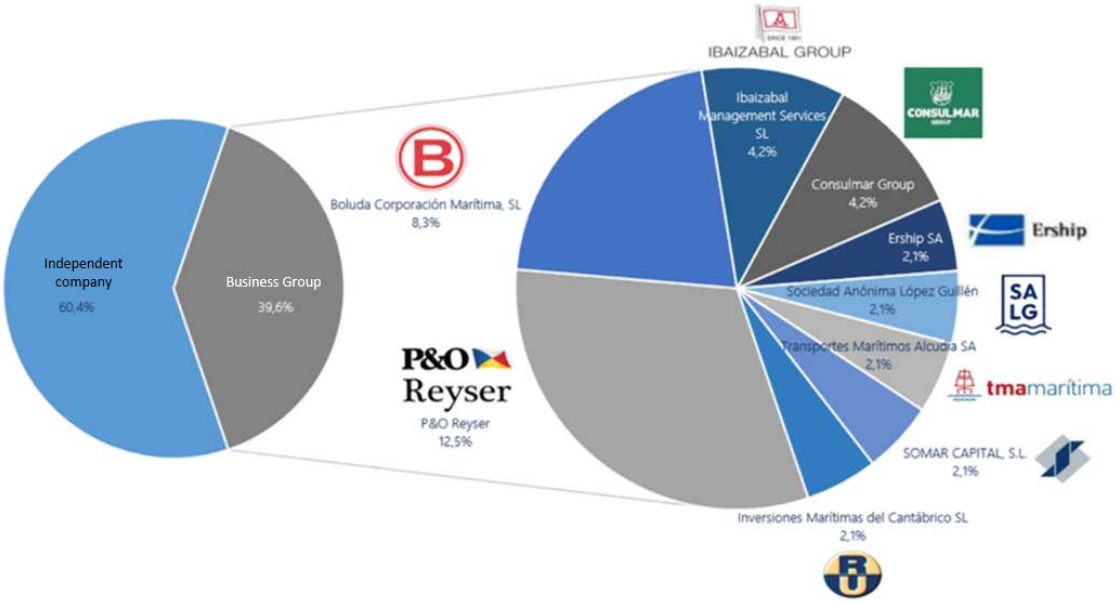
Source: General Registry of Port Service Provider Companies, accessed November 2024.

According to the General Registry of Port Service Provider Companies[174], there would be 59 licenses for the mooring and unmooring service.

As for horizontal and vertical integration, both are high:

- **Significant horizontal integration is appreciated, although less than in the trailer**. Thus, among the different business groups of the service, which would hold 39.6% of the mooring and unmooring licenses, where P&O Reyser (12.5%), Boluda (8.3%), Ibaizabal and Consulmar (both 4.2%) stand out, among others. As was the case with the towing service, there is a certain regionalisation of business groups (Map 5) (Observatorio de los Servicios Portuarios, 2023).

Graph 9: Mooring and unmooring licenses by business group in 2022



Source: Analysis and conclusions of the state of the port services market (Observatorio de los Servicios Portuarios, 2023).

[174] Accessed November 2024.

Map 5: Distribution of mooring licenses by business group in 2022

Source: Analysis and conclusions of the state of the port services market (Observatorio de los Servicios Portuarios, 2023).

- In addition, the analysis of the business groups also shows a high degree of **vertical integration** in them, as evidenced by the presence of groups operating in other segments of the maritime-port business, and especially in the towing service. All this may indicate the existence of economies in scope of the activity with other related services.

Finally, it should be noted that the mooring service is the only technical-nautical service in which there are licenses for the integration of services, which can be requested by companies that are concessionaires or holders of an authorization for a passenger or goods terminal dedicated to private use. This highlights a relevant feature of the mooring service: the integration of services can serve as a "loophole" from the market power of licenses open to general use operating under a monopoly regime, in particular where the terminalist has a sufficient volume of demand.

6.2.2.3. International comparison

The port mooring and unmooring service is provided at European level mostly by private companies (ESPO, 2022). Three models of provision have been identified: (i) one based on free competition, in which the number of providers is not limited, (ii) another in which the number of providers and (iii) a third party in which the service is provided directly by the Port Authority. According to a study by the Observatory of Port Services, among the main ports

in the area there are those where (2016)Concur several service providers, such as Hamburg, although the most common is that the service is provided by a single company. In France, the **Self-service provision** provided that the ship's personnel are sufficiently qualified. (Observatorio de los Servicios Portuarios, 2016)

In general, the charges for the mooring and unmooring service are regulated, with the setting of maximum charges by the Port Authority or with negotiation with the tariff providers. However, there are exceptions, as there are some ports where prices are private (such as Rotterdam, Hamburg and Felixstowe) (Observatorio de los Servicios Portuarios, 2016).

6.3. Restrictions on competition and efficient regulation

6.3.1. Lack of information on the terms and conditions of service provision derived from the absence or non-publication of the PPPs

In the mooring and unmooring service across the SPIG, 5 Port Authorities still do not have a post-TRLPEMM PPP or equivalent regulating the service[175], despite the legal obligation to update [176]them. There is even 1 case in which there is no public PPP (or its previous equivalent) that can be applied[177].

PPPs are essential, as they establish the fundamental rules of the game for providers, so their absence or outdated state can generate legal uncertainty not only among incumbent providers, but also among potential entrants.

6.3.2. Tacit limitation of the number of providers without a competitive procedure

The coincidence of a regulation of the operation (public service obligations and minimum resources) and a regulation of prices (maximum charges) limits the choices of the mooring company, determining both its income and its costs, given the requirement of minimum resources. With this, it is likely that the number of competitors in each port will be limited by regulation.

6.3.3. Restrictions on the licensing and concession system

The system of access to the mooring and unmooring service is subject to a licensing regime, for which four limitations have been detected:

[175] Port Authorities of Almería (Carboneras), Cartagena, Ceuta, Melilla and Pasaia.

[176] Twenty-ninth additional provision, TRLPEMM.

[177] Port Authority of Almería (Port of Carboneras).

- **Failure to publish notices of the granting of licenses**: the granting of licenses must be published in the Official State Gazette (BOE), as well as the call for tenders, if applicable[178]. However, in practice, 7 Port Authorities[179] have not yet published an announcement of the current mooring and unmooring licenses[180].
- **Use of permits that are not established in the common regulations** (provisional and temporary licenses, extensions of licenses, etc.). These titles, although granting a certain flexibility to the Port Authorities in exceptional circumstances, are not supported by the common state regulations that enable their use by Port Authorities.
- **Defined duration and notice**: the license has a defined duration, despite not being restricted in number and the Port Authority has the power to supervise continuously compliance with the requirements. Thus, the periodic renewal of licenses involves a bureaucratic burden that could be dispensable.

On the other hand, **the occupation of the port public domain necessary for the provision of the service requires an authorization or concession**.

- As in the case of pilotage and towing, the legal link in a single administrative procedure of the granting of the license and the concession or authorization is legally required only in the case of a "direct and indispensable" link between the provision of the service and the private occupation of the public domain. However, the mere occupation of the public domain to provide the service, without this being indispensable[181], would already imply an advantage for an incumbent provider over any potential entrant who lacked such an administrative permit of occupation of the limited public domain.
- There is no record of cases of mooring licenses being granted in connection with concessions as prescribed by law. According to the information available, to date only 8 Port Authorities[182] have published official notices relating to concessions to mooring and unmooring companies, and in no case is this concession linked to the corresponding license in the BOE notice as established by the TRLPEMM, as they

178 Art. 115.3 TRLPEMM.

179 Port Authorities of Almería, Avilés, Castellón, Ferrol-San Cibrao, Huelva, Pasaia and Santander.

180 Here too there is some improvement, since this figure was lower in previous years.

181 For example, in the case of certain assets such as offices, which could be located in or outside the port service area, in its immediate vicinity.

182 Port Authorities of Bahía de Algeciras, Baleares, Castellón, Ceuta, Gijón, Las Palmas, Tarragona and Valencia.

present durations or dates of granting that do not coincide with the corresponding licenses.

6.3.4. Limitations associated with the inclusion of minimum resources in PPPs

The **regulation of quality** is one of the elements of the specifications most likely to affect competition. The simultaneity of *ex post* quality regulation and *ex ante* regulation could be redundant and also inefficient if the imposition of very specific *ex ante* minimum resources avoids the efficient achievement of required quality levels *ex post*.

6.3.5. Limitations on the design of maximum charges

In the mooring service, the same limitations in the setting of maximum charges as in the pilotage and towing service have been identified, in particular, the lack of information on the adjustment of maximum charges to costs, the lack of uniform guidance for the determination of maximum charges and the possible existence of market failures associated with the setting of maximum charges such as information asymmetry.

7. MARPOL

The service of collecting waste from ships calling at a port consists of the collection of this waste, as well as its subsequent transfer to a treatment facility, although it may sometimes take place in some authorized area, along with storage, classification and pre-treatment activities, either in the port itself or in its vicinity. An essential aspect of this service will be, as can be anticipated, how waste is defined.

7.1. Legal framework

The general regulation of the collection of for ship-generated waste and cargo residues (hereinafter, MARPOL service) is found in the same sources as the rest of the port services, i.e. in **Regulation (EU) 2017/352** and in the **TRLPEMM:**

- In Regulation (EU) 2017/352: with specific references in Articles 1 and 2.
- In the TRLPEMM: in Book One, Title IV (Environment and Safety), art. 63, and Title VI (Provision of services), chapter III (Port services), arts. 108 to 136, with art. 132 being specifically dedicated to this service.

This service also presents a specific EU-wide regulation and subsequently transposed into Spanish law, relating to port reception facilities for the delivery of such waste from ships. This is **Royal Decree 128/2022**, of 15 February, on port reception facilities for waste from ships, which transposes **Directive (EU) 2019/883** of the European Parliament and of the Council of 17 April 2019 on port reception facilities for the delivery of waste from ships. This Directive replaces a previous one (Directive 2000/59/EC) that incorporated parts of the International Convention for the Prevention of Pollution from Ships or "**MARPOL"** (short for *"Marine Pollution").* This international treaty, which seeks to prevent and reduce pollution of the marine environment by ships, establishes basic rules to control the discharge of waste and harmful substances (oil, chemicals and wastewater, etc.), such as general prohibitions on the discharges of ships at sea, as well as the conditions under which certain types of waste can be discharged into the marine environment.

The Convention contains six technical annexes, giving rise to the commonly accepted classification of these wastes:

- Annex I: rules for preventing oil pollution.
- Annex II: rules for preventing pollution by noxious liquid cargo.
- Annex III: rules for preventing pollution by harmful substances carried in packages.
- Annex IV: Rules for the prevention of pollution by sewage from ships.

- Annex V: rules for preventing pollution caused by ships' garbage.
- Annex VI: Rules for the prevention of air pollution from ships.

As a necessary element to ensure compliance, the MARPOL Convention obliges Contracting Parties to ensure that ports have reception facilities for such waste and harmful substances. And this port-based approach has been followed by the European Union with the now repealed Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues, which aimed to reduce discharges of ship-generated waste and cargo residues into the sea "by improving the availability and use of reception facilities"[183] in ports, complemented by an enforcement regime that includes a system of inspections and the exchange of information. The current Directive (EU) 2019/883, transposed by Royal Decree 128/2022, reinforced certain elements of the previous regulation and added certain new aspects, due to modifications to the MARPOL Convention itself, among others.

Following this Directive, **Royal Decree 128/2022** establishes:

- A set of obligations for the availability of adequate port reception facilities[184], with a record of the services for collecting waste from ships provided.
- The formulation of waste reception and handling plans and user guides by the Port Authorities[185].
- The obligation of delivery of all waste by the ship (obligatory service[186]), after truthful and accurate electronic notification[187]. Exemptions to this obligation are also foreseen, either occasionally by the port's Harbor Master[188], or for a fixed duration for ships "in scheduled traffic with frequent and regular port calls" by the DG Merchant Marine.[189] In both cases, the underlying logic for granting them is that the ship will not

183 Recital 4 of Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2000 on port reception facilities for ship-generated waste and cargo residues.

184 They can collect the types and quantities of waste generated by ships that normally use that port and do not cause them unnecessary delays, without applying excessive charges that may discourage their use by ships, and that manage waste from ships in an environmentally friendly manner in accordance with Directive 2008/98/ and other EU waste legislation.

185 Art. 11 and Annex I of RD 128/2022.

186 Art. 17.1 of RD 128/2022, being also established in art. 112 of TRLPEMM.

187 Notification is mandatory, as a general rule, for ships with a gross tonnage of 300 GT or more.

188 Art. 17.5 of RD 128/2022.

189 Art. 21 of RD 128/2022.

generate waste in excess of the maximum dedicated storage capacity before its next call at another port.

- A system for recovering the costs of the service[190], applying the Community principle "the polluter pays". These costs will be covered by the payment of fees for ships, both an indirect fee (paid regardless of whether waste is delivered or not) and a direct fee (associated with the types and quantities of waste actually delivered by the ship), differentiated according to certain variables[191]. Reductions[192] and possible additional financial incentives that favor the delivery of certain waste are also allowed.
- A control of compliance (inspections[193] and immobilization of ships, supervision by the Port Authorities and penalty system).
- A notification system that allows communication and exchange of information between ports[194].

The MARPOL service is classified in the TRLPEMM as a port service[195], so it is also subject to the corresponding specific regulations of each Port Authority, i.e. the PPPs (or equivalent if they have not been drawn up), as well as to the other provisions of the Port Authority (port by-laws) and the maritime authority (DG of Merchant Marine and Harbour Master).

However, the delimitation of the service is not fully consistent in all the aforementioned regulations. Indeed, the TRLPEMM gives a narrower definition of the service (with less waste and residues considered) than that established by European regulations (Regulation (EU) 2017/352; Directive (EU) 2019/883 and its transposition in RD 128/2022). Specifically, the TRLPEMM establishes[196] that the scope of the MARPOL port service is the collection of "waste generated by ships", which includes "*all waste produced by the ship, including waste related to*

190 Excluding the collection of cargo waste.

191 The category, type and size of the vessel, the provision of services to ships outside the port's normal operating hours, or the hazardous nature of the waste (art. 18.4 RD 128/2022).

192 For the type of commercial activity carried out by the ship, in particular when it comes to short sea commercial shipping, and when the design, equipment and operation of the ship demonstrate that the ship generates limited amounts of waste and manages its waste in a sustainable and environmentally friendly manner (art. 18.5 RD 128/2022).

193 At least fifteen percent of the annual average (over the last three years) of ships that have called at Spanish ports (Art. 22.2 RD 128/2022).

194 Based on the SafeSeaNet maritime information exchange system.

195 Art. 108 TRLPEMM.

196 Art. 132 TRLPEMM.

cargo[197]*, and which is regulated by annexes I, IV, V or VI"* of the MARPOL Convention in its current version. In addition, it explicitly excludes from the MARPOL port service "*the collection of cargo waste*[198] *and ozone-depleting substances and the equipment containing them*". Therefore, the collection of Annex II waste, neither cargo residues of Annexes I and V, nor substances that deplete the ozone layer of Annex VI do not belong to the MARPOL port service according to the TRLPEMM. The collection of this excluded waste and any other would be, in accordance with the current wording of the TRLPEMM, a commercial service.

On the other hand, EU regulations (including RD 128/2022 transposing) establish a broader definition, defining "ship waste" as the sum of waste generated by ships, cargo residues and waste unintentionally caught[199].

Finally, within the specific regulation, the MARPOL service is also subject to **a penalty system by** the TRLPEMM and to a set of penalties in cases of non-compliance with certain obligations established in the specifications, similar to a traditional regulated sector.

The highlights of the regulation are described below.

7.1.1. Mandatory use of the service

In contrast to the general regime for the use of port services based on the voluntary request by potential customers[200], the **MARPOL service is mandatory**[201].

197 They refer exclusively to "*remains of packaging, lashing or fastening elements, and others, found on board in cargo holds or tanks, which remain after the unloading procedures have been completed*" (art. 132.3 TRLPEMM), so they are different from the so-called cargo waste.

198 According to art. 2 RD 128/2022, cargo waste is defined as "*Remains of any cargo material on board left on deck, in the holds or in tanks after loading and unloading, including excess or spillage during loading and unloading, whether in a dry or wet state or carried away in the washing water, excluding dust from the cargo remaining on the deck after sweeping or dust deposited on the exterior surfaces of the referred to in Annexes I, II and V of the MARPOL Convention*".

199 It is worth noting the mere coincidence that both the TRLPEMM and Regulation (EU) 2017/352 have chosen the term "port service" to classify the MARPOL service. Thus, in general, we could speak of "port services according to the TRLPEMM" and "port services according to Regulation (EU) 2017/352", being two categories that needn't coincide. This coincidence of names does not imply that the Regulation, later in time, has automatically extended the scope of the MARPOL service as defined in the TRLPEMM.

200 Art. 112 TRLPEMM.

201 Arts. 112 of TRLPEMM and 17.1 of RD 128/2022.

7.1.2. The regulation of entry of new businesses

For the MARPOL service, it is very similar to that of the rest of the port services, but with certain specificities. It is also a licensing system linked to a simultaneous one of authorization or concession of the port public domain, as in any service classified as port in the TRLPEMM. And, secondly, the regulations contemplate the possibility, but not the obligation, of limiting the number of providers. Both aspects are detailed below.

- An access system subject to **an permit** (license) is applied, granted by the Port Authority[202] on a regulated, non-discretionary basis. The PPPs establish requirements of good repute, compliance with fiscal, labor and social security obligations (for example, legislation on the prevention of occupational risks, or occupational safety and health), as well as requirements of economic-financial solvency (including guarantees and insurance)[203] and technical-professional[204] solvency, and another series of requirements that affect the operation (public service obligations, minimum resources and maximum charges) and that will be seen separately, given their relevance. These requirements must also be maintained during the term of validity of the license and would be justified by the dependence that a Port Authority has on these service providers, given the mandatory use of the service imposed by Directive (EU) 2019/883, which would require a special requirement in the permanence and stability of the providers. This license has a limited duration, 6 years in the absence of significant investment by the licensee and 12 years when such significant investment occurs[205]. Upon expiry it can be renewed following the same application process to obtain a new license. The grant must also be published in the BOE, as well as the call for tender, if applicable[206].
- Likewise, the provision of the MARPOL service will typically require the private occupation of the **port public domain**, for which the mandatory authorization or concession will be required (depending on the period of

202 Art. 115 TRMPEMM.

203 Consisting of a minimum level of net worth (as a percentage of the acquisition cost of the minimum resources and total assets, with percentages that vary between Port Authorities from 10% to 30%), constitution of a financial guarantee for compliance with any obligations (for penalties, damages or undue abandonment of the service) and, where appropriate, civil liability insurance (between €3,000 and €1,000,000), in addition to the financial guarantees that may be applicable in accordance with Law 26/2007, of 23 October, on Environmental Liability.

204 In this case, the compliance with the minimum human and material resources requirements is usually considered to have been met.

205 Although the TRLPEMM does not set the criteria to qualify an investment made by the licensee as significant, the PPPs usually specify them.

206 Art. 115.3 TRLPEMM.

private use of less or more than 3 years, respectively). The granting of the permit (license) and the administrative permission to make private use of the public domain (concession or authorization) are reciprocally linked in a single procedure, being granted jointly when the provision of the service is "directly and indispensably linked to the exclusive use of a certain area of the port"[207]. As in the case of technical-nautical services, this legal link is justified by the restrictive nature of the available port space, the private occupation of which may constitute an absolute barrier to entry for possible competitors, even under a regulated, non-discretionary license system such as the one in force.

- It also establishes the possibility for a Port Authority to **limit the number of providers** of the MARPOL service for pre-established reasons[208]. The regulation of this market closure would be in accordance with the principles of necessity and proportionality[209], in addition to having the due regulatory counterweights[210] and being susceptible to review (ex officio or at the request of a party) in case circumstances change. In these cases, licenses must be awarded by competition, replacing competition in-the-market with competition for-the-market. However, in practice this system would never have been used, even though the MARPOL service is provided *de facto* on a monopoly basis in many Port Authorities, at least in some of the categories of waste (annexes).[211]

207 Art. 115.4. TRLPEMM.

208 Art. 111 TRLPEMM: "*taking into account only reasons of availability of spaces, capacity of the facilities, safety, environmental standards or for other objective reasons related to the conditions of competition and, in all cases, duly justified*".

209 "*The statement of reasons shall include a clear identification of the restriction of competition in question, justification of the need for the establishment of the restriction in accordance with the public interest and evidence that it is not possible to resort to viable alternatives that are less restrictive of competition in order to achieve the same aim in the public interest*" (art. 111 TRLPEMM).

210 Adopted by the Board of Directors of the Port Authority, after consultation with the Port Services Committee and a report from Puertos del Estado and, where appropriate, a binding report from the Directorate General of the Merchant Marine (on safety grounds) and a report from the competent Environmental Administration (on environmental grounds), and will be published in the Official State Gazette (BOE).

211 With the exception of A Coruña, Bahía de Algeciras, Bahía de Cádiz, Balearic Islands, Barcelona, Las Palmas, Tarragona, Valencia and Vigo, in which all the categories of waste available have 2 or more providers.

7.1.3. Regulation of the operation

It is established in the TRLPEMM and developed in the PPP. It would comprise, as in the case of technical-nautical services, an profuse set of requirements, classifiable into three types of interventions:

- Firstly, the so-called port public service obligations[212], or a set of five obligations[213]. The most relevant public service obligations from the point of view of competition (universal coverage and continuity and regularity of the service) seek to prevent the defective provision of this service from unduly interrupting the normal operation of a large part of the port's activities (constraint of the weakest link). These obligations force the provider to meet all the expected demand that arises in the normal operation of the port, which in particular usually operates 24 hours a day, 7 days a week. Unlike technical-nautical services, in the MARPOL service the TRLPEMM grants providers greater flexibility in terms of choosing the service provided, as it allows licenses to be for all categories of ship waste or only for one or more of these categories. In addition, some PPPs additionally allow licenses to be restricted to specific geographical areas of the port. The difficulty with this is that, in cases of multiple simultaneous providers effectively competing, the estimation of such "reasonable demand" for each individual competitor would not be obvious[214].
- Secondly, the requirements in order to guarantee a certain level of quality in the provision of the service, through the requirements of minimum resources (human and non-human) and compliance with minimum levels of "productivity, performance and quality".[215] With regard to the regulation of minimum resources (human and non-human) and levels of "productivity, performance and quality",[216] both would pursue, beyond for safety reasons, the same objective, either by imposing *ex ante,* or from the supply

[212] According to EU Regulation 2017/352, which defines a public service obligation as the "*a defined or determined requirement in order to guarantee the provision of those port services or activities of general interest that an operator, if it considered exclusively its own commercial interest, would not assume or would not assume to the same extent or under the same conditions*".

[213] According to art. 110 TRLPEMM.

[214] Indeed, there would be no obvious objective criterion for assigning each operator its reasonable demand, beyond the fact that the Port Authority made an allocation. In addition, the indeterminacy of this variable in turn poses problems for the design of other elements of the regulation, such as the determination of minimum resourced and maximum charges.

[215] Although these quality levels were already foreseen in the TRLPEMM, they have not been incorporated in a generalized way into the PPPs until the latest generation of them.

[216] Indicators of availability of resourced, unpunctuality and average delay, accidentality, number of complaints and claims received, average response time to claims and waste recovery (percentage of waste recovered or not destined for landfill) are established and quantified.

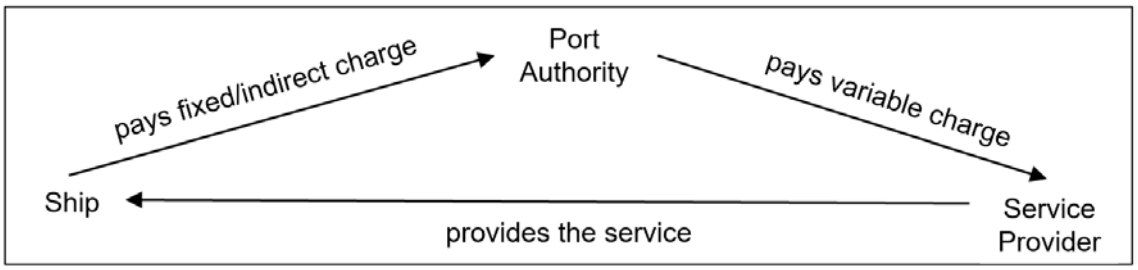
side, specific resources considered adequate[217], or by supervising *ex post,* or from the point of view of demand, that the provision of the service has taken place under certain conditions.

- And, thirdly, the regulation of remuneration for service, which owing to its importance is set out below in a separate section.

7.1.4. The regulation of remuneration

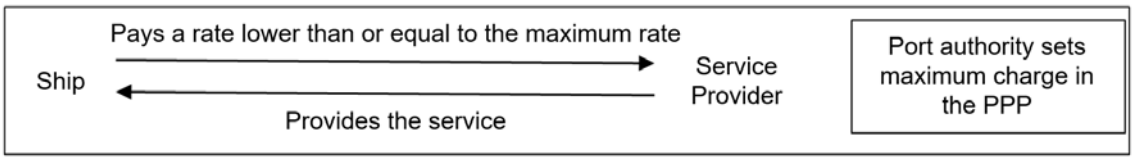
This takes on a very specific and complex configuration in the MARPOL service, with a fixed or indirect rate for certain waste along with a direct rate for the remaining types of waste. Indeed, in the MARPOL service, the legislation (TRLPEMM and Royal Decree 128/2022) establishes two pricing systems:

- **Indirect or fixed pricing system**: it applies to the collection of ship-generated waste service of Annexes I and V of the MARPOL Convention. For the waste in these annexes, the monetary flow is intermediated by the Port Authority, so that two service charges are actually established as follows: (a) the ship pays an indirect or fixed charge (not dependent on the volume of waste discharged by the provider) to the Port Authority, even if the volume of waste discharged is zero, and (b) the Port Authority pays a variable charge (depending on the volume of waste discharged wastes discharged) to the service provider.



- **Direct pricing system**: applies to the waste collection service from the remaining annexes and to the collection service for waste from annexes I and V when some exceptional circumstances occur (e.g. the volume exceeds the maximum dedicated storage capacity or deviates significantly from the reported volume). The ship pays the service provider directly based on the volume of waste discharged. The Port Authority, in its PPPs for the service, determines whether maximum charges are applicable.

[217] Leaving out of these resources those aimed at strictly guaranteeing safety, such as the safety and communication and navigation equipment of the vessels, or the equipment of the pilots.



The TRLPEMM establishes the details of the operation of the fixed or indirect pricing system, while the direct pricing system is developed in more detail by Royal Decree 128/2022. The operation of both charging systems is explained in greater detail below:

(1) Fixed or indirect pricing system:

a) Charge paid to the Port Authority by ships (mandatory payment, regardless of the volume unloaded).

The TRLPEMM describes in detail the fixed or indirect pricing system in its article 132.8. It includes, among other things, the design of the charges that ships should pay to the Port Authorities.

This is a mandatory payment fee for ships, regardless of whether they use the collection of ship-generated waste and cargo residues service. The rate is calculated based on the gross tonnage of the ship (GT) and, in the case of passenger ships, also on the number of persons on board, but is not related to the volume of waste discharged. The obligation to pay and the amount to be paid regardless of the volume of waste discharged helps to mitigate the market failure usually associated with the problem of pollution; that is, the negative externality resulting from the dumping of the waste into the sea. Specifically, with the obligation to pay, the ship would be encouraged to demand as much as possible from the collection of ship-generated waste and cargo residues service of Annexes I and V, thus reducing discharges into the sea.

The payment of this charge by the ship to the Port Authority allows to unload all waste corresponding to Annexes I and V of the MARPOL Convention, at no additional cost, during the first 7 days of the port call, provided that land collection means are used within the port waters. If the collection was carried out by sea means or outside port waters, the rate would be 25% higher.

Box 1: Methodology for calculating the tariff in the fixed or indirect pricing system.

The **basic rate (T)** that **must be paid** by every ship in each call in a Spanish port, with a maximum of once every seven days, is established in the TRLPEMM, based on the following formula, common to all Port Authorities:

$$T = R1 * C1 + R2 * P$$

The value of the basic R1 amount is fixed and is set at 80 euros, except for passenger ships, for which it is 75 euros. This is multiplied by the value of the coefficient C1, which will depend on the gross tonnage of the ship (GT):

(1) Ships between 0 and 2,500 GT: *€1.50*

(2) Ships between 2,501 and 25,000 GT: *6 x 0.0001 x GT*

(3) Ships between 25,001 and 100,000 GT: *(1.2 x 0.0001 x GT) + 12*

(4) Ships over 100,000 GT: *€24.00*

On the other hand, the value of the basic R2 amount, set at 0.25 euros, only applies to passenger ships, such as ferries, Ro-pax and cruise ships. And the value of P is the number of people on board the ship according to the Single Call Statement, counting both passengers and crew.

The TRLPEMM establishes that the levels of the parameters above may be revised according to the evolution of the costs of the service in the port system.

It is also possible to apply certain **discounts** on the basic rate when the ship has an environmental certificate, when it proves by means of a certificate that it has made payment for the reception of waste in the last port where it made a call and in the case of ships in scheduled traffic that have approved plans guaranteeing the delivery of waste in ports on the route.

b) Payment by the Port Authority to the service providers (depends on the effective volume unloaded)

Even if ships make a mandatory payment independent of the volume unloaded (if they discharge waste from Annexes I and V), to encourage the provision of the service by the providers, it is necessary that the payment they receive depends on the volume unloaded. Thus, in the same article of the TRLPEMM, it is established that **the Port Authorities will pay the service providers an amount based on the volumes effectively discharged of the waste corresponding to Annexes I and V** of the MARPOL Convention, in accordance with the charges

established in the PPPs of the Service. For the Port Authority, a *fixed charge* to the vessel and a *variable charge* to the service provider will imply, almost in all likelihood, that **each year the Port Authority will have either deficit or surplus**. The regulation indicates how these should be distributed:

- When the fixed rate charged by the Port Authority to the vessel is *higher than* the variable amount paid by the Port Authority to the service provider (there is a 'surplus'), the Port Authority may distribute a percentage of the difference among the holders of licenses for the service "*to contribute to the viability of the service in the event of insufficient demand*". It goes on to state that "*the criteria for the distribution* [of this percentage] *shall be included in the specific terms and conditions of the service, which must be objective, transparent, proportional, equitable and non-discriminatory*".
- When, in the previous year, the fixed rate charged by the Port Authority to the vessel is *lower* than the variable amount paid by the Port Authority to the service provider (there is a 'deficit'), the Port Authority may propose, within the framework of the Business Plan, a correction coefficient common to the basic amounts R1 and R2, which may not be less than 1.00 or more than 1.30 (it may increase the amounts by a maximum of 30% per year). The correction coefficient must be determined exclusively with the intention of achieving the balance between income and expenditure of the Port Authority associated with the provision of the port service of collection of ship-generated waste and cargo residues, and taking into account the evolution of traffic expected for the year in which it is applied.

The proceeds from the Port Authority through the collection of the fixed charge must contribute to financing the costs of providing the service and promoting the best environmental practices, discouraging the dumping of waste into the sea. To this end, the TRLPEMM grants the Port Authority the ability to establish, based on a minimum volume of waste unloaded, additional bonuses for each cubic meter of waste that is proven to have been unloaded. This must be done "*following a binding report from Puertos del Estado and provided that these bonuses are incorporated into the cost structure of each Port Authority, within a framework of fair competition between ports*".

(2) Direct charging system (regulated in the TRPLEMM and in Royal Decree 128/2022):

The "direct charge" is paid by the ship to the receiving port service provider based on the volume of waste delivered that is not covered by the payment of the indirect charge. The TRLPEMM establishes that this charge is paid "*for the deliveries corresponding to the wastes of annexes IV and VI, as well as for those made after the seventh day of call*" (art. 132 of the TRLPEMM).

However, the exact concepts for which this rate must be paid are detailed in the PPPs. The most recently updated ones usually include the following items that accrue direct charges[218]:

- The delivery of waste from Annexes I and V beyond the seventh day of the port call or from ships exempt from the fixed charge.
- The delivery of waste from Annexes IV or VI.
- The delivery of cargo residues from Annexes I, II or V.
- The delivery of waste when the volume to be discharged exceeds the maximum dedicated storage capacity.
- The delivery of waste when the volume of delivery exceeds by some percentage the value declared in the advance notification form for waste delivery (the percentage varies according to each Port Authority).

In addition, some of the PPPs (such as that of the Port Authorities of Marín and Ría de Pontevedra, and Valencia) include in the direct charge the delivery of waste in zone II of the port, deliveries using maritime means, when the volume of hazardous waste exceeds the maximum thresholds admitted under the fixed charge, or the delivery of Annex V wastes not corresponding to the normal operations of the ship.

From all the above, it can be deduced that the specification of the elements covered under the direct charge is not homogeneous between Port Authorities.

Apart from these concepts, which are specified in the PPPs, Royal Decree 128/2022 also establishes that, if costs remain below the amounts collected with the fixed or indirect charge, these will be covered according to the types and quantities of waste actually delivered by the vessel.

Charge reductions **may also be applied** based on: (i) the type of commercial activity carried out by the ship, in particular in the case of short sea shipping and (ii) the proven generation of limited quantities of waste by the ship and the management of its waste in a sustainable and environmentally friendly manner, in accordance with the criteria set by the EU.[219]

[218] The most recent updated PPPs are from the Port Authorities of Alicante (2023), Almería (2022), Balearic Islands (2022), Barcelona (2019), Huelva (2020), Las Palmas (2022), Marín and Ría de Pontevedra (2024) and Valencia (2023).

[219] Commission Implementing Regulation (EU) 2022/91 of 21 January 2022 defining the criteria for determining that a ship produces reduced quantities of waste and manages its waste in a sustainable and environmentally sound manner in accordance with Directive (EU) 2019/883 of the European Parliament and of the Council.

7.2. Economic description

The **MARPOL service**, as a port service, represents a link in the chain of services provided to ships using the port. But this service has the particularity of consisting in itself of a chain of activities. In their broadest possible version, these operations or stages are:

1. Collection of waste and cargo residues from ships, either by land means (trucks, tankers, etc.) or by sea means (barges).
2. Temporary storage and classification (in case the type of waste according to MARPOL admits differentiated subcategories).
3. Pre-treatment of certain substances.
4. Transport to a treatment plant authorized by the competent environmental administration.
5. Delivery of the waste to said authorized treatment plant.

This succession of operations already anticipates the potential complexity and heterogeneity in the modes of provision of this service. Some of the first activities in this chain will take place within the port, while the rest will take place outside the port boundaries.

Like the technical-nautical services, it is an auxiliary service during the call of ships in the port. However, unlike these, it would not be essential for the normal operation of the port in safe conditions, since it does not affect the normal entry and exit of the ship from the port or the loading and unloading operations that it must carry out there.

7.2.1. Description of the service on the demand side

The MARPOL service covers the need for ships to dispose of their waste, both that generated on the ship itself and that originated during loading or unloading operations in the port itself (cargo residues). The ship, given its next scheduled calls in other ports and if its storage capacity allows in relation to its estimated generation of new waste to those next ports, would have a greater ability to choose between different providers in different ports, which would be a major source of competitive tension.

However, this ability to choose is ruled out in Spanish and European ports, where the obligation to receive this service is imposed. The economic justification for this obligation lies in the fact that the cheapest alternative to unloading waste at a cost in a port is to dump it into the sea at no cost. This marine pollution represents a negative environmental externality, the mitigation of which can be achieved with the combination of the mandatory use of the service together with

a fixed payment system (fixed or indirect tariff), regardless of the volume of waste discharged, which minimizes the incentive to discharge into the sea.

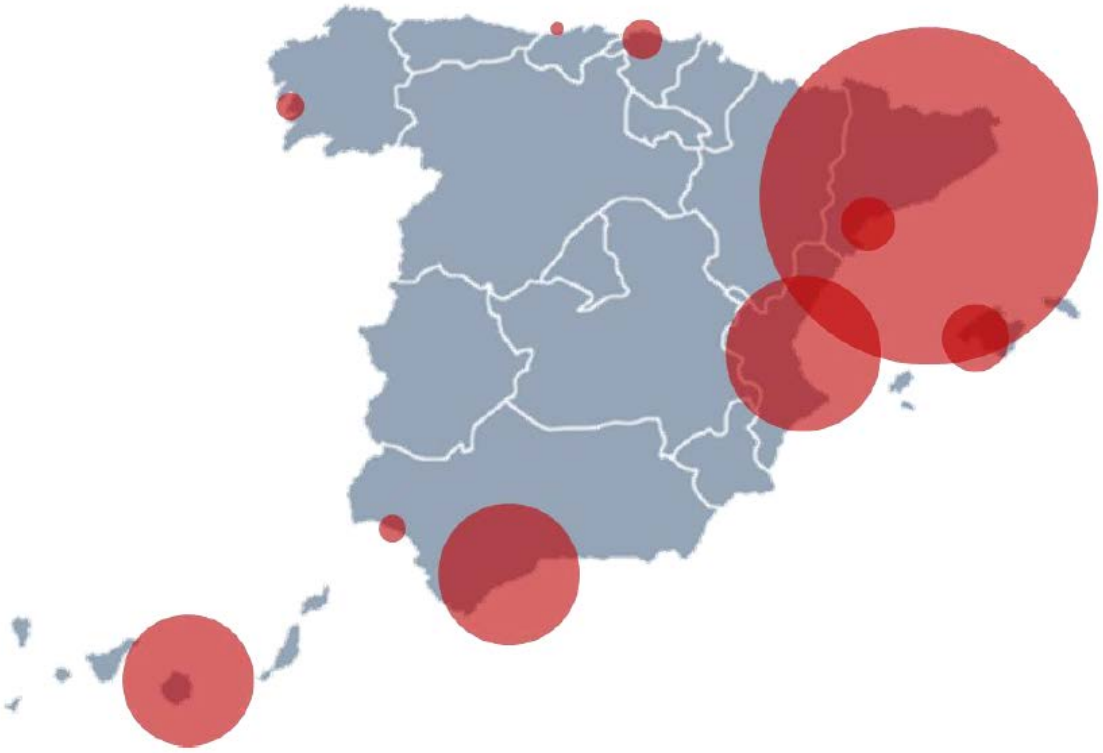
The total number of services provided in 2022 amounted to 107,869. By volume of waste, 776,574 m3 were collected in 2022, which meant a turnover of 46.9 million euros[220]. Demand, in the ports managed by the 28 Port Authorities, was strongly concentrated in the waste unloading services of Annexes I and V, with the sum of the total unloaded:

- 360,087 m3 of Annex I waste (oil pollution): 79% of these were unloaded against payment of the fixed or indirect rate established by the TRLPEMM, by the ship to the Port Authorities; 14% were unloaded against payment of the maximum charges set in the PPP of each Port Authority, by the vessel to the provider; and 7% were unloaded by refineries, chemical factories, petrochemical distribution facilities and other establishments included under the umbrella of article 63.3 of the TRLPEMM.
- 371,290 m3 of Annex V wastes (pollution by ships' garbage): 76 per cent were discharged against payment of the fixed or indirect tariff; 12% against payment of the maximum charges set in the PPPs; and 12% against payment to the establishments of article 63.3.

The geographical concentration is remarkable. The ports with the highest annual volume of Annex I waste (by hydrocarbons) unloaded are Barcelona, Algeciras, Valencia and Las Palmas.

[220] Puertos del Estado (2023), Observatory of Port Services, Analysis and conclusions of the state of the port services market 2022, page 38.

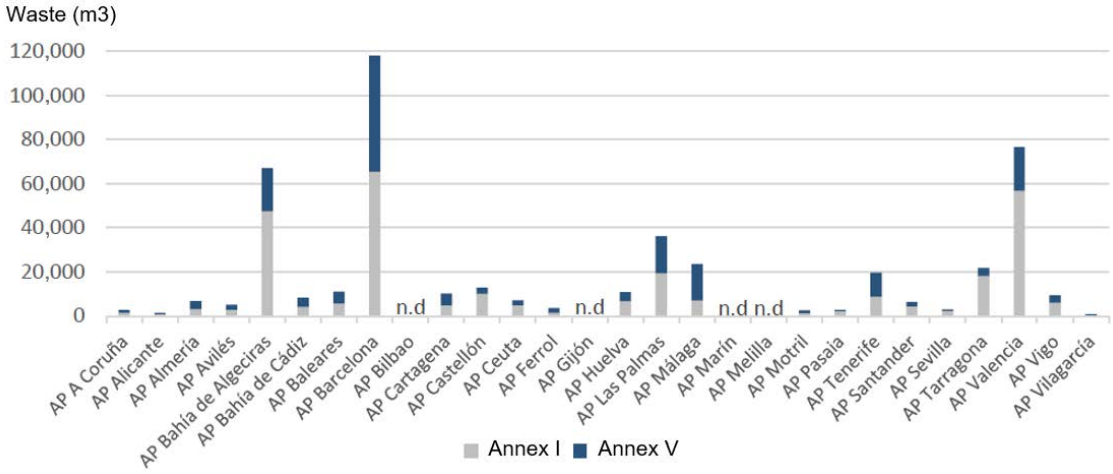
Map 6: Total volume of MARPOL I and V for a sample of Port Authorities, from the 2nd half of 2016 to the 1st of 2017



Source: Puertos del Estado (2018). Analysis of the port service for the collection of waste generated by ships in the Spanish Port System. Page 18.

With regard to Annex V waste (due to ships' garbage), the ranking is altered, with Barcelona, Las Palmas, the Balearic Islands and Valencia being the first. The relatively lower discharge of Annex V waste in Algeciras is due to the fact that the largest volume of traffic is cargo ships, which have a limited crew compared to traditional cruise ports, such as Barcelona or others on the Mediterranean façade.

Figure 10: Total waste volumes by Port Authority



Source: Observatory of Port Services of Puertos del Estado and Estrada Port Consulting (2023). Analysis of the economic regime of the port service of collection of ship-generated waste and cargo residues. Pages 93.

Of the total number of stopovers made, only 34.59% of the waste was collected, although this percentage is significantly higher on freight transport ships, and especially container ships and cargo ships. The low percentage would be due to the number of calls of Ro-Pax ships, which in some ports are subsidized because they are regular lines. (Observatorio de los Servicios Portuarios, 2023)

Adopting an approach similar to that used to describe technical-nautical services, the main structural characteristics of the demand for the MARPOL service would be the following:

- The MARPOL service is derivative **or subordinate in nature**, as the demand for this type of service is largely subordinated to the choice of port. This means that this service is demanded with a relatively higher rigidity, typically presenting a low price elasticity.
- It represents a **Typically very low weight** in the total cost of the scale. At the European level, its weight on the cost of the average scale was estimated to be less than 1% (PwC, 2013). Within the category of port services to the ship analysed in this study (technical-nautical services and collection of ship-generated waste and cargo residues service), it is the one with the least weight of all of them, since on average it would not reach 4% of the turnover of the total of these services (Observatorio de los Servicios Portuarios, 2023).
- Demand for the MARPOL service would be susceptible to **segmentation**. The captive demand for this service would typically be made up of those ships that on arrival at port do not have sufficient storage capacity in

relation to their estimated generation of new waste to the next ports on their route.

- Like the rest of the services, there can be an **intermediated contracting** through the figure of the consignee. In the presence of multiple providers in the same port, the work of the consignee in obtaining lower prices for its customers can be more valuable.

7.2.2. Supply-side service description

7.2.2.1. Description of the operators

From the point of view of supply, unlike other port services, the dominant note is the **heterogeneity** in the different business models available for the MARPOL service. This heterogeneity comes from several sources simultaneously:

- The degree of vertical integration of the different phases or stages of the chain of activities that make up the MARPOL service.
- The selection or *mix* of types of waste and residues collected, according to the MARPOL categories, where permitted by the PPP.
- The selection of services by land, when the ship is moored at the docks, or by sea, when the ship is anchored or docked in Dukes of Alba. In each case, capital requirements may differ substantially.
- The possession or not of a treatment or pre-treatment plant, either in the port itself or in the vicinity.

And the second differentiating feature of the MARPOL service compared to other port services is that **it is not a specific activity of ports**, but is carried out by numerous companies in many other areas of the economy. However, the MARPOL service will require, where appropriate, certain assets that may be specific to its provision in ports. This adds a potential additional layer of heterogeneity, as potential MARPOL service providers may also have a varying degree of horizontal integration with other activities in the wider sector of collection and treatment of all types of waste.

Therefore, the main structural characteristics of the companies providing the MARPOL service could be cited:

- **Relatively high requirements for the work** factor, generally without the need for high qualifications, although the different types of service (on land or at sea) require different composition of work teams.
- **A significant but disparate share of the non-human capital** factor, depending on the business model chosen, which can strongly increase

capital expenditure, especially if you have a (pre)treatment plant or it is provided by marine means (barges).

- **Equally disparate space and building requirements** depending on the business model, for example, depending on whether you have treatment plants or simply deliver the waste collected to third parties. Its location in the service area of the port will require an authorisation or concession for its occupation.

Therefore, the cost structure could point to the existence of barriers to entry in terms of economies of scale only in those more land- and capital-intensive business modes.

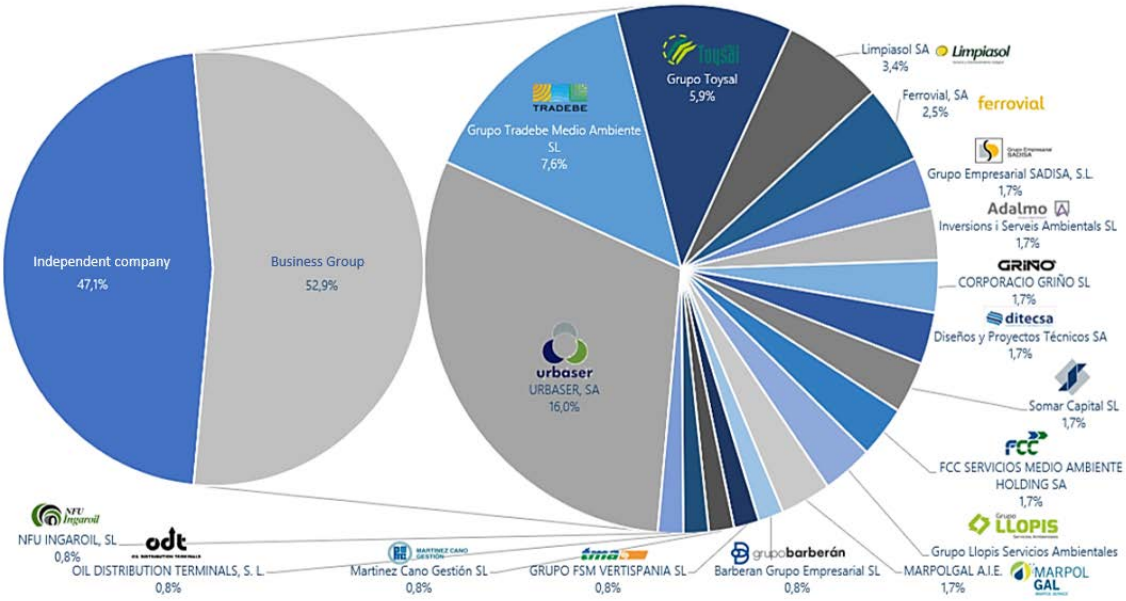
7.2.2.2. Number and distribution of licenses and level of competition

In order to provide this port service, the company **must have a license**, the maximum duration of which can be 6 or 12 years depending on whether there is a significant investment commitment or not (art. 114.1 section of the TRLPEMM). The licenses indicate the types of waste, according to the annexes to MARPOL 73/78, that may be unloaded by the license company in question, so that each company may be entitled to discharge waste from one or more annexes and at one or more terminals or ports. The number of licenses is 123 in 2024, 7 of which are restricted to the use of a terminal for private use[221], which makes this port service one of the most operators in Spain according to the Port Services Observatory (2023).

- Depending on the term of validity of the licenses, it can be seen that the average term is 5.4 years according to the General Register of Port Service Provider Companies.
- In relation to licensees, according to the Port Services Observatory (2023), around 53% of the enabling titles belong to business groups, while the remaining 47% are independent companies. The Urbaser Group stands out, which has 16% of the total number of licenses in more than a dozen ports, followed by Grupo Tradebe with 8% and the Toysal Group with another 6%.

[221] General Registry of Port Service Provider Companies, accessed on October 24, 2024 .

Figure 11: Licences in the ship-generated collection of ship-generated waste and cargo residues service by business group in 2022



Source: Analysis and conclusions of the state of the port services market (Observatorio de los Servicios Portuarios, 2023).

- The average number of Marpol service providers by Port Authority and type of waste, according to data from the Register of Licences, is 2. However, the authorization for the unloading of waste from annexes I, VI and V is more frequent, with an average number of providers per Port Authority greater than 2. With regard to the total number of pairs of companies and Port Authority, categorised by type of annex, the following data are obtained:
    - 57 separate licences for the discharge of Annex I (hydrocarbons) wastes.
    - 11 licences for Annex II (noxious liquid substances transported in bulk).
    - 54 licences for Annex IV (sewage from ships).
    - 56 licences for Annex V (ship garbage).
    - 24 licences for Annex IV (air pollution from ships).

In general, companies that discharge and manage Annex I wastes are usually linked to other hydrocarbon management or logistics activities, while those that focus on Annex V tend to have an activity related to municipal solid waste. It is also quite common for the same company to provide service to different annexes in the same port.

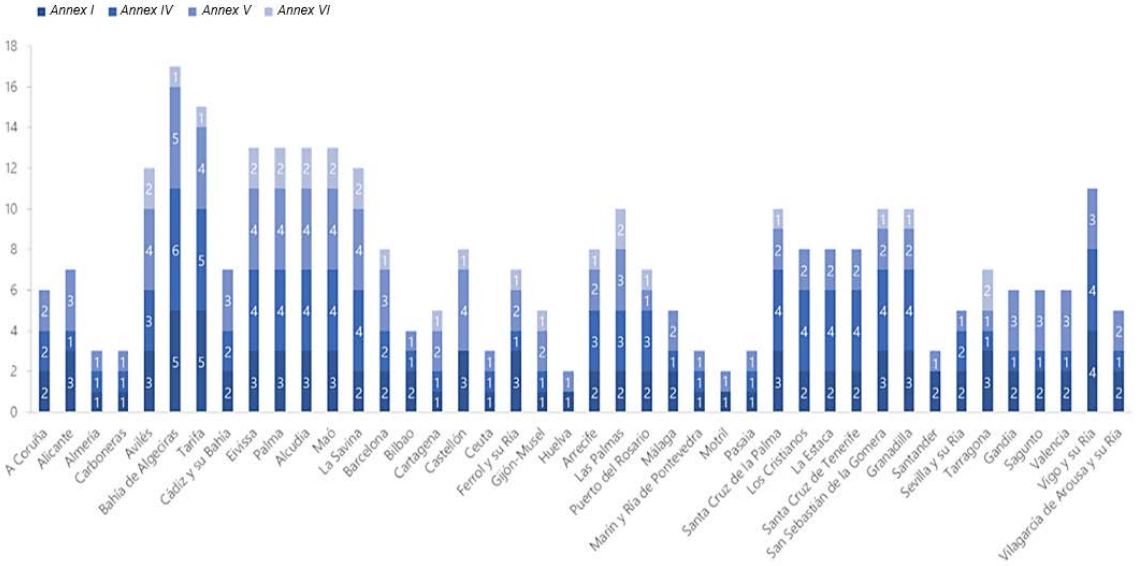
Table 1: Number of companies providing the collection of ship-generated waste and cargo residues service, by annex and Port Authority on 24 June 2025

	Annex I	Annex II	Annex IV	Annex V	Annex VI	Average if annex
A Coruña	2	0	2	2	2	2,00
Alicante	2	0	1	2	0	1,67
Almería, Carboneras	1	2	1	1	0	1,25
Avilés	3	1	3	3	2	2,40
Bahía de Algeciras	5	0	6	4	2	4,25
Tarifa	4	0	3	1	2	2,50
Cádiz y su Bahía	2	0	2	3	0	2,33
La Savina	2	0	4	3	2	2,75
Palma, Alcudia, Eivissa, Maó	3	0	4	3	3	3,25
Barcelona	2	2	2	3	3	2,40
Bilbao	1	1	1	1	1	1,00
Cartagena	1	1	1	1	1	1,00
Castellón	1	0	0	2	1	1,33
Ceuta	1	0	1	1	0	1,00
Ferrol y su Ría	2	0	0	1	0	1,50
Gijón-Musel	2	1	2	1	2	1,60
Huelva	1	0	0	1	0	1,00
Arrecife	2	0	3	2	1	2,00
Las Palmas	2	0	3	3	2	2,50
Puerto del Rosario	2	0	3	1	1	1,75
Málaga	2	1	1	2	0	1,50
Marín y Ría de Pontevedra	1	0	1	1	0	1,00
Motril	1	0	0	2	0	1,50
Pasaia	1	0	1	1	0	1,00
Granadilla	3	0	4	1	0	2,67
La Estaca	3	0	5	2	0	3,33
Los Cristianos	3	0	5	2	0	3,33
Sta Cruz de la Palma, S Sebastián de la Gomera	4	0	5	2	1	3,00
Santa Cruz de Tenerife	3	0	5	2	0	3,33
Santander	2	0	0	1	0	1,50
Sevilla y su Ría	2	0	2	1	0	1,67
Tarragona	1	0	1	1	1	1,00
Gandía, Valencia, Sagunto	2	0	2	3	2	2,25
Vigo y su Ría	3	0	3	3	0	3,00
Vilagarcía de Arousa y su Ría	2	1	1	2	1	1,40
Average if annex	2,11	1,25	2,60	1,86	1,67	

Source: Prepared by the author based on the General Registry of Port Service Provider Companies, accessed on June 24, 2025.

- Among the ports with the most licences are the ports of Bahía de Algeciras, Tarifa, Ibiza, Alcudia, Palma and Mahón. When looking at the port-licensee binomials, relevant to consider the degree of competition, it is found that many ports only have 2 or 3 licenses per type of waste, only a few larger ports have more than 3 licenses per type of waste and several small ports only have 1 license per type of service:

Graph 12: Number of companies providing the collection of ship-generated waste and cargo residues service, by annex and port, with a license open to general use in 2022



Source: Analysis and conclusions of the state of the port services market 2022 – Puertos del Estado (2023).

7.2.2.3. Comparison of Spanish and European indirect (fixed) tariff systems

The Port Services Observatory commissioned a study, published in 2023, to carry out an "analysis and diagnosis of the current tariff regime of the port service for the collection of ship-generated waste and cargo residues" of the SPTE, which would lead to the identification of the causes of the mismatch (deficits or surpluses) in certain Port Authorities, due to differences between revenues generated by the fixed rate and the payment to the providers of the discharges effectively Made.

This analysis included a comparison of the tariff regime for the service in several EU countries, in particular Belgium (Antwerp), France (Marseille, Le Havre and Nantes-Saint Nazaire), Italy (Genoa and La Spezia), the Netherlands (Rotterdam), Portugal (Leixoes and Sines) and Germany (Hamburg). Although in all of them the available charges, both indirect and direct, depended on the tonnage (GT) or volume of the ship (case of France), this analysis shows a significant heterogeneity that can be observed between countries and between ports of the same country when designing this tariff regime, including the application of each tariff to some waste or others or even the implementation of the tariff system imposed by Directive 2019/883. In addition, in many of these ports there was a system of reimbursement or refund of the indirect fee to ships in the event of unloading waste in order to encourage its delivery to the port, although this would call into question the cost recovery required by Community regulations. Added to all this is the lack of information on certain key aspects

(amount of compensation from the Port Authority to the provider, amount of direct charges). Therefore, any comparison between tariff levels of different ports should be taken with great caution.

7.3. Restrictions on competition and efficient regulation

Based on the analysis of this service, the following restrictions have been identified from the point of view of competition and efficient regulation.

7.3.1. Lack of information on the terms and conditions of service provision derived from the absence or non-publication of the PPPs

Currently, 11 Port Authorities[222] do not have updated PPPs, even 4 of them lack altogether published PPPs[223]. In addition to these, there are 6 Port Authorities[224] whose PPPs predate the transposition of Directive (EU) 2019/883 by RD 128/2022, so the definition of the service in these PPPs does not incorporate certain new waste and residues. This implies that these PPPs are incomplete as they do not include all the types of waste specified in the TRLPEMM.[225]

The absence of public PPPs accessible to the general public is in itself a barrier to access to competition for potential entrants, as well as representing a problem of legal certainty for incumbent providers.

7.3.2. Tacit limitation of the number of providers without a competitive procedure

The combination of a regulation of the operation (public service obligations and minimum resources) and a regulation of prices (maximum charges) not only limits the choice of MARPOL undertakings, determining both their revenues and their costs, but may also limit the number of viable operators in a given port.

In the case of the MARPOL service, this problem may be exacerbated by the decision of certain Port Authorities to restrict the possibilities of selecting the type of waste that the TRLPEMM expressly[226] allows. In effect, the law establishes that licenses may be granted for the collection of all waste from the different annexes, for waste from a single annex or for any combination of these. However, in the

222 Port Authorities of Bahía de Cádiz, Cartagena, Ferrol-San Cibrao, Huelva, Málaga, Melilla, Motril, Pasaia, Santander, Vigo and Vilagarcía.

223 Port Authorities of Huelva, Melilla, Motril and Vilagarcía.

224 Port Authorities of Avilés, Ceuta, Gijón, Santa Cruz de Tenerife, Seville and Tarragona.

225 In these outdated PPPs, a distinction is usually made between solid and liquid waste.

226 Art. 109.3 TRLPEMM.

different PPPs there may be multiple cases where either the license open for general use must cover all ship waste (I, II, IV, V and VI), [227]or the granting of the license for the collection of a certain category of waste is linked to the prior or simultaneous obtaining of a license for the collection of a different category of waste[228]. These restrictions prohibit the entry of those companies that would like to provide the MARPOL service for a set of waste other than those permitted. No justification is offered for these restrictions in the PPPs themselves.

7.3.3. Licensing and concession system restrictions

Access to the collection of ship-generated waste and cargo residues service is subject to a licensing regime. Four important limitations associated with licenses in this service have been detected:

- **Failure to publish notices of the granting of licenses**: the granting of licenses must be published in the Official State Gazette (BOE), as well as the call for tenders, if applicable[229]. However, in practice, a large majority of Port Authorities (18 out of 28)[230] have not published, as established by law, the announcements of the current collection of ship-generated waste and cargo residues service licenses.
- **Use of permits that are not established in the common regulations** (provisional licenses, extensions of licenses, etc.). The lack of support in the common state regulations that support their use by these Port Authorities tends to generate a lack of legal certainty among the companies installed and especially among potential entrants.
- **Defined duration and notice**: even though it is a service without an explicit limitation of the number of providers by any Port Authority, the licenses for this service also have a defined duration, which would only make sense if the number of providers were limited and the licenses were granted by competition, allowing the competitive tension to be reiterated every certain period of time. The periodic renewal of licenses is an

227 Case of the Port Authority of Bilbao.

228 For example, linking the reception of Annex V waste to Annex VI or Annex I to Annex IV (Port Authorities of Almeria, the Balearic Islands or Tarragona), or Annex I to Annex II (Bay of Algeciras) or other combinations (Gijón, where the possibility of waste from a single Annex is excluded). This link is also found in the cases of Port Authorities that still have PPPs prior to 2010, in which only a distinction was made between liquid waste (annexes I and IV) and solid waste (annex V), such as the Port Authorities of Ferrol, Pasaia or Vigo.

229 Art. 115.3 TRLPEMM.

230 Port Authorities of Almeria, Avilés, Bay of Algeciras, Bilbao, Cartagena, Castellón, Ceuta, Ferrol-San Cibrao, Huelva, Las Palmas, Malaga, Melilla (apparently the service is not provided), Motril, Pasaia, Santander, Seville, Tarragona and Vilagarcía.

unnecessary bureaucratic burden if the Port Authority has the power to supervise compliance with the requirements at all times.

On the other hand, the occupation of the port public domain necessary for the provision of the service requires an authorization or concession.

- The legal link in a single administrative procedure of the granting of the license and the concession or authorization is legally required only in the case of a "direct and indispensable" link between the provision of the service and the occupation of the public domain. However, the mere occupation of the public domain to provide the service, without it being indispensable[231], would already imply a significant advantage for an incumbent provider over any potential entrant who lacked such an administrative permit of private occupation of the public domain. Consequently, the lack of such a link, whether or not it is essential for the provision of the service, has negative implications in terms of competition.
- On the other hand, there is no record of cases of the granting of collection of ship-generated waste and cargo residues licenses linked to concessions as prescribed by law. A number of Port Authorities[232] have published notices relating to concessions to collection of ship-generated waste and cargo residues companies, and in no case is this concession explicitly linked to the license as established by the TRLPEMM. Moreover, these concessions have durations or dates of granting that do not coincide with the corresponding licenses.

7.3.4. Limitations on the determination of charges

In the MARPOL service there are the same limitations in the setting of maximum charges as in the technical-nautical services. That is, the lack of a uniform orientation and methodology for the determination of charges, which in this case are exacerbated given the complex system of regulated charges that includes both maximum direct charges (from the ship to the service provider) and variable tariffs (from the Port Authority to the provider). In addition, this design has a significant impact on the information asymmetry between providers and Port Authorities: the provider companies will have a more accurate knowledge of the cost structure and market demand of the MARPOL service.

In addition, from the analysis of the PPPs, it has been detected that the specification of the concepts for which the payment of the direct charge covers

[231] For example, in the case of certain assets such as offices, which could be located in the service area of the port or outside it, in its vicinity.

[232] Port Authorities of the Bay of Algeciras, the Balearic Islands, Barcelona, Ceuta, Malaga, Pasaia and Tarragona.

differs between Port Authorities. For example, in the two most recent PPPs[233], the discharge of waste in zone II of the port or with marine means is included under the direct charge, while in other PPPs, if the direct charge applies and these elements concur, a surcharge of 25% is applied. In addition, in these two most recent PPPs, new cases have been introduced in which the direct charge is applied, which is not found in older specifications, such as exceeding maximum thresholds for hazardous wastes or the discharge of Annex V wastes that do not correspond to the normal operations of the ship[234].

In addition to the lack of homogeneity, there are possible confusions in the content of the PPPs with respect to the provisions of the TRPLEMM, since in some PPPs the discharges of annexes I and V carried out in zone II of the port or with marine means are subject to the direct charge, while article 132.8 of the TRLPEMM establishes that in this case the application of the fixed charge is appropriate, with a surcharge of 25% over the charged in zone I.

All these divergences can generate distortions in the conditions of competition in the different ports. Pricing is an essential aspect of the service and the lack of homogeneity in the criteria of the different Port Authorities can add an additional level of complexity to providers who wish to operate in several Port Authorities, discouraging their expansion and ultimately competition.

On the other hand, the remuneration received by providers operating in ports managed by different Port Authorities for the unloading of the same volume of waste is set according to charge structures that are sometimes significantly different[235]. In principle, this difference could be due to the different costs faced by providers in each port, such as the different costs of unloading, transporting, storing or delivering waste. However, the structure of the calculations between them is very different, which complicates comparisons.

7.3.5. Limitations associated with the inclusion of minimum resources in PPPs

MARPOL PPPs usually include provisions that affect the degree of competition in the service, in particular those relating to the regulation of minimum resources

233 PPP of the Port Authorities of Marín and Ría de Pontevedra (2024) and Valencia (2023).

234 By way of illustration, at the level of the Port Authority, Valencia would be nil, 10% in the Balearic Islands, 15% in Almeria or Marín and Ría de Pontevedra, and 25% in Alicante or Las Palmas.

235 In general, charge structures are based on an amount to be paid per cubic meter of waste. However, there is great diversity between ports: some set intervals (either according to the volume of waste or the tonnage of the ship) with different variable elements or more elaborate formulas for calculating the charge. Likewise, it is common for different surcharges to be included, depending on the Port Authority, depending on the duration of the unloading, the means used, the type of traffic, the area of the quay or the characteristics of the waste.

(human and non-human) and levels of "productivity, performance and quality".[236] The simultaneity of both types of regulation could also be redundant here. In addition, the combination of the two may be inefficient if the imposition of very specific minimum resources prevent efficiently achieving the required quality levels.

7.3.6. Possible distortions in competition due to the distribution of surpluses

Some Port Authorities have persistent mismatches between their revenues from the fixed-charge regime and their expenses derived from the payment of variable charges to service providers. In cases where a Port Authority obtains a surplus, article 132.8 of the TRLPEMM allows the distribution of the surplus among the providers when there is an "insufficient demand". This vague definition entails a form of surplus sharing that provides licensees with extraordinary profits. Their distribution among providers whose activity is already profitable could be giving them an advantage.

[236] Indicators are established and quantified on the availability of resources, unpunctuality and average delay, accident rate (damage to people, equipment, materials, etc.), complaints and claims, average response time to customer claims and waste recovery (percentage of waste from annexes I and V not destined for landfill)

8. COMMERCIAL FUEL SUPPLY SERVICE

The *bunkering service* is a key factor in the competitiveness of the Spanish port system. The service has also gained importance within the framework of the ecological transition, which has been accelerating its transformation[237]. In 2023, the International Maritime Organization (IMO) announced a strategy to reduce CO2 emissions by up to 40% compared to 2008 levels by 2030 and a goal of net-zero greenhouse gas (GHG) emissions by or around 2050[238].

8.1. Legal framework

While Spanish regulations label the fuel supply service as a commercial service, European regulations consider it a port service.

Thus, the general regulation of the fuel supply service is included in Regulation (EU) 2017/352, in the TRLPEMM, in Royal Decree 958/2002, in the regulations aimed at the prevention and fight against pollution in the handling of hydrocarbons in the maritime field transposed into the national legal framework[239] and in the regulations applicable to the rest of the oil sector[240].

The TRLPEMM subjects the fuel supply service to the commercial services regime, which is less demanding than that applicable to port services. Likewise, this service is regulated by the specific terms and conditions (PCPs) and other provisions of the Port Authorities.

8.1.1. International regulation

At the European level, **Regulation (EU) 2017/352** includes the fuel supply service among port services, defining it as "*the provision of solid, liquid or gaseous fuel*

237 This study does not analyse the markets for alternative fuels to conventional fuels. In any case, the operation of the fuel supply service to ships with conventional fuels (Heavy Fuel Oil -HFO-, Marine Gasoil -MGO- and Very Low Sulphur Fuel Oil -VLSFO-) is very similar to that of the liquefied natural gas (LNG) supply service, with important particularities in terms of resources.

238 International Maritime Organization (IMO). "2023 IMO strategy on reduction of GHG emissions from ships". Page 6.

239 This body of regulations includes Royal Decree 128/2022, of 15 February, on port facilities for the reception of waste from ships; Royal Decree 253/2004, of 13 February, which establishes measures to prevent and combat pollution in the loading, unloading and handling of hydrocarbons in the maritime and port sphere; Royal Decree 61/2006, of 31 January, which determines the specifications of petrol, diesel, fuel oils and liquefied petroleum gases and regulates the use of certain biofuels; Law 7/2022, of 8 April, on waste and contaminated soil for a circular economy; those standards whose origin is traced to the MARPOL 73/78 Convention, the OPRC 90 Convention, among other international conventions administered by the IMO.

240 Notably, Title III of Law 34/1998, of 7 October, on the hydrocarbons sector.

or of any other energy source used for the propulsion of the waterborne vessel as well as for general and specific energy provision on board of the waterborne vessel whilst at berth ". In this way, it includes both the energy sources currently used for ship propulsion and any other energy sources that may be used in the future.

The Regulation sets out the general legal framework for the provision of port services in EU ports, without including specific provisions on the supply of fuels. Thus, it focuses on promoting fair and transparent competition in the port sector, guaranteeing non-discriminatory access to essential port services. In essence, it defines the rights and obligations of port service providers and the responsibilities of port managers, with the aim of improving the efficiency and quality of services provided in EU ports.

In addition to the aforementioned regulation, within the international regulation, an additional aspect that indirectly impacts the service is that related to **environmental regulation**, both by the IMO and by the EU, and both gas emissions from ships and other waste. As the collection of ship-generated waste and cargo residues in general is discussed separately, this part will only refer to the regulation of ship emissions.

Specifically, the new environmental regulations related to gas emissions can have a significant impact on the competitiveness of the product, the service, and consequently, the port; and especially in those ports specialized in *bunkering* and may also affect which fuels are in demand. Particularly relevant are the regulations on **sulphur oxides (SOx)** in marine fuel[241] and the **FuelEU Maritime initiative**. The latter is part of the European Green Deal, which imposes greenhouse gas (GHG) emission reduction targets in the maritime sector of 80% by 2050, including by encouraging new fuels. Similarly, the inclusion of European Union maritime transport in the **emissions allowance system** from 2024 may influence the sector, a system whose introduction is also planned with its particularities at the international level by the IMO. Also important is the European reform of the **Energy Taxation Directive**, which would seek to include in the hydrocarbons tax the provisioning of international maritime traffic (until now exempt).

These environmental standards, as well as the new ones that may be approved in the future, have direct implications on the type of fuel that

[241] The international standard approved by the International Maritime Organization (IMO), commonly referred to as IMO 2020, established a maximum limit on SOx emissions of 0.50% m/m globally (from 1 January 2020) and 0.10% m/m in the so-called Emission Control Areas, of which the Baltic Sea and the North Sea have been part since 2015. From 1 May 2025, the Mediterranean will be considered ECA, so the latter percentage will be applied. The European standard, the EU Sulphur Directive (*EU Sulphur Directive*), is more ambitious than the international standard in some respects, such as the additional requirement of a limit of 0.10% m/m when ships are docked in European ports.

shipping companies demand from service providers. The entry into force of the IMO 2020 regulation has already contributed to modifying the mix of heavy fuels in demand, considerably increasing the importance of MGO in the final mix, given that this product directly complies with the requirements in terms of sulphur content. Growth in LNG consumption is also expected worldwide, although the expected increase in the volumes to be supplied in Spanish ports could be slow in the current decade to gain importance from 2030 onwards. In fact, a considerable number of the large propulsion engines used today in shipping are dual-fuel and can switch from liquid fuel to LNG and vice versa (even during operation), which is advantageous for optimizing costs, especially if a vessel is sailing in international waters with different pollution standards[242].

8.1.2. National regulation

At the national level, the TRLPEMM is the basic regulation that regulates port and commercial services. The fuel supply service is considered a commercial service, so its administrative and economic regime is significantly more flexible than that applied to port services.

8.1.2.1. Regulations according to the TRLPEMM

The TRLPEMM **defines commercial services by exclusion**, in such a way that the activities of provision of a commercial nature, which are linked to port activity and which are not considered "port services", are automatically considered commercial services by article 138.

With the entry into force of Regulation (EU) 2017/352, which treats the fuel supply service as just another port service, the **different consideration of the service for national and European standards** became clear. A debate was then raised at the national level on the need and implications of a possible change in the consideration of the service. In fact, the draft law amending the TRLPEMM[243] emphasizes the need to clarify the scope and condition of the fuel service, where according to this text, the service would continue within the framework of commercial services, respecting the provisions of Regulation (EU) 2017/352.

The TRLPEMM also includes important provisions related to the prevention and fight against pollution in the port public domain[244]. Specifically, it establishes that all fuel supply facilities for ships must have "*sufficient means for the prevention and fight against accidental pollution, marine, atmospheric and*

242 OPEC, World Oil Outlook 2023.

243 Draft Law amending the TRLPEMM, approved by Royal Legislative Decree 2/2011, of 5 September, and Law 14/2014, of 24 July, on Maritime Navigation.

244 Article 62 of the TRLPEMM.

land", and must have a contingency plan for accidental pollution, which will be taken into account by the corresponding Port Authority for the preparation of the Port's Internal Contingency Plan.

Such fuelling facilities shall also **be capable of providing services for the collection of cargo residues and ballast water from ships bound for such facilities, as regulated by Annexes I and II to MARPOL 73/78**[245], and shall be provided with the necessary means to prevent and combat spills. In addition, the owners of these port facilities must also have collection of ship-generated waste corresponding to Annexes IV, V and VI of the MARPOL 73/78 Convention[246] in the event that there is no provider company licensed to provide this service in the geographical area of these facilities, as established in the PPPs of the Port Authorities relating to the collection of ship-generated waste and cargo residues service.

In line with the lower regulatory requirement that characterizes commercial services compared to port services, the TRLPEMM recognizes the **freedom of access** to the provision of commercial services in ports of general interest[247] and establishes that these will be provided under **a free competition regime**.

However, the provision of commercial services **requires authorization** from the Port Authority and must comply with the **PCPs** approved by each one for the granting of the corresponding permit[248]. As with the rest of the services, when the development of the activity requires the occupation of port public domain, the Port Authority must process a single procedure, granting a single administrative permit which authorizes the activity and the occupation of the port public domain, both for the same period of time.

The provision of commercial services by the Port Authority itself is only allowed when there are deficiencies in private initiative[249]. In this case, it is detailed that when these services are provided on a competitive basis with private

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245 The MARPOL Convention, following successive protocols and amendments, currently has 6 annexes. The first two establish the rules for preventing pollution by hydrocarbons (Annex I) and for preventing pollution by harmful liquid substances transported in bulk (Annex II).

246 The wastes and residues included in these MARPOL annexes are:

Annex IV: Rules for the prevention of pollution by sewage from ships.

Annex V: Rules for the Prevention of Pollution from Ship Litter.

Annex VI: Rules for the prevention of air pollution from ships.

247 Article 104 of the TRLPEMM.

248 Article 139 of the TRLPEMM.

249 Article 140 of the TRLPEMM.

entities, the Port Authority must demand the payment of the corresponding charges, detailing their calculation method[250]:

- The fees for the service will be private prices.
- They must contribute to achieving the objective of self-financing, avoiding abusive practices in relation to captive trafficking and discriminatory or similar actions.
- The Board of Directors of the Port Authority freely approves the charges for commercial services provided by the Port Authority itself.
- The charges may not be lower than the cost of the service, except when there is subactivity and there is no competition with private entities.

Finally, although the fuel supply service is not considered a port service, the TRLPEMM recognizes the special importance of this commercial service by establishing the obligation to be awarded, within each port public domain, a **minimum number of fuel supply facilities**[251]. The criteria, which are determined by regulation by Royal Decree 958/2002, take into account the unique characteristics of each port.

8.1.2.2. Royal Decree 958/2002, of 13 September, on fuel supply facilities in ports of general interest

The main objective of this Royal Decree is to specify the criteria for the determination, by the Port Authorities, of the minimum number of fuel provisioning facilities within the service area of ports of general interest. The ultimate goal is to promote price competition and the quality and security of fuel supply.

To determine the minimum number of installations in each port, several criteria are considered:

- The intensity of the supply traffic of the last three years.
- The total volume of trading operations.
- The land area of the port service area.
- The strategic location.
- The distance to other ports.
- The impact of provisioning operations on merchant ship traffic.

250 Article 246 of the TRLPEMM.

251 This obligation is contained in the seventeenth Additional Provision on "Fuel supply facilities", which is inherited from the twenty-first Additional Provision of the previous -now repealed- Law 27/1992, of 24 November, on State Ports and the Merchant Navy, where it was introduced by Royal Decree 958/2002.

These criteria are weighted according to specific values, thus allowing a detailed assessment of the needs of each port. If the number of existing fuel supply facilities is less than the minimum established, the Port Authorities must call for tenders, which will be carried out on a non-exclusive basis, to reach at least that minimum number. In addition, it will call for new tenders when any interested company requests the granting of a new supply facility or when the criteria that were once used to determine the minimum number of facilities are significantly modified[252].

The Port Authorities must give favourable weight to the proposals of those who are not the owners of another facility in the same port and those that do not involve exclusive supply with the same wholesale operator.

With regard to the granting of concessions, the Royal Decree establishes that the port authorities will offer suitable land for the establishment of fuel supply facilities. The Royal Decree also establishes that the Port Authorities must define the docks, facilities and spaces in the port's service area where fuel can be supplied by tanker trucks or floating means such as barges. They must also specify the conditions of operation and security of supply and the requirements that suppliers must meet.

Puertos del Estado approves the general specifications (PCPs) for the exercise of the fuel supply activity, and the concessions and authorizations granted by the Port Authorities will be subject to these specifications. The Port Authorities will report annually to Puertos del Estado on compliance with the Royal Decree.

8.1.2.3. Specific terms and conditions (PCPs)

The PCPs and other provisions of the Port Authority, as well as the conditions set by the Port Authority in the content of the authorizations[253], regulate the specific conditions for the provision of commercial fuel supply services in ports of general interest.

The average age of the PCPs currently published is approximately 10 years, since 2012 was the year in which more Port Authorities published their current PCPs for the commercial fuel supply service. For 7 of the 28 Port Authorities, no published PCPs that regulate the service have been found.

252 Royal Decree 958/2002, of 13 September, on fuel supply facilities in ports of general interest. Article 3.

253 Although TRLPEMM refers to "authorisations" and "enabling titles", in the content of the specific terms and conditions there are numerous references to the term "license", understood as a substitute for authorisation.

8.2. Economic description

According to Art. 2 of Regulation (EU) 2017/352, service is defined as "*the provision of solid, liquid or gaseous fuel or of any other energy source used for the propulsion of the waterborne vessel as well as for general and specific energy provision on board of the waterborne vessel whilst at berth* ". Thus, this study analyses the supply of conventional fuels and the incipient supply of LNG in an aggregate way.

Spain has an advantageous position in the marine fuel supply market thanks to its geographical location[254]. Also, according to the Port Services Observatory (2020), thanks to the good valuation of the service. In fact, the location of our country on the east-west routes of maritime transport due to the Strait of Gibraltar and on the north-south routes due to the Canary Islands, make several of our ports ideal service areas for large merchant ships, which make regular calls there for provisioning.

Thus, according to the Port Services Observatory (2020), the supply of fuel to ships is a mature service among the services provided in Spanish ports. The global fuel supply market to ships reached 204 million tonnes in 2022[255]. In total, 8.63 million were supplied in Spain, which represents more than 21% of the European market[256], making our country the second largest European supplier by volume supplied and the eighth largest supplier in the world, with approximately 4.2% of the volume of global marine fuel supplied.

8.2.1. Description of the service on the demand side

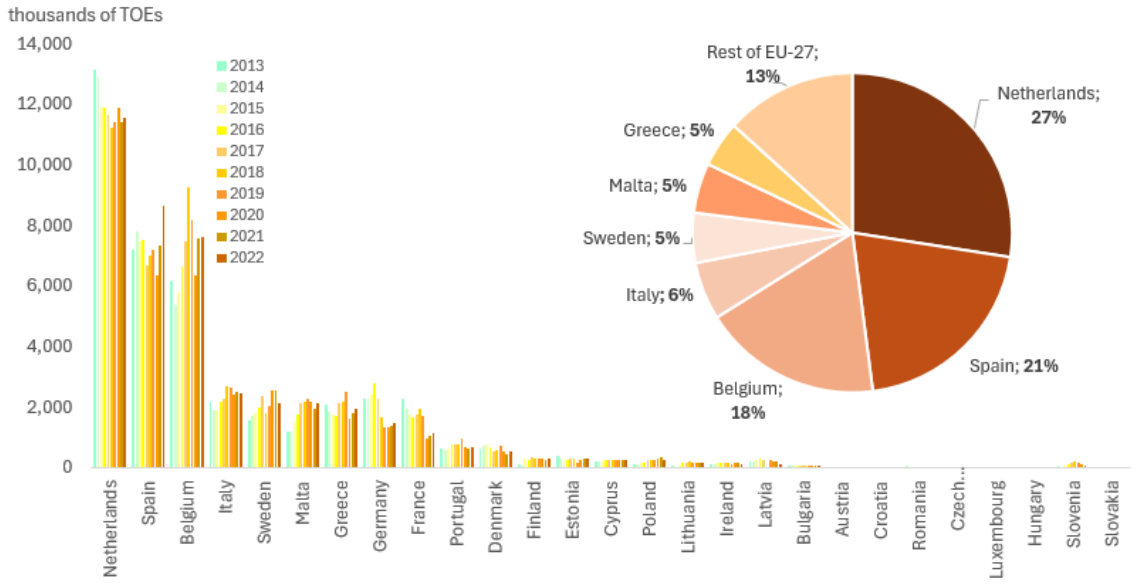
Spain is one of the main European countries in bunker consumption. At the European level, the demand for marine fuels is geographically concentrated in those Member States that have ports on the main maritime trade routes. The highest demand for bunker is observed in the Netherlands (11.6 million PET), as the ports of Rotterdam and Amsterdam are among the largest in the world and act as an important logistics hub for the entry and exit of goods into the EU. The statistics reflect an increased consumption resulting from the so-called "Rotterdam effect": a large volume of imports and exports from other EU Member States pass through these ports, increasing the trade statistics of the Netherlands, and increasing bunker consumption. **In 2022, the second highest consumption was held by Spain (8.6 million TOE), closely followed by Belgium (7.6 million PET).**

254 Observatory of Port Services, State Ports. Study of the implications of determining the fuel service to ships as a port service (2020). Pages 9 and 139.

255 OPEC. “World Oil Outlook 2023”. Pag. 127.

256 EUROSTAT. “Complete energy balances” dataset, International maritime bunkers. 2022.

Figure 13: Evolution and distribution of marine bunker consumption in the EU Member States 27 and its distribution by country in 2022



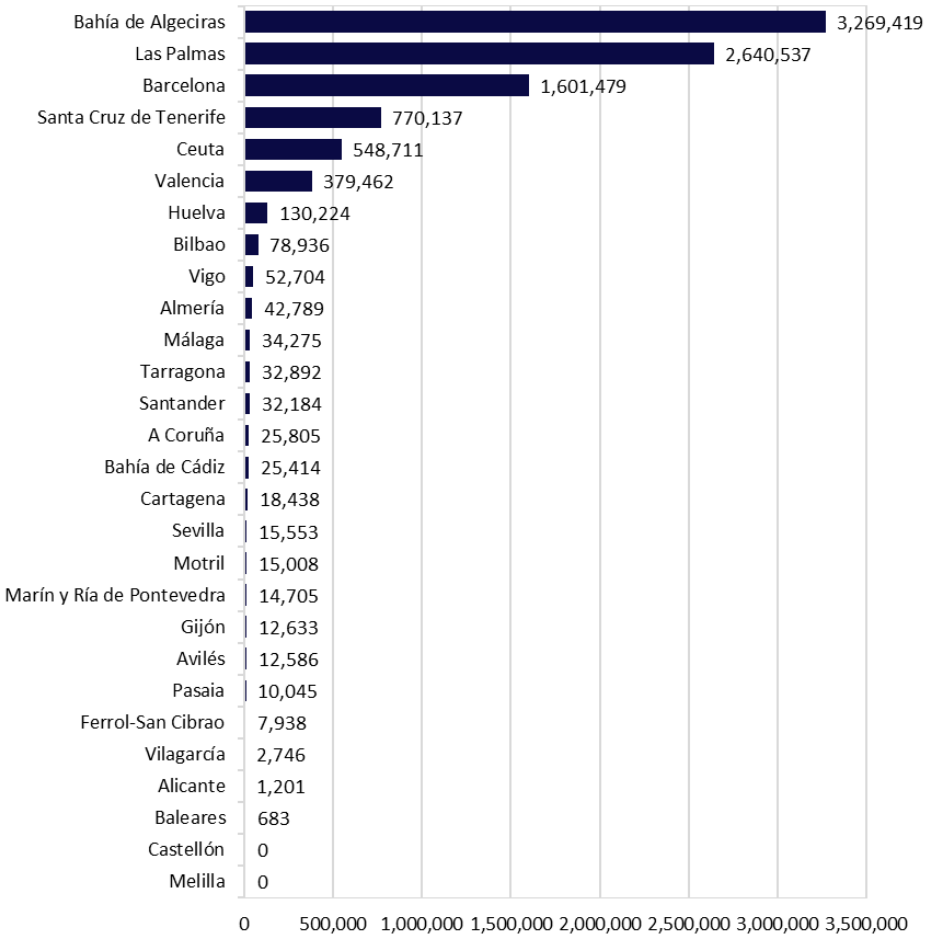
Source: Authors' elaboration based on Eurostat. *Complete energy balances. International maritime bunkers* (2024).

At the national level, the bulk of the demand in the Spanish port system is highly geographically concentrated. This makes it possible to distinguish between ports with a huge fuel supply activity and ports whose supply activity is aimed at covering the specific needs of their traffic. The former have reached such heights because they have become ports of reference for shipping companies, where a large number of calls have the sole objective of demanding the fuel supply service.

The **three ports with the most activity** are the Bay of Algeciras, Las Palmas and Barcelona, which account for 77% of the total supplied in 2024. The five busiest, including Ceuta and Santa Cruz de Tenerife, account for 90% of the total fuel supply of the Spanish port system. The top seven, including Valencia and Huelva, account for 96% of the total. Thus, the remaining 21 ports account for just 4% of the total supply[257]. **The geographical concentration of demand, moreover, has tended to rise**, since in 2003 the three largest ports accounted for 68% of the total supply, while in 2018 these same ports accounted for 75%. The 21 ports with the lowest supply activity have gone from representing 13% to 10% in the same period.

[257] December 2024 Port Traffic Overview (Puertos del Estado, 2025).

Chart 14: Fuel volume by port in 2024 (in tonnes)



Source: Authors' elaboration based on the General Summary of Port Traffic of December 2024 (Puertos del Estado, 2025).

As for the type of claimant vessel, in 2018 70% of the claimants in the port of Algeciras were container ships, followed by tankers (16%), bulk carriers (10%) and general cargo ships (3%). In the port of Las Palmas, tankers account for 39% of demand, followed by bulk carriers (34%), general cargo ships (6%), ferries (3%), and passenger-cruise ships (2%). In Barcelona, 44% of the demand is container ships, 27% passenger ships (cruise ships), followed by general cargo ships (18%), tankers (5%) and Ro-Ro ships (5%) (Port Services Observatory, 2020).[258] The demand in the 21 ports with the least service activity responds mainly to the ships that find their home port in them or to specific needs[259], so it is expected that this demand will be relatively more inelastic to price.

[258] Observatory of Port Services, State Ports. Study of the implications of determining the fuel service to ships as a port service (2020). Page 84.

[259] Observatory of Port Services, State Ports. Study of the implications of determining the fuel service to ships as a port service (2020). Page 24.

In other words, in relation to the countervailing power of demand, a distinction must be made between ports that are major suppliers of fuel, such as the ports of the Strait of Gibraltar, the Canary Islands and Barcelona, and ports where demand is punctual, or regular, but relatively lower, as was the case in the rest of the ports. The countervailing power of demand in the ports of the first group is significantly higher than in the ports of the second group. The large shipping companies, which make up a significant part of the demand for the service in the traditional supply ports, have greater bargaining power than the regular or one-off traffic found in the rest of the Spanish port system.

Next, together with the geographical advantage, the main explanatory variables of the volume demanded are analyzed.

The determinants of the choice of port for fuel supply

In the field of maritime transport, **the choice of port for *bunkering* is a crucial decision for shipping companies**. This choice not only impacts operational costs, but also affects the efficiency and sustainability of operations.

In addition, more broadly, the determining factors in the choice of port for bunkering have an impact on port competitiveness. As indicated in Acosta et al, the selection of a port by shipping companies to (2012)carry out services associated with the ship, such as crew change, MARPOL services or provisioning, is often conditioned by the port in which it is decided to carry out the service of *Bunkering*.

Based on the analysis of the study carried out by Aronietis et al on the determinants of choice of (2017)*Bunkering* in the port of Antwerp, conducted through interviews and a model to assess preferences, **Several key elements can be identified that influence the decision of shipping companies:**

- **Fuel price**: The price per ton of fuel is the most influential factor in the *bunkering* decision. Shipping companies are looking to minimise their operating costs, so the difference in prices between ports can be a significant determinant. In addition to the base price of fuel, all other associated costs are considered, such as fees, taxes and the costs of transporting the fuel from the port to the ship.
- **Fuel quality and reliability**: Confidence in the quality and quantity of the fuel supplied is the second most important factor. Shipping companies prefer to source from ports where fuel suppliers have a reputation for reliability and accuracy in deliveries. The presence of fuel flow meters and the use of *bunkering* inspectors, whose main function is to supervise and certify the quantity and quality of the fuel that is delivered to avoid discrepancies, fraud or errors in the transaction, are common practices to ensure that exactly what was agreed is delivered.

- **Additional costs related to port calling**: other costs, such as port fees and prices for ancillary services (pilotage, mooring, etc.), are also considered in the *bunkering* decision. These costs can tip the balance in favour of one port over another, especially if the differences in fuel price are not significant.
- **Geographical advantages and accessibility**: The geographical location of the port and its accessibility also play an important role. Ports that are strategically located near major trade routes or that offer easy access may be more attractive to shipping companies. The proximity of the port to the destinations or origins of the cargoes can also be a decisive factor.
- **Port congestion**: The availability of berthing and anchorage spaces, as well as the waiting time for fuel supply, are factors to consider. Ports with less congestion and shorter waiting times are preferred, as they allow shipping companies to optimize their time and reduce delays in their itineraries.
- **Administrative attractiveness of the port**: administrative aspects, such as the simplicity of customs procedures, the presence of strict environmental regulations and the security of the port, are also taken into account. Although these factors are not as determinant as the price or quality of the fuel, they can influence the final *bunkering* decision when prices are similar.

In short, there is a consensus as to the factors that influence the competitiveness of the fuel supply service, and regardless of the order of priority of these, there are some that fall under the competence of the authorities.

Finally, an additional factor that may impact the long-term demand for the service in the Spanish port system is the supply of electricity to docked ships, also known as *onshore power supply* (OPS). The supply of electricity to ships, while they are docked to supply their auxiliary engines and reduce pollution, is underdeveloped in our country. The electrification of the berth would help to transfer part of the competitiveness of the Spanish electricity sector to the supply service provider to its customers and, thus, to the Spanish port system.

8.2.2. Supply-side service description

The fuel supply service can be offered in **different modalities adapted to the type of demand,** as described by the Port Services Observatory (2020):

- **Ship-to-ship (STS):** This is the most common method and concentrates the largest volume of supply. A small tanker (also known as a barge) is placed next to the receiving vessel and transfers the fuel via hoses. This operation can be carried out with the receiving ship docked or anchored,

although not all ports have authorized anchorage areas for these operations.

- **Pipeline-to-ship (PTS):** This method involves direct supply from storage facilities via pipelines. Although it is used in few ports due to limited facilities, it allows for high-volume deliveries with high pumping capacity.
- **Truck-to-ship (TTS):** this is the most widespread method in terms of number of services and is used for small-sized supplies throughout the port system, due to the ease of availability of means.

In 2018, by volume of supply, 79% was ship-to-ship, 13% by pipeline and 8% by truck-to-ship (Observatorio de los Servicios Portuarios, 2020). However, these are usually complementary forms of service, where their use depends on elements such as the type of vessel, the characteristics of the port or the availability of the different means. The mode of supply is also a relevant element because it determines the need to occupy the port public domain.

Among the petroleum products supplied by the providers Heavy fuel oils with high sulphur content (HFO or HSFO, *Heavy Fuel Oil* or *High Sulphur Fuel Oil*), marine diesel (MGO, *Marine Gas Oil*), very low sulphur fuel oils (VLSFO, *Very Low Sulphur Fuel Oil*) and LNG, each used in different maritime applications according to environmental regulations and energy efficiency needs. Thus, ships that consume HFO, which have decided to make an investment in the installation of a filtration system to avoid part of the SOx emissions, coexist with ships that consume fuel oils with a lower sulphur content, such as MGO or VLSFO, or even LNG[260]. Demand in the Spanish port system in 2018 is distributed according to the type of fuels in 6,661 million tonnes (80.60%) of heavy fuel oils, 1,601 million (19.38%) of MGO and 2,000 tonnes of LNG (0.02%). The LNG figure in relation to the whole is merely symbolic, but is indicative of the development of this new fuel. (Observatorio de los Servicios Portuarios, 2020)

In the value chain of the marine fuel supply service, several activities can be identified:

- **Refining**, the industrial process by which the bunker is obtained as waste. The ownership of the petroleum product is in the first instance of the companies that carry out this process, and they can sell it downstream.

[260] The three operational modes of bunker supply to ships described are widely used for the supply of conventional fuels (HFO, MGO) and are also applicable to the bunkering of LNG with certain particularities due to the specific characteristics of the means used. In other words, in essence, these supply models are applicable to any type of product as long as the appropriate means are available for each one.

- **Transport** of the product to the port (either imported or from the refineries), and its subsequent **storage**[261], which is usually carried out by logistics companies and which in some cases can provide the fuel supply service (although it is also possible that the product is stored to be later exported).
- **Wholesale distribution of marine fuels**, which is distribution that does not involve supply to a final consumer. Wholesale activity can only be carried out by companies that hold the status of wholesale operator of petroleum products[262] that, in general, will coincide with the owners of the refineries, but not necessarily. In the exercise of wholesale activity, wholesalers may sell the product to another wholesaler or to a retail distributor[263].
- **Retail distribution of marine fuels**, consisting of the supply of the products to end customers. This retail activity is carried out by what will be called, for the purposes of the study, "suppliers", which, given their relevance in the value chain, will be the focus of the study. The following may act as suppliers:
    - Companies that hold the status of **wholesale operator** of petroleum products, which may also operate in the retail segment making direct supplies to end consumers.
    - **Retail distributors of petroleum products**, which can operate under the flag of a wholesale operator if they are linked to it exclusively through contracts (where there are various contractual modalities[264]) or can be independent if they are supplied by different operators. The product supplied by retail distributors to end customers (ships) can only come from a wholesale operator or from importation, since Law 34/1998 expressly prohibits supplies between retail distributors, as well as the supply of retail distributors to wholesale operators.
- **Provision of the fuel supply service, by the holder of the authorisation** for the provision of the service, who is the one who **makes the delivery or putting on board the ships**. It will not necessarily be the

261 It is worth noting that the logistics company, owner of the storage facilities, is not usually the owner of the product, reaching agreements between the parties.

262 This figure is defined by Article 42 of Law 34/1998, of 7 October, on the hydrocarbons sector. The CNMC publishes in its *web page* the list of companies that hold this condition.

263 Defined by Article 43 of Law 34/1998, of 7 October, on the hydrocarbons sector.

264 In automotive fuel service stations, the following contractual relationships have been distinguished: COCO (Company Owned – Company Operated), CODO (Company Owned – Dealer Operated), DOCO (Dealer Owned – Company Operated), DODO (Dealer Owned – Dealer Operated).

owner of the assets with which the service is provided, it is sufficient that it has them.

- Apart from the domestic market, there are other intermediary agents, traders, focused on entry-exit operations, which are very common in Spanish ports and in particular in the Canary Islands, given their geographical position.

However, despite the above list, in the bunker market it is difficult to distinguish the different players in practice, given the high vertical integration of the operators and the different links between the parties, as well as the diversity of supply formats and the particularities of the facilities of each port.

The central role in the value chain is usually held by the oil company that agrees with the ship to supply the fuel. In Spain, oil companies such as Cepsa (currently called Moeve) or Repsol stand out, which have their own refineries, market their products to ships using their own storage and supply means or contracted under their availability in the ports.

The retail or wholesale distributor will not necessarily coincide with the company holding the authorisation, and therefore with the provider in the practice of the port service. For example, Repsol and Cepsa are companies with some authorisations to provide the service, but in other cases they operate through agreements with third-party companies that hold the authorisation, which can adopt the company's flag. Thus, it is possible to classify, based on the relationship between these two agents, the following models:

- **Vertically integrated suppliers** with their own means of supply or under an exclusive contract.
- Companies that **have the means of** supply that operate **exclusively** for a supplier.
- Companies that **have the means of** supply that operate simultaneously **for several** suppliers.

Thus, given the complexity of the value chain of the fuel supply service and as carried out in the study of the Port Services Observatory, it is necessary to analyse the service from the point of view of the suppliers.

Differentiating between the possible means with which to provide the service, it is possible to identify the following regularities present in the **business models of major suppliers** of Marine Fuel (Observatorio de los Servicios Portuarios, 2020):

- The generality of the subcontracting model for tanker trucks (with the exception of Molgas, which uses its own means). Moreover, TTS service providers can operate with different marketers on independent trips.

- The dominance of the model based on contracts of exclusivity of the medium and operational control in the barges. So much so, that in the STS supply[265] the model of operating with several marketers would not take place (for commercial and technical reasons).
- The diversity of models in the supply of PTS fuel, as well as in the storage of these fuels. That is, the coexistence of own resources, concessions or third parties with contracts of exclusivity of the means and operational control (not their subcontracting by service).

8.2.2.1. Factors relevant to the conditions of competition in the provision of the service

a) Structural factors of refining capacity and the wholesale market

At the supplier level, *there is significant concentration* in the Spanish bunkering market.

According to data from the Port Services Observatory (2020), in 2018 **a single company, Cepsa, led the supply of marine fuel in Spain, with 4.32 million tonnes or 52% of the total**[266]. The leading position is observed in each of the supply modalities (ship, pipeline and tanker). One factor that undoubtedly helps to explain this undisputed leadership is, firstly, its vertical integration upstream in the refining phase. And, secondly, the location of its refineries near nodes on international maritime transport routes, specifically in the southwest of the peninsula (Huelva, San Roque-Algeciras and Tenerife[267]), which gives it a comparative advantage in terms of fuel transport costs to distribution points. In this way, Cepsa's market shares are very high in several ports, highlighting for example its share of more than 90% in the ports of Tenerife[268] and Huelva[269].

It is followed **in second place by Repsol**, with 1.23 million or 15% of the bunkering market share. Its lower share in the marine fuel supply activity contrasts with its leadership in the supply of other fuels and lubricants in Spain. This could be partly explained by the fact that, although the company has five

265 In other words, the barges would only be supplying fuel from a single supplier.

266 In a press release from Cepsa on March 22, 2018, the company mentions that it holds a share of more than 50%.

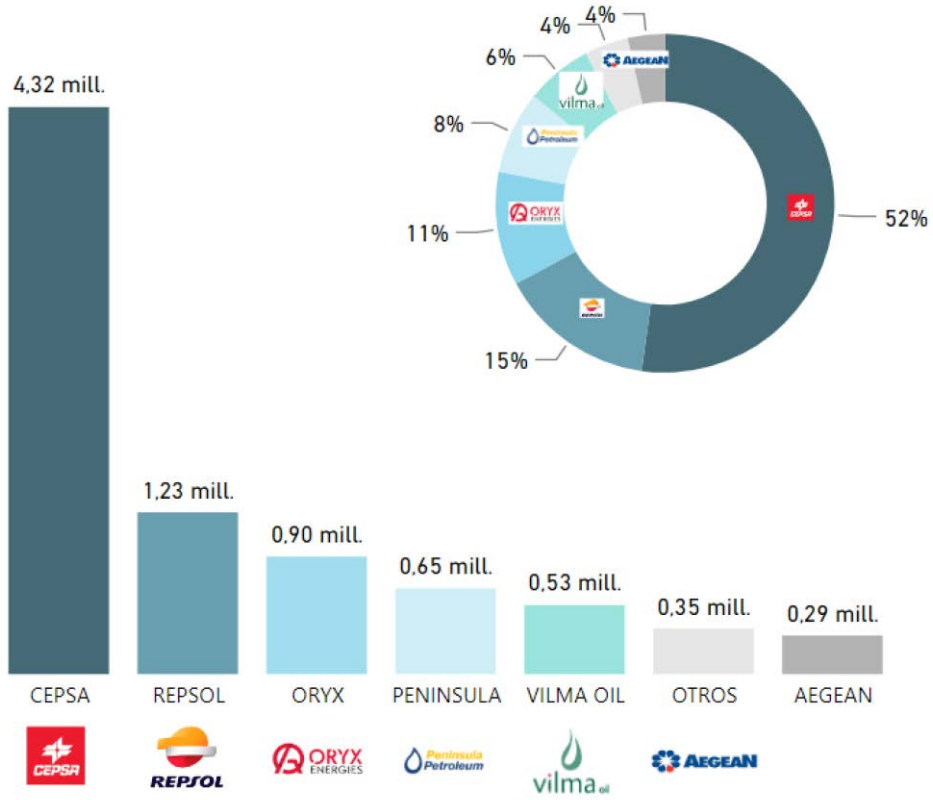
267 Currently, Cepsa's refinery in Tenerife is in the process of being dismantled. Notwithstanding the foregoing, the location of that refinery has given the company a comparative advantage in that region that does not necessarily expire immediately after its decommissioning.

268 Observatory of Port Services, State Ports. Study of the implications of determining the fuel service to ships as a port service (2020).

269 Observatory of Port Services, State Ports. Study of the implications of determining the fuel service to ships as a port service (2020).

refineries on the Iberian Peninsula (Tarragona, Bilbao, Cartagena, Madrid and Coruña), these are distributed in such a way that the one closest to the traditional ports of supply of marine fuel (the ports of the Strait of Gibraltar and the Canary Islands) is further away than the refinery furthest from the first supplier. Cepsa. Despite the above, Repsol is the market leader in several ports in the Atlantic-Cantabrian area, such as Vigo, and reaches very high market shares in several ports in the Mediterranean area, highlighting Tarragona and Valencia, where it held more than 80% of the share.

Figure 15: Fuel volume by supplier in 2018 (in tonnes)



Source: Observatory of Port Services, State Ports. Study of the implications of determining the fuel service to ships as a port service (2020).

As shown in the CNMC's study of the wholesale market for automotive fuels in Spain[270], **swap *agreements* for physical volumes** are common in the oil industry between the different suppliers to guarantee supply, from the refinery of one to the end customers of the other, in those territories furthest from their own refineries. and vice versa. In the case of *bunkering*, these agreements would grant synergies to both suppliers, although, as mentioned in the CNMC study,

[270] E/CNMC/002/15 "Study on the wholesale market for automotive fuels in Spain".

they would also increase the risk of conduct aimed at relaxing competitive pressures in the fuel supply service to ships, as detailed in the section on barriers to competition. The probability of this risk materializing is greater in those areas where the sum of the joint share of both integrated companies is especially significant[271].

After Cepsa and Repsol, in third place is Oryx Energies, with a 0.90 million or 11% share, focusing its activity in Spanish territory solely on the port of Las Palmas. **The following positions** are held by the companies Peninsula, Vilma Oil and Aegean, which together cover 18% of the market, with only the remaining 4% remaining in the hands of a large number of companies in the form of supply by tanker and, to a much lesser extent, by ship[272].

Although non-vertically integrated suppliers can enter into transfer agreements, the possibilities for *volume swaps* between non-vertically integrated operators are relatively more limited. By means of these one-off agreements, a supplier-supplier may make available to another supplier-demander a volume of product that it has located in a given storage facility, but these agreements are made only when it is attractive to the supplier-supplier.

b) The capital intensity of the means used

The different bunkering service provision models have different capital intensities. From the analysis of the available information on the service, it can be deduced

[271] In the area of the Gibraltar Strait-South (Huelva, Seville, Cadiz, Algeciras, Ceuta, Malaga, Motril, Almeria and Melilla), where about half of the total volume of marine fuel in the entire Spanish port system is supplied, and two thirds are supplied by the two large vertically integrated companies, Cepsa and Repsol. In this area, the joint share of both is especially large in the port of Algeciras, where together they hold about 80% of the market share.

In the Mediterranean area (Barcelona, Tarragona, Castellón, Valencia, Alicante and the Balearic Islands) about a fifth of marine fuel is supplied, and about 90% is supplied by the two large integrated companies. Cepsa shares leadership in this area with Repsol, probably due to the proximity of several of the latter's refineries. In this area, the joint share of both is especially large in the port of Valencia, where together they hold about 95% of the market share, and in Barcelona, where they have 90%.

In the Atlantic-Cantabrian area (Vigo, Marín, Ría de Pontevedra, Vilagarcía de Arosa, Ferrol San Cibrao, A Coruña, Avilés, Gijón, Santander, Bilbao and Pasajes) less than 5% of marine fuel is supplied, more than three quarters are supplied by the two large integrated companies, led by Repsol, again probably due to the presence of its two refineries in Coruña and Bilbao. In this area, the joint share of both is especially large in the port of Vigo (around 95%).

In the Canary Islands, Cepsa is the market leader, with more than a 90% share in the port of Tenerife, while Repsol has a testimonial presence.

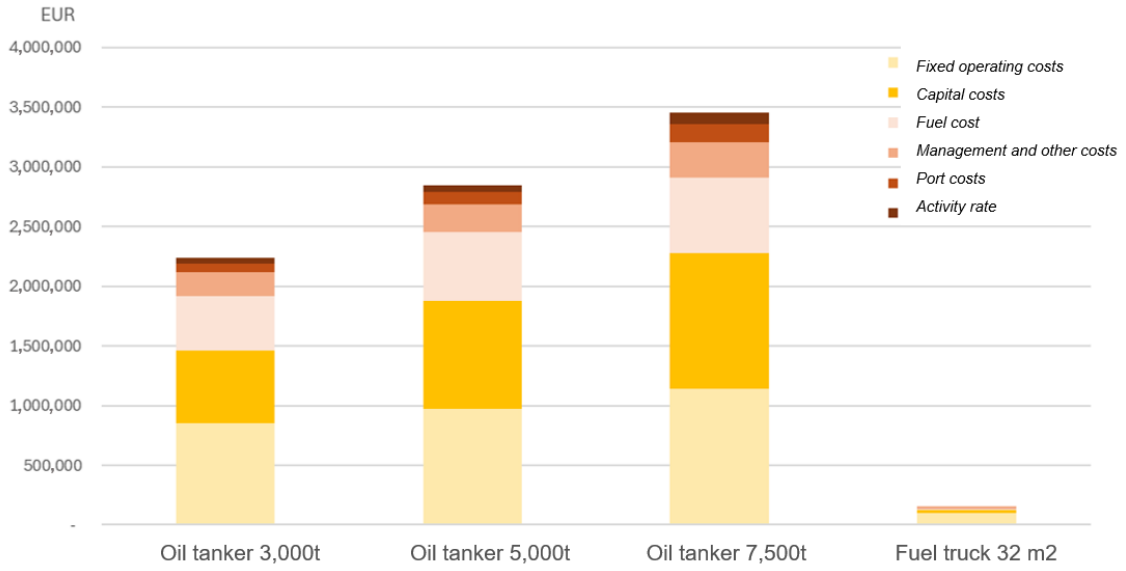
[272] Observatory of Port Services, State Ports. Study of the implications of determining the fuel service to ships as a port service (2020).

that this capital intensity is associated with differences in the volumes of fuel supplied by supplier.

Among the modalities that register a higher volume of supply are those that are relatively more capital-intensive: the STS and PTS modalities. The second is only used in 5 ports, so the analysis focuses on the first. Tanker fuel supply, on the other hand, is based on a less capital-intensive medium.

- **The STS modality requires the supplier to have a higher initial investment/fixed costs and higher operating costs**, **as shown in Figure 16**. It thus requires high volumes of service to achieve an efficient scale where the higher flow rate (compared to the flow using less capital-intensive means) results in a shorter waiting time for the ship.

Figure 16: Annual costs of conventional STS and TTS supply

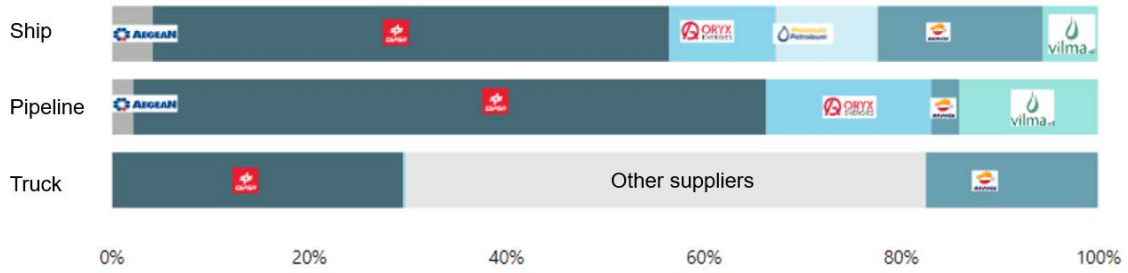


Source: Observatory of Port Services, State Ports. Study of the implications of determining the fuel service to ships as a port service (2020).

In this way, the use of relatively more capital-intensive means can lead to greater concentration in a few suppliers. Shipping companies usually prefer STS supply modalities, mainly due to the possibility of carrying out the *Bunkering* in anchoring and the advantages of this: the operation is usually faster and cheaper, with savings in various fees, pilotage, etc. In return, the port assumes other risks, such as the increased likelihood of spills (Acosta Seró, Cerbán Jiménez, & Coronado Guerrero, 2012).

Indeed, Figure 17 shows that the availability of relatively capital-intensive means seems to be associated with a higher volume of fuels supplied by each provider.

Figure 17: Fuel volume by supplier and source



Source: Observatory of Port Services, State Ports. Study of the implications of determining the fuel service to ships as a port service (2020).

Map 7 shows the specific areas where suppliers have their tankers based (one of the most capital-intensive supply models), which will therefore be those areas in which they supply the largest volumes. Thus, the company Cepsa has barges in all national ports where there is a high demand, including Barcelona, Algeciras, Huelva, Tenerife, Las Palmas and, since 2020, also Ceuta[273], which gives it the status of leader in the sector. Repsol is also present with tankers in the Spanish ports of Algeciras, Barcelona and Valencia[274]. Peninsula charges in STS format in the ports of Algeciras, Barcelona, Tenerife and Las Palmas[275], also providing on-demand services in other ports. For their part, Vilma Oil and Oryx Energies position their barges in a single Spanish port each: Vilma Oil in Ceuta[276] and Oryx Energies in Las Palmas[277].

273 Website of the company Cepsa - Moeve (https://www.moeve.es/es/particular).

274 Repsol company website (https://www.repsol.com/es/productos-y-servicios/trading/bunker/guia-gabarras/index.cshtml).

275 Peninsula company website (https://www.peninsula360.com/physical-supply/).

276 In mid-2024, Vilma Oil was acquired by Trafigura (Source: *European Commission > Competition Policy > Competition Case Search > M.11551*).

277 Oryx Energies company website (https://www.oryxenergies.com/en/products-services/businesses/trading-bunkering).

Map 7: Suppliers with ship-to-ship service

Source: Observatory of Port Services, State Ports. Study of the implications of determining the fuel service to ships as a port service (2020).

On the other hand, **the tanker fuel supply service (TTS), being a means of financial access to small and medium-sized enterprises, is a more fragmented market,** where a large number of companies currently participate, many of them local or regional. The supply under this modality is the most frequent in terms of the number of operations. It is common for these companies to supply with their own means and their own fuel supply authorisation and, in addition, also provide one-off or regular services – regardless of the contractual form these relationships take – for vertically integrated marketing companies. In other words, sometimes they operate in a port under their own authorisation and other times under the authorisation of an integrated marketer. In these cases, the conclusion is relevant that regardless of the number of service holders that exist in a port and regardless of whether the marketer of the product and the executor of the supply operation coincide in the same legal entity, a greater dominance of the original supplier of the product will affect the competitive conditions downstream in the provision of the fuel supply service.

However, in recent years, the activity of supplying fuel from tanks or tankers has undergone a great development. Competition with supply from fixed installations is affected by an additional factor such as the charges to which each supply

model is subject. Fixed installations, under an administrative concession regime, are subject to the payment of certain additional fees[278], to which the supply by tanker is not subject, thus benefiting from a reduction in costs in the exercise of their activity.

8.2.2.2. The transition to alternative fuels and its potential effects on competition

IMO and EU environmental regulations have direct implications on fuel demand and on the type of infrastructure required by Spanish ports for the supply of the different types of fuels, the means required by providers and the product supplied. The implementation of the Mediterranean Controlled Emissions Area (ECA) from 1 May 2025, which requires a maximum limit on sulphur oxides of 0.10% m/m, will help accelerate the energy transition of the Spanish port system. This may have medium and long-term implications for the competitiveness of the service provided in the different ports.

According to the specialized publication *Ship & Bunker*, 15% of the new orders corresponded to ships powered by alternative fuels[279]. These data reflect a growing trend towards the adoption of more sustainable alternatives in the maritime industry and have an impact on the demand for alternative fuels, and thus, on the fuel supply service.

The transition to alternative, more sustainable fuels could change the map of Spanish ports that regularly supply fuels: ports with a competitive advantage in the supply of traditional heavy fuels do not have to be the same as those with an advantage in the supply of LNG. Some Port Authorities, such as that of Huelva, whose ports under management are close to international maritime transport routes and whose activity has not traditionally been so linked to the supply of fuel to ships, seem to be betting on taking advantage of the incipient market niche in the supply of LNG. Centrally, the Ministry of Transport, Mobility and Urban Agenda through Puertos del Estado, and coordinated by Enagás, has developed several projects to adapt the regasification plants of Enagás and other companies managing regasification plants to the LNG supply activity[280] to help extend the

[278] These fees include the fee for private occupation of the port public domain, the fee for special use of the public domain in the exercise of commercial, industrial and service activities and the corresponding fees for the special use of port facilities. Source: Port Authority of Santa Cruz de Tenerife. Specific specifications for the exercise of the commercial activity of supplying fuel from a tank or tanker to ships in the service area of the ports managed by the Port Authority of Santa Cruz de Tenerife. Page 7.

[279] Ship&Bunker, citing the platform *Alternative Fuels Insight*, owned by the classification society DNV.

[280] The EU-funded framework project has been called *CORE LNGas hive project* (2016-2023). This framework project has contributed to creating a safe and efficient logistics chain to supply LNG in the Iberian Peninsula, promoting more sustainable transport in the maritime field. 25 projects have been executed, adapting LNG plants and training personnel.

competitive advantage of the gas sector to the Spanish port system. which makes them potential key suppliers of LNG to the maritime sector. The CNMC, for its part, in its Circular 6/2020[281], established a plant-to-ship and ship-to-ship LNG transfer toll structure that does not include a fixed component but only a variable payment component for the exact volume transferred.

8.3. Restrictions on competition and efficient regulation

Various restrictions on competition are identified below, mainly arising from the regulations relating to the supply of fuels in general, not specifically in the marine and port environment. In addition, there could be structural factors in the wholesale bunker market that could be impacting the prices of the commercial fuel supply service.

8.3.1. Confusion related to the legal classification of the service

While EU Regulation 2017/352 identifies the fuel supply service as a port service, the Spanish TRLPEMM does not include this service in the limited list of port services, so in our legal system it is defined by exclusion, as a commercial service.

However, this divergence in the consideration of this service between the national and European regime has given rise to some confusion and debate among operators as to whether the port services regime or the commercial services regime should be chosen. In fact, as an example of this confusion, the Study of the needs and implications of the determination of the supply of fuel to ships as a port service of the Port Services Observatory of 2020 mentions on page 166 that this service "*goes from being regulated by chapter V of commercial services to chapter III of port services*. *The change involves the transition to regulate aspects that have not been regulated in their condition of commercial service, so that the new requirements for access and provision of the service do not negatively affect the service while enhancing its efficiency and reliability".* This contradicts the current content of the TRLPEMM, which continues to consider it as a commercial service.

8.3.2. Lack of updating, transparency and homogeneity in the PCPs

The PCPs represent a key element for the provision of the *bunkering* service. However, the average age of these specifications is high and there are Port Authorities that do not have these PCPs published on their websites. Likewise,

[281] CNMC Circular 6/2020, of 22 July, establishing the methodology for calculating tolls for transport, local networks and natural gas regasification.

greater transparency is also required in the publication of the conditions of the concessions associated with the service. The outdated PCPs and the lack of transparency not only hinders the analysis of the service, but also represents a first barrier to entry into the provision of the service for potential entrant companies as they are unaware of the requirements to access the authorization.

In terms of homogeneity, the TRLPEMM establishes a relatively flexible regulatory framework for commercial services. In addition, the Port Authorities have room to align the PCPs and, thus, the applicable requirements to obtain authorization for the providers in the ports under their management. Although it is necessary to preserve a certain margin of flexibility to adapt the PCPs to the different situations between Port Authorities, the disparity that is not due to reasons of necessity and proportionality can act as a barrier to competition, as it could hinder the expansion of service providers to more than one port because they have to know and adapt to requirements for obtaining very different services authorizations.

8.3.3. Lack of public and centralized information on marine fuel prices

Currently, there are private platforms that centralize information on the prices of the various marine fuels offered only in the ports that voluntarily supply them, typically the largest international fuel supply ports. However, there is no register that publicly, freely and completely centralizes the prices of marine fuels for merchant ships, in a way comparable to what happens with the prices of automotive fuels. The absence of such records has significant disadvantages: on the one hand, it does not allow the applicant to make more informed decisions and increase competition, and, on the other hand, it makes it more difficult for the various stakeholders to analyze the data.

9. CONCLUSIONS

Ports are an essential link in global supply chains. Most of the international freight traffic and a significant part of the passenger traffic passes through them. The **services provided to the ship** discussed in this study are essential for their proper functioning. Although each of these services, taken individually, are auxiliary in the chain of services provided in ports, their importance should not be underestimated, since they are the main elements in determining port efficiency and, in fact, their incorrect operation can make ports more expensive and hinder, delay or even paralyze the port's activity.

The services analyzed in this study encounter restrictions on competition and efficient regulation that can hinder the proper functioning of ports and maritime transport, according to the analysis carried out.

The general regulations for these services not only enshrine a **principle of free competition** but also establish that regulators (Puertos del Estado and Port Authorities) have the **express mandate to promote competition** among service operators and the explicit obligation to supervise and promote competition in the provision of port services. However, in the vast majority of these services, the provision is carried out under an unaltered monopoly regime in the area of each port. Improvements in the regulation of these services to **promote effective competition** could lead to improvements in efficiency, port competitiveness and, consequently, in general economic activity and consumer welfare.

In general terms, these services would face not only problems in the design of current regulations with restrictive effects on competition, but also problems in the application and compliance with those regulations.

The problems of regulatory design operate in very diverse areas, and, among others, the following could be highlighted:

- Restrictions on **access to the profession**, in particular for the pilotage service.
- **Limitation of the number of providers**, whether explicit or tacit. Specifically, for the pilotage service there is an explicit limitation to a single provider per port. In this service, the mandatory granting of licenses through competition (competition for-the-market) has no pro-competitive effect, given the restriction on access to the profession that prevents the entry of any potential competitor. For the rest of the services, there would be a tacit limitation, the result of a set of impositions that condition both the income and the expenses of the providers. On the revenue side, these are subject to compliance with public service obligations (universal coverage and continuity and regularity of the service), which predetermine the volume of services provided, as well as maximum charges that set the unit price or remuneration for each of these services. And, on the cost

side, these would be predetermined by the imposition of a series of minimum resource requirements (material and human) and economic-financial solvency requirements, which would condition the cost structure of the providers. These tacit restrictions will be reflected in the uninterrupted prevalence of monopolies or, in the best of cases, oligopolies in the vast majority of ports for many of these services, without the need for an explicit limitation on the number of providers.

Regarding the **problems in the application and compliance** with the regulation, non-compliance and delays in the application of the current regulations could generate doubts among incumbents and potential entrants about legal certainty and the existence of a level playing field. This could discourage the entry of competitors. All these restrictions would be exacerbated by the **lack of transparency** that surrounds many of the actions and decisions in the sector, which would increase these doubts to the detriment of the attractiveness of these services for potential entrants.

In view of the above and in order to promote efficiency and competition**, the following recommendations are proposed**.

10. RECOMMENDATIONS

FIRST. PROMOTING AN EFFICIENT AND PRO-COMPETITIVE INSTITUTIONAL AND REGULATORY FRAMEWORK

I. Update the Specific Terms and Conditions (PPPs) to current common regulations and design them with a pro-competitive approach

The PPPs, as they contain the regulations for the development of each service, establish the fundamental rules of the game for providers, both those already installed and potential candidates to enter the market. Therefore, it is of great importance that their design has a general pro-competitive orientation and, specifically, that the restrictions introduced comply with the principles of good regulation. It is also important that they are updated in accordance with the current common regulatory framework. In port services, there is a recent positive trend towards the updating of PPPs, closer to completion in the case of technical-nautical services than in the MARPOL service. However, there are still numerous specifications to be updated to adapt them to recent regulatory modifications, which may harm the performance and legal certainty of outdated-rule services.

Therefore, **it is recommended to update the PPPs to current common regulations and design them with a general pro-competitive approach.** With its update, it would be easier for them to be up to date with respect to the regulations and market situation, clarifying the conditions of entry and operation in each service and port. It would also be desirable to design them with a general approach favorable to competition, which avoids unnecessary barriers and respects the principles of good regulation, in such a way that all requirements are necessary, proportionate and non-discriminatory. All this would facilitate greater effective and potential competition. In this regard, it would be desirable that all possible efforts be made to achieve as soon as possible the objective defined in the Strategic Framework that all Port Authorities have updated specific terms and conditions for the year 2025. To this end, as a way to speed up the updating process and promote regulatory improvements, it may be useful to generalize standard Specific Terms and Conditions prepared by Puertos del Estado, documents that seem to be used in practice, although it has not been detected that they are published in a transparent manner.

II. Adopt a pro-competitive approach in the design of licensing and licensing requirements

II.A. Not limiting the number of licenses except where necessary and justified

Licenses, as a necessary title to operate, represent a very relevant barrier to entry. In particular, the limitation of the number of licenses entails a closure of the market that prevents entry once the quota has been reached, to the detriment of competitive dynamics.

Therefore**, it is recommended not to limit the number of licenses except in those cases where it is essential and justified**. Thus, all those who meet the requirements should be eligible for a license to operate. To ensure that licenses are only restricted when necessary, the limitation process should require a prior study and public report that justifies the reasons for the restriction and explains how the maximum number of licenses has been estimated. In addition, a periodic review would be advisable as circumstances may vary over time.

II.B. Establishing the technical-professional and economic-financial requirements in accordance with criteria of necessity and proportionality

The licensing regime, in addition to the minimum resources, is accompanied by numerous requirements to guarantee technical capacity and solvency, whether guarantees, insurance or others, which vary according to the service and port. These requirements may be justified in some cases to prevent the entry of operators without sufficient size or capacity to operate. However, they are also an entry barrier that can exclude many operators and, if they are not well designed, even operators capable of providing the service, to the detriment of the efficient and competitive performance of the service.

It **is therefore recommended to adopt technical-professional and economic-financial requirements in accordance with criteria of necessity and proportionality**. Following the principles of good regulation, the requirements must be necessary to achieve the objective pursued, with a clear justification for a reason of general interest. They must also be proportionate, opting between the different alternatives for the least burdensome and distorting. Thus, these requirements must be adjusted so as not to exceed the essential minimum.

II.C. Prioritizing a quality control system over the requirement of minimum resources and eliminating possible redundancies

The establishment of minimum resources is a relevant barrier to entry, which may be justified for security reasons. They may also be required to try to ensure a certain level of quality in the provision of the service. However, sometimes the quality of the service could also be guaranteed through a system of monitoring the results, which penalizes non-compliance. These quality metrics are already being introduced in some services. Given that there is a potential redundancy in the simultaneous requirement of minimum resources and compliance with levels of productivity, performance and quality, the minimum resources obligations could become partly unnecessary, beyond what is strictly necessary to: a) comply with the public service obligation to cooperate in rescue operations, firefighting, pollution control, as well as in the prevention and control of emergencies (Art.

110.c TRLPEMM), or b) guaranteeing maritime safety in the cases of technical-nautical services, as justified by the DG Merchant Marine.

In this line, **it is recommended to promote a system based on performance indicators to ensure quality.** This would require the competent monitoring authority to have enough resources to: a) demand truthful information; b) monitor and follow up; c) penalize non-compliance (penalty system). This would be accompanied by the revision of the minimum resources requirements to limit them to: a) in technical-nautical services, the existence of maritime safety reasons, or b) compliance with the public service obligation of art. 110.c TRLPEMM. In any case, there must be a clear and transparent justification of the connection between these requirements of means and the aim pursued in terms of security or public service obligations, thus complying with the current legal mandate to minimize their impact on competition.

II.D. Considering indefinite licenses in cases of non-limited number of providers

Licenses usually have limited duration, after which they expire. This means that operators must periodically carry out the necessary procedures to obtain and renew them. However, the requirements are mandatory throughout their terms of validity. Thus, in the current regulations (both TRLPEMM and the PPP) the cases of termination of licenses are established, whether for reasons associated with non-compliance by the provider, along with the fact that the Port Authorities already have the power to monitor compliance with the conditions of provision at all times, beyond the moment of granting. As there is a monitoring of obligations and the possibility of withdrawing the license in case of non-compliance, renewals may not be essential in many cases and, however, they involve an additional bureaucratic burden for operators. In particular, when the number of operators is not limited, avoiding unnecessary procedures could facilitate their activity and even help to have more operators installed, thereby boosting efficiency and competition.

Therefore, **it is recommended that the term of validity of the licenses be indefinite as a rule in cases where the number of providers is not limited**. This would eliminate the administrative burdens associated with the periodic renewal of licenses. When the provision of the service is carried out with the occupation of the port public domain, which represents a more powerful barrier to entry and whose duration is necessarily limited, it is recommended that the licensing system be designed as pro-competitive as possible, making the various obligations imposed by the license compatible with the provision of the service that is carried out in port public domain.

II.E. Systematizing the link between licenses and concessions

The systematization of the link between licenses and concessions, beyond what is currently required by the TRLPEMM, could help to coordinate and give coherence to these two requirements. It could facilitate the work of operators in general and reduce the risk that these requirements become an excessive barrier for potential entrants.

Thus, given the strong barrier to entry posed by the occupation of the limited port public domain, **it is recommended to systematize the link between the license for the provision of the service and the title authorizing the occupation of public domain** whenever such occupation occurs. This would mean that the information, deadlines, requirements and other aspects are coherent and coordinated, in such a way as to avoid unnecessary distortions or obstacles. The establishment of a registry of concessions (as proposed in recommendation III) can contribute positively to this task by collecting and systematizing relevant information. It is also advisable that the register of licenses in force is kept up to date, in order to offer a true picture of the competitive landscape in different services. Likewise, in view of a possible indefinite duration of licenses, in the event that the license is linked to the occupation of the port public domain, it could be assessed the establishment of a defined duration of such licenses (as just proposed in recommendation II.D), since such occupation cannot last indefinitely.

II.F. Publishing in the Official Gazettes the granting and renewal of permits

The granting of licenses in practice is not always published in the BOE, despite being required in article 115.3 of the TRLPEMM (the granting and renewal agreements, and where appropriate the corresponding call for tenders). Transparency about valid permits, in addition to being necessary to comply with the regulations, is essential to guide the entry decisions of potential operators.

Therefore, **it is recommended to reinforce compliance with the publication in the BOE, or the corresponding official gazette, of the granting and renewal of the permits**, in addition to the corresponding call for tenders, as established in the TRLPEMM.

II.G. Regularize the flexibility mechanisms on permits

Occasionally, the granting of permits such as provisional and temporary licenses, etc., not provided for in the regulations, has been published in the Official State Gazette. The use of these irregular permits can generate legal uncertainty and discourage the entry of potential new operators.

For this reason, **it is recommended to regulate, legalize** (via reform of the TRLPEMM) **or abandon the use of permits that are not provided for in the common regulations** (provisional licenses, temporary licenses, license extensions, etc.) which, albeit representing mechanisms that provide the Port Authorities with some flexibility, must have a common state regulation that enables their grant by those Port Authorities.

III. Promote the transparency of public concessions through a register

Concessions are a relevant and generally unavoidable entry barrier given the limited port area. Transparency about them is important, since having sufficient information on terms, conditions, etc., can significantly influence the decisions of agents to enter the market and, thus, facilitate competition for-the-market. Currently, this information is not always easily accessible, which is an obstacle for potentially interested operators.

Therefore, **it is recommended to promote transparency through the creation of a public registry of port concessions**. This register would offer complete information on relevant variables, beyond amounts and areas that are sometimes indicated in the announcements in the BOE, such as the concessionaire company, the date of grant, the term and the expiry date, among others. Likewise, to be useful this register should be kept up to date.

IV. Establish systems of competition for-the-market where the existence of several providers is not viable

In some ports and services, competition in-the-market may prove unviable. This is the case in many other economic activities, particularly those in which at least part of the activity has the characteristics of a natural monopoly. In such cases, it is beneficial to establish systems of market competition wherever possible, to introduce competitive pressure and avoid an outright closure of the market.

Therefore, **it is recommended to adopt systems of competition for-the-market where the existence of several providers is not viable**. One option, already contemplated in the port regulations, would be to limit the number of providers and grant the license by competitive tender. In this case, the design of the tender (in terms of deadlines, duration, publicity, etc.) will be essential to achieve a pro-competitive effect. It would be advisable to open the competition as much as possible, promoting a high level of transparency, a clear calendar published well in advance, only establishing those requirements that are essential and, in general, adopting a pro-competitive orientation. To this end, it may be useful for the responsible authorities to consult this design with the CNMC, by virtue of the advisory functions of this Commission provided for in Article 5.2 of Law 3/2013, on the creation of the CNMC.

V. Strengthen the methodology in the design of regulated charges

Price regulations, including regulated charge schedules and maximum charges, should generally be introduced on an exceptional basis and with a rigorous design, given their adverse side effects. On the one hand, it is complex to determine and adjust this regulation to achieve a reasonable but not excessive profit margin. In addition, these charges can act as a focal point that coordinates operators around reference prices. As a result, they can cause significant distortions and create risks of reducing competition, efficiency and investment, which can be counterproductive.

The regulation of tariffs may be reasonable in some of the services analyzed in this study, in view of the limitations of competition they suffer. Maximum charges are currently applied for a number of these services and a fixed charge scheme is currently in place in the case of MARPOL. These charges must be well designed to ensure their suitability, enhancing their benefits and minimizing risks.

It **is therefore recommended to strengthen the methodology for establishing regulated charges,** with the aim of making them rigorous, transparent and adjustable. Along these lines, it is proposed:

- **Carrying out preliminary analyses**: the establishment of regulated and maximum charges, in accordance with the applicable regulations (Regulation 2017/352 and TRLPEMM) should be preceded by the explicit and transparent determination of the circumstances that advise their application, in particular the existence of an explicitly limited or insufficient number of providers to guarantee competition. To this end, it is desirable to undertake the necessary studies to evaluate their convenience, that is, those carried out for the purpose of designing charges. Fortunately, the latest generation of PPPs has already made mandatory this type of study, both for the simple updating of charges and for their extraordinary, wide-ranging review.
- **Developing a robust, independent and homogeneous methodology for calculating charges for the whole system**. To reduce distortions and promote competitive neutrality, it is recommended to develop common guidelines on the methodology for the port system as a whole. This methodology could be supported by an updated economic-financial study that considers objective information on the factors that determine prices and their evolution. On this basis, Port Authorities would retain the technical discretion to adapt charge regulation, including the possibility of maximum charges, to the specific circumstances of the port.
- **Preparing scheduled economic-financial studies and on the adjustment of fixed and maximum charges to costs.** This will permit to monitor their adjustment and proportion to costs.

- **Publishing common guidelines, calculation methodologies and economic and financial studies to increase transparency, without revealing sensitive information that could compromise competition.** Greater transparency can reduce uncertainty for market participants and allows stakeholders and experts to identify and propose potential improvements or aspects that need reviewing.

VI. Establish a pro-competitive incentive system

In the absence of significant levels of competition in the provision of these services, it might be useful to introduce incentives for good performance to obtain higher levels of quality and innovation and competitive prices. These could at least partially compensate for the lack of competitive pressure, by encouraging and rewarding operators' efforts to provide a better service.

Therefore, **it is recommended to establish a pro-competitive incentive system**, based on a monitoring and evaluation system. Specifically, it is proposed:

VI.A. Establish a "comply or explain" system for annual recommendations

In recent years, Puertos del Estado and the Permanent Observatory of the Port Services Market have made a significant effort to improve transparency, through the publication of statistics and periodic reports on the sector (annual reports, statistical yearbooks, the Document of analysis and conclusions of the state of the port services market, etc.), in a similar way to what is happening in neighboring countries (France, Germany, the Netherlands or Italy), as well as the update of the Strategic Framework of the port system of general interest in 2022. These documents make regular recommendations, which constitutes a good practice that should be maintained and strengthened, consistent with the outcome of the important diagnostic and overall planning exercise of the Strategic Framework.

Therefore, its monitoring and application can be improved so that these recommendations can materialize in actual improvements to the system, thanks to the greater availability of information derived from the strengthening of the proposed system of indicators and its better monitoring.

By virtue of the above, **it is recommended that these recommendations be reinforced with a system of accountability following the principle of 'comply or explain'**, that is, they must be complied with or, otherwise, the reasons that justify the non-compliance must be explained.

VI.B. Develop a comprehensive, rigorous and coherent indicator system

A comprehensive and coherent system of indicators would allow the performance of the different services and of the ports themselves to be monitored. These indicators could increase the transparency of the system, allowing all stakeholders to know the details about the status of these services. The existence of reliable metrics also helps to improve diagnoses and based on them adopt more accurate solutions.

It is therefore **recommended that a comprehensive, rigorous and coherent system of indicators be developed.** This would mean defining and including homogeneous indicators for all ports on different key variables to know the performance of each service and port, as well as publishing them regularly following pre-established calendars. Each indicator should be prepared on the basis of a common, public and stable methodology over time, to facilitate the monitoring of evolution and comparisons.

VI.C. Introduce yardstick competition mechanisms

Establishing incentives that at least partially compensate for the lack of competitive pressure can help improve the performance of services. In particular, the introduction of a *yardstick competition* system could encourage competition based on the comparison of results between ports; for example, through the publication of annual *rankings* of each service. This competition by comparison can generate incentives for the rapid adoption of good practices and innovations and the efficient use of resources.

It **is therefore recommended to introduce a yardstick competition system**. For effective comparison, the importance of good indicator design should be underlined. Among other alternatives, the DEA (*Data Envelopment Analysis*) methodology can be used, especially the most recent versions, in order to establish objective comparisons between port authorities or terminals, favoring a more results-based regulation (Krmac & Mansouri, 2022). In addition, the establishment of periodic performance objectives can be considered both in relative and absolute terms, whose achievement requires economic incentives, for example, in the form of bonuses or penalties in port fees.

VII. Considering the introduction of an independent port regulator and supervisor

The establishment of an independent sectoral regulator can help to address and minimize various market failures that occur in port services, as is in other sectors of the economy. The OECD has singled out the port sector as one of those that could benefit from an independent regulator. Its adoption would be advantageous

in establishing and revising the necessary regulations and guidance for the various services in ports, collecting and publishing information, and monitoring the sector. This, among other aspects, could help reduce potential problems of transparency and information asymmetry, of regulatory capture or lack of competitive neutrality, as well as serve as aiding in the resolution of conflicts (2011).

Therefore, **it is recommended to consider the introduction of an independent port regulator and supervisor**. The activities of an independent authority could be helpful because it would be aimed, among other aspects, at:

- Participating in the development of regulations, supporting Port Authorities and making recommendations when appropriate. A supervisor's report could help to promote an efficient and competitive perspective in the drafting of regulations or extensions.
- Promoting transparency and developing a performance assessment system.
- Mediating in potential conflicts between port agents and, when necessary, assuming arbitration functions to reach effective and efficient solutions.

SECOND. PROMOTING MORE COMPETITION AND EFFICIENCY IN THE PILOTAGE SERVICE

VIII. Introducing free competition in the granting of pilotage licenses by eliminating the legal monopoly

The pilotage activity is closely related to the safety conditions of the port, which would justify public intervention to prevent potential risks associated with an insufficient quality of service. However, to guarantee the quality and safety of the service, it may be unnecessary and disproportionate to impose a single provider, since the achievement of these objectives of general interest could be achieved by other, less restrictive means. For example, establishing the necessary requirements to ensure the proper functioning of the service, as well as a good design of both the supervision and the penalty system and the liability regime. Moreover, this activity would not exhibit the characteristics of a natural monopoly that would make it difficult to introduce competition.

Therefore, **it is recommended to eliminate the limitation to a single provider per port in the pilotage service and open it up to free competition**, like the rest of the port services. If necessary, this opening could be accompanied by a review of the requirements for the provision of the service and supervision to reaffirm that they are adequate.

IX. Promoting transparent and non-discriminatory access to the profession of pilot

The removal of the legal limitation to a single provider per port would probably be insufficient to introduce competition in the sector, given the significant restrictions on access to the profession. This is because the pilots in each port are instrumental in training and qualifying new pilots. Reliance on incumbents for access to the profession could create risks of conflicts of interest that would impede the qualification of new pilots if candidates were to be perceived as potential competitors. It should be noted that the attraction of good professionals as well as adequate training of pilots is essential to guarantee the proper functioning and safety of ports. To this end, mechanisms must be sought to ensure this training and the attraction of talent without unjustifiably hindering the possibility of access to the profession or introducing unnecessary barriers to competition.

Therefore**, it is recommended to promote transparent and objective access to the profession of pilot**. On the one hand, this would help to attract talent and select the best, to the benefit of the efficiency of the pilotage service and the safety of the port. It also means keeping this career path objectively open to all interested parties who reach the required level, promoting equal opportunities in the access to the profession. Finally, ensuring transparent and objective access could help prevent potential conflicts of interest and unnecessary obstacles that, by reducing the number of available pilots, harm competition. To achieve these goals, it would be desirable to review the existing monopoly on training and on the procedure for the qualification and appointment of new pilots, for which the following could be proposed:

- With regard to training, given that the specific knowledge required to provide this advisory service is a public, non-rival good, the Port Authorities could openly facilitate the program and content of the necessary knowledge and skills, as well as the training of potential pilot candidates for the port in question.
- The procedure for the qualification and appointment of new pilots should be carried out only with the indispensable participation and influence (assessment of tests and completion of internships) of the pilots belonging to the incumbent companies, given the potential conflict of interest. The call for new positions by the Port Authorities could be carried out without quantitative restrictions, thus abandoning the replacement approach for new appointments, which would allow greater potential competition and, with it, boost competition for-the-market.
- Considering a system for the qualification and appointment of pilots for the system as a whole, promoted by the DG Merchant Marine, with the collaboration of the Port Authorities and other agents for the training of

pilots in each port. Once authorized by the DG Merchant Marine as a pilot, subsequently, when the incorporation to a specific port is going to take place, the internship would be carried out in the corresponding port .

X. Relaxing ship-specific exemptions

Exemptions from the mandatory use of the pilotage service are granted with a certain rigidity to the captain-ship-port trio. Any change in the list leads to a new procedure determining the convenience of the exemption. The rigorousness with exemptions may be justified in the case of masters and ports, although there are more doubts about preventing the possibility of ship changes. In general, it would be foreseeable that a master who knows the port well would be able to apply his knowledge to other ships, at least to those with similar characteristics. The loss of exemption when changing the vessel, at least for a while until it is obtained a new one, could even discourage the investment of shipping companies in new ships, which could be detrimental to the quality and safety of the service. It also makes it difficult for shipping companies to reassign their captains if they need to, since they would lose the exemption.

It **is therefore recommended that the element "ship" in exemptions is made more flexible**, to ensure that a change of ship does not automatically result in the loss of exemptions for a master in a port, in particular where the new ship has similar characteristics to the previous one. It should be remembered that this exemption does not imply giving up the pilotage service: in certain circumstances the exemption may be suspended for safety reasons, and the captain may also request the service when he or she deems it appropriate. If there is any risk or non-compliance, in addition to the suspension, the extension may be denied, thereby putting and end to it.

XI. Considering the introduction of pilotage from land

The pilotage service has traditionally been carried out on board the ship, where the pilot and the captain can communicate immediately and with direct knowledge of the ship's situation. However, the extensive development of numerous information and communication technologies can make it easier for the pilot to have a level of information and communication with the captain from land similar to that which he would have had on board. This could be sufficient to perform certain maneuvers, particularly those with less difficulty or when conditions are favorable.

Therefore, **it is recommended to consider the authorization to carry out certain pilotage operations from land**, either as an alternative or complement to traditional pilotage on board the ship. This possibility, not contemplated in

current regulations, could make the service more agile and efficient, and could even reduce the risks for pilots associated with boarding the boats.

THIRD. BOOSTING COMPETITION IN THE TOWING SERVICE

XII. Considering that the Port Authority makes tugboats available to the licensee

The particular characteristics of the towing service in terms of high fixed costs on highly specific assets open the door to an alternative, in cases where competition in-the-market proves unviable, to increase the possibilities of introducing competition for-the-market through competitive tender. Thus, those measures that reduce the resources necessary to compete can help to encourage participation in such competitions and promote competition for-the-market.

Therefore, **it is recommended that the Port Authority make tugboats available to the licensee** in these cases. Specifically, an *unbundling strategy* or separation of competitive and non-competitive parts could be chosen. Indeed, the Port Authority could consider the acquisition of part or all of those material assets that account for the bulk of the specific fixed cost (tugboats) and their subsequent making available to the licensee, so that the economic activity of towing ceases to have the characteristics of a natural monopoly. The main advantage of this system is that it could attract entrants who would otherwise not be able to overcome the barrier to entry imposed by the high fixed costs and the significant associated risk. Thus, there would be a greater number of potential providers or, in other words, candidates for the management of the asset to provide the service, so that the tenders could lead to a more efficient result, reducing costs. In addition, with this, the Port Authorities would strongly reduce their dependence on the current incumbent provider, thus limiting the possibility of regulatory capture.

XIII. Ensuring proportionality in the mandatory use of the towing service

The towing service in general is voluntary, although it may be declared mandatory by the Port Authority on safety grounds. In the case of some ports, the service is generally mandatory. This entails a significant cost for the users of the service, so it must be ensured that the impositions are in line with the security objective pursued.

Consequently, **it is recommended to ensure proportionality in the mandatory use of the towing service**. In those cases where the obligatory nature of the service is shown to be necessary for security reasons, it is recommended to justify this decision in a transparent manner. It is recalled that this obligation only reinforces, where appropriate, the market power of the provider, so it is advisable

that it be applied in the most restrictive way possible, that is, in the absence of a better alternative. Its use as a mechanism for the economic sustainability of the service is therefore discouraged, for which availability charges can be imposed, a formula already established in some PPPs.

XIV. Rethinking the flag requirement on tugboats

The requirement that tugboats have a Spanish flag would be justified by the fact that the flag of a ship determines the laws that apply to it. This is a restriction on competition, especially for international providers, as it hinders their potential entry by forcing them to carry out a complex procedure to register their ships under the Spanish flag. Although requiring compliance with certain Spanish standards may be reasonable and desirable, it is possible to consider the introduction of alternatives that maintain compliance without forcing the flag of the ship to be changed, thus following the principle of proportionality.

Consequently, **it is recommended to evaluate alternative measures that are less burdensome to the flag requirement** aimed at making providers subject to the relevant obligations in social, labor and safety matters. In particular, it could be proposed, when necessary, the explicit and direct requirement of these obligations in labor, social and safety matters (for example, in the PPPs), without the need to require the Spanish flag of the tugboat or, at least, extending the validity to the flags of the countries of the European Economic Area.

FOURTH. MAKING MARPOL'S SERVICE MORE FLEXIBLE

XV. Delimiting license types in a way that maximizes competition

Waste management operations can vary substantially depending on the type of waste. For this reason, some operators may be specialized in a typology – or "annex", according to the terminology of the sector– within the classification made by the regulations. The Port Authorities, on occasion, require providers to cater to different categories of demand (in terms of waste type or annexes) in order to be eligible for the license and run the service. This requirement is a significant barrier to entry for many operators, particularly specialized operators, and, although it could be assumed that it is set to ensure that the demand for all annexes is met, its necessity is not sufficiently justified in port regulations. Likewise, given the existence of several annexes, in the event that any obligation is necessary to ensure the coverage of any set of waste, it must be ensured that it is done proportionally; that is, it introduce the minimum requirement to achieve the objective pursued, in such a way that incumbent and potential operators are harmed as little as possible.

Given the potential range of possibilities in the selection of waste (annexes), in the modes of service provision (land or sea) and, where appropriate, the selection of ports of the same Port Authority in which to provide the MARPOL service, **it is recommended to delimit the types of licenses in a way that leads to the highest level of competition.** This would imply allowing the greatest choice by potential provider companies, thereby maximizing not only the number of providers, but also room for maneuver and autonomy of the Port Authority by minimizing its dependence on an individual provider. Therefore, it is suggested to review what obligations are necessary, justify them in a transparent way, and ensure their proportionality with respect to the objective pursued.

XVI. Standardizing the items subject to the payment of the direct (maximum) charge

The existence of divergent criteria in the design of charges can make it difficult for users to compare and make informed decisions. This can also reduce transparency and pose a barrier to competition. Although it is reasonable for the Port Authorities to establish specificities in their ports to meet their specific circumstances, it would be equally positive to start from common criteria that would facilitate comparisons for users. In particular, the criteria for paying the direct charge diverge between ports, without there being a clear justification for the differences.

Therefore, **it is recommended to standardize the concepts that lead to the payment of the direct charge**, sometimes divergent between Port Authorities, and in particular, the collection of waste in zone II of the port or through marine means, the thresholds of waste delivered above those quantities declared for which the fixed charge applies, or the inclusion of the discharge of Annex V wastes not corresponding to the normal operations of the ship.

In any case, these concepts must be consistent with the provisions of the TRLPEMM and Royal Decree 128/2022. This would involve updating the PPPs to adapt the delimitation of operations that involve the payment of the fixed or variable charge by the vessel.

XVII. Revising charges in the face of a persistent mismatch of income and expenses and not distribute surplus except in exceptional cases

The system of fixed or indirect charges has contributed to a significant increase in the volume of waste and residues discharged in ports, which has helped to fulfill regulatory and environmental objectives. The charge system is complex and can lead to mismatches between income and expenditure, which is foreseeable and reasonable given the difficulty of anticipating future flows. In the event of profits, the regulations indicate that the Port Authority has the option of

distributing a percentage of them among the holders of service licenses "*to contribute to the viability of the service in the event of insufficient demand*". Since this involves the allocation of funds between competitors, it could affect their competitive position.

Accordingly, **it is recommended to review charges in the face of a persistent mismatch between income and expenditure, and not to distribute profits except in justified exceptions**. By reducing the charges in case of profits, the objective of promoting the use of the service would be met. On the other hand, given the potential distorting effect of the distribution of windfall profits, such an option should generally be avoided. It should only be considered to distribute the minimum necessary on a one-off basis in exceptional and justified cases, when the supply of the service itself is at risk, and not only that of a specific operator, or if the lack of operators may cause environmental damage.

FIFTH. STRENGTHENING TRANSPARENCY AND COMPETITION IN THE FUEL SUPPLY SERVICE

XVIII. Clarify the legal classification of fuel supply service without increasing regulatory barriers

The divergence between the qualification of “port service” in European regulation and in Spanish regulation has given rise to some confusion that should be clarified to avoid uncertainty or errors in the documentation linked to the service, in line with what is proposed in the Bill amending the TRLPEMM. Likewise, this study has not detected deficiencies in the operation of the service that could require that this reclassification must be accompanied by a tightening of the regulations.

Therefore, **it is recommended to clarify the legal classification of the fuel supply service without unnecessarily increasing the regulatory requirements**. Thus, as far as possible, regulatory change should be avoided from increasing barriers to entry and the obligations of providers. Additional requirements, if adopted, should follow the principles of good regulation, including necessity, proportionality and non-discrimination, and be introduced only when necessary and to minimize potential damage to competitive dynamics.

XIX. Increasing the transparency of marine fuel prices

Price information can encourage clients to shop around and choose where to refuel, increasing competitive pressure. This is particularly relevant when fuel accounts for a substantial part of the costs, as in the case of maritime transport. Similar information is available for automotive fuels, through the *Hydrocarbons*

Geoportal of the Ministry for the Ecological Transition and the Demographic Challenge, but is not available for the *bunkering service*.

Therefore, **it is recommended to publicize the prices of marine fuels from each provider in each port**, similar to the already existing platform that centralizes the prices of automotive fuels. To this end, the holders of authorizations for the service of supplying fuel to ships should send to the authorities, at the established frequency and, in any case, when there is a change in prices, the data on the products supplied, such as their price, sales volume and brand, as is already done with automotive fuels. This could favor better decision-making by shipping companies and consignees and provide an accessible and open database for authorities and researchers. Operationally, it could be considered to expand the existing platform and favor the reporting of prices by incorporating this obligation in the PCPs of the Port Authorities.

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