Path to sustainability

Decarbonisation and energy transition











European EMAS Regulation



This document has been drawn up taking into consideration the reporting requirements set out by REGULATION (EC) No. 1221/2009 of the European Parliament and of the Council of November 25, 2009 concerning voluntary participation by organisations in a community eco-management and audit scheme (EMAS), and Regulation 2017/1505/EU including the amendments to it as set forth in Decision 2017/2285/EU.

The requirements referred to in Commission Regulation (EU) 2018/2026 of December 19, 2018 amending Annex IV to Regulation (EC) No 1221/2009 of the European Parliament and of the Council concerning voluntary participation by organisations in a community eco-management and audit scheme (EMAS) have also been included.

Reporting period: the year 2020, including environmental performance indicators for a minimum period of three years where data is available, in accordance with the aforementioned regulation.

Publisher Ecomundis Communication&Sustainability

EMAS **2020**



Foreword

In the early 90's, after a few years developing my passion for meteorology, working and teaching myself about it, I studied Geography. One of my favourite subjects was Port Geography. Now, almost 30 years later, the Port of Barcelona, the busiest port in the Mediterranean, has asked me to write the foreword to this fantastic Environmental Statement about its commitment to European EMAS Regulation.

My memories of the 1970s are of a grey city, undergoing a process of transformation that got underway in the 1960s. The city had just removed the trams, cars were parked all over the footpaths and rubbish trucks dripped foul-smelling, dirty-looking water. Our parents and grandparents took us to the beaches and got the tar off our feet by rubbing it with alcohol. The Port of Barcelona was a dirty place, like the city, and focused on progress at any cost. A port, for most of us, is an unfamiliar "big city". Immense, with frenetic noise and activity 24 hours a day.

I think the Port understood the need to be an example with regard to the environment and sustainability many years ago, long before other industries or facilities. Of course, maritime transport is still at an early stage when it comes to incorporating clean fuels and exemplary operation, but let's not fool ourselves; land transport is also just beginning its race towards efficiency and sustainability.

The fact that the Port of Barcelona and the Port Authority have set a target of decarbonising their activity by more than 50% by the year 2030 is very encouraging news. The electrification of the wharves, the implementation of renewable energies, fleets of electric vehicles, CNG and the care and cleaning of inland waters are all challenges that are already exist. If the Port took this on by itself and without synergies, it would be of little use. The Government of Catalonia, Barcelona City Council, the Spanish Government and the Government of the European Union are also on the path towards this destination. But so are many of the companies operating within the port area, whose actions are a model for other business activities.

We are on the right track with EMAS and, although there is still a long way to go, a strong commitment to the environment, efficiency, sustainability and the fight against climate change are fundamental for the survival of our species and the planet.



Francesc Mauri Geographer, meteorologist and educator.





The Port of Barcelona supports the Sustainable Development Goals



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Introduction



Mercè Conesa
President of the Port of Barcelona

The Port of Barcelona is fully committed to the European Green Deal targets, as fostered by the EU, and the United Nations Sustainable Development Goals. This commitment has been set out in the Fourth Strategic Plan, launched this year, which has set a target of reducing the Port's greenhouse gas emissions by 50% by the year 2030 and 100% by the year 2050.

The main projects we are currently working on are geared towards two major goals: energy transition and the electrification of the wharves. The Strategic Plan states that by 2025, 50% of the wharves for container and vehicle ships, ferries and cruise ships should be electrified through a network of OPS (Onshore Power Supply) connections.

We want the energy supplied to ships and to the different terminals and facilities of the Port to be clean.

That's why we are developing a highly ambitious project to take advantage of all the photovoltaic power generation potential on the roofs and surfaces of the port area. We estimate that we can generate 92MW of peak power and 120 GWh of electricity production per year. And this enormous electrical potential will be managed by an intelligent network, currently being designed, that will allow us to optimise flows and offer the best option in terms of price and efficiency at all times.

These two major projects are advancing in parallel with the others that the Port of Barcelona has been working on in recent years: the promotion of liquefied natural gas (LNG) as a cleaner transition fuel for ships, land transport and terminal machinery.



The Port of Barcelona is fully committed to European Green Deal targets, as fostered by the EU, and United Nations Sustainable Development Goals.

In the field of fuels, the Port of Barcelona is analysing which environmental solutions will become most commonplace in the long term, which is why we are focusing on zero-emission fuels such as hydrogen, ammonia, methanol and biogas.

As new storage systems for cars and trucks, machinery and ships are implemented, hydrogen will become a common 100% clean alternative for the maritime sector and for ports.

We are aware that the success of this transition to a sustainable maritime and logistics industry will depend on how we, the leading and most environmentally committed ports, are able to involve the other ports of the world along with the maritime sector. In this regard, the Port of Barcelona is a member of the World Ports Climate Action Programme (WPCAP), along with some of the most important ports around the world. This programme aims to reduce the emissions generated by port activity. Barcelona participates in the working groups on electrical connections to ships and to developing zero-emission solutions when ships are docked in port.





The Port of Barcelona's European EMAS Registration represents another year of external recognition of the transparent environmental management of our organisation.

José Alberto Carbonell
Director General of the Port of Barcelona

After a tough year for all the agents that operate in the Port of Barcelona due to the health situation, the Barcelona Port Authority continues to perform optimally in terms of its objectives related to economic, social and environmental sustainability.

As a major player in the logistics chain of maritime transport of materials, goods and resources, this new context must not delay the important commitments made in our Sustainability Plan. This is why we continue to work intensively on energy transition and emission reduction projects, among other objectives aligned with the European strategy.

As well as the environmental management of our own facilities and assets, the Port of Barcelona also promotes and supports environmental investments by the terminals, whether to reduce greenhouse gas emissions, improve energy efficiency, generate renewable energy or advance with the electrification of their mobility options.

With this new edition of the Environmental Statement, the aim is to give our **stakeholders** an updated analysis of the environmental context and our impact, as well as our progress and the action we have taken to reduce the environmental impacts associated with port activities.

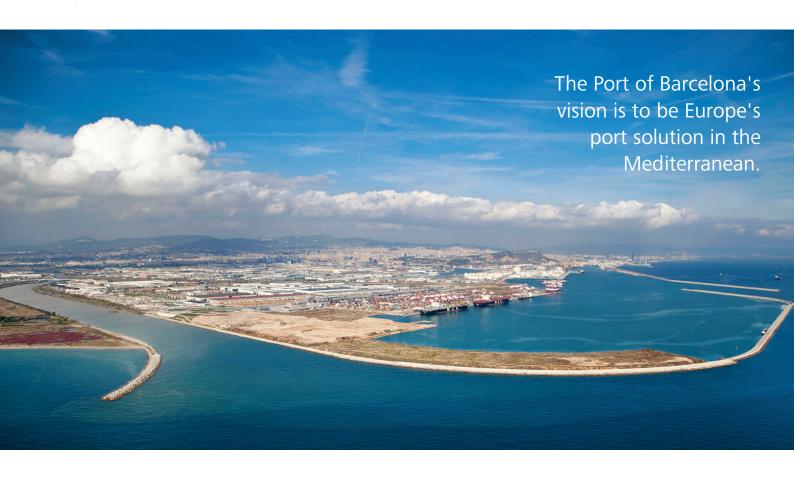
A self-imposed demand for transparency, voluntarily implemented and honoured with European EMAS Registration, clearly reflects the virtues of the entire Barcelona Port Authority team who have continued their exemplary work throughout the pandemic.

We would like to extend our gratitude to the entire Port Community and all the port's workers for their invaluable contributions, and today I would like to invite you to learn more about the results of the Port of Barcelona's environmental management.









Activity and competencies of Barcelona Port Authority

The mission of the Barcelona Port Authority is to lead the development of the Port of Barcelona by means of the construction of facilities and management of the port's public areas, guaranteeing the efficiency of services and activities in order to contribute to the competitiveness of its operators and create value for the community.

As public bodies, Port Authorities fall under the purview of the Ministry of Public Works, via Ports of the State; from the legal point of view, we are governed by specific legislation, mainly by Royal Legislative Decree 2/2011 of September 5, which approved the Consolidated Text of the Law of State Ports and the Merchant Marine (the Ports Law).

Barcelona Port Authority is responsible for the administration, supervision, management and operation of the Port of Barcelona.

Under the "Landlord Port" model, the Port Authorities provide port space and facilities and regulate port operations, but do not provide port or commercial services such as technical-nautical services (pilotage, towing and mooring), cargo handling or passenger services.

In general, these services are provided by private operators, with technical and human resources not belonging to the Port Authority.

The basic functions of the Port Authority are as follows: planning, projection, construction, conservation and operation of port works and services, collaboration with official bodies, coordination of private port companies and management of the port's public domain.



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SURFACE AREA
1042
ha

wharves and berths 25.28 km

STAFF
538
WORKERS
DIRECT

TRAFFIC 50.9 MILLION T

Port Authority functions and competencies

- 1. Manage and supervise port and commercial services
- 2. Provide general port services
- 3. Regulate the port service area and use of the port
- 4. Develop, maintain and operate port facilities
- 5. Manage the port's public domain
- 6. Optimise the economic management and profitability of its assets and resources
- 7. Promote commercial, logistical and, where appropriate, industrial activities related to maritime or port traffic
- 8. Coordinate the operations of the different modes of transport in the port
- 9. Organise and coordinate port traffic, both maritime and on land.

2020

 Traffic type
 Transit units

 TOTAL TONNES MOVED
 50,900,000 t

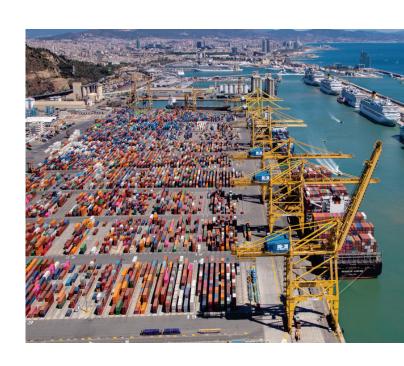
 TOTAL SHIP CALLS:
 6,724

 PASSENGERS:
 858,000

 CARS:
 480,337

 CONTAINERS (TEU):
 2,958,040

 RO-RO TRAFFIC (UTI):
 347,000*



^{*} Trailers, flatbeds, trucks, vans...



Commitment to sustainability

Environmental Policy

The Barcelona Port Authority (APB in the Spanish acronym) is conscious of the environmental impact of the Port of Barcelona's activities, and therefore contributes to sustainable development, environmental protection and pollution prevention, aiming to minimise all port operations' impact on air, water and soil quality, as well as optimising resource use.

The port's activities and services include management of the port's public domain, maritime transport activities, infrastructure projects and their maintenance, as well as management and supervision of port and commercial services related to the port's maritime, land and rail transport of goods.

To minimise the effects of environmental impacts our commitment includes:

- **1.** Have a suitable environmental management programme that guides and improves our environmental performance, driving decarbonisation in order to address climate change, energy transition, circular economy and biodiversity protection.
- 2. Stay informed about and in compliance with current environmental legislation and other environmental requirements we are signed up to.
- **3.** Work to prevent environmental accidents and maintain a high level of preparedness in order to reduce the effects of any incidents or accidents that may occur.
- **4.** Use resources as efficiently as possible by reducing non-renewable resources, energy consumption, CO2 emissions and other emissions of pollutants such as particulate matter.
- 5. Influence, accept requests from and cooperate with clients, suppliers, authorities and other stakeholders so that they comply with our environmental policy, and communicate effectively with the local community and relevant organisations regarding their environmental programmes.

- **6.** Purchase products and services which minimise negative environmental impacts during the production, use and destruction thereof.
- **7.** Provide all employees with training on environmental issues so that they consider themselves active agents of environmental protection and sustainability in their day-to-day work.
- **8.** Ensure that the necessary resources are dedicated to meet these objectives and maintain our environmental management system and its certification.
- **9.** Make validated information about these areas available to stakeholders by publishing an annual environmental statement.
- **10.** Ensure all our actions are carried out within the framework of the Port's Strategic Plan and the Sustainable Development Goals of Agenda 2030.

Signed and dated

April 2021 Revision

BARCELONA PORT AUTHORITY

José Alberto Carbonell Director General



Background

The Port Authority had a Strategic Plan for the 2016-2020 period and this year we published the new plan for 2021-2025. These plans analyse the business context and environment of the organisation, and set out specific lines of action that will serve as guidelines for all departments.

The Port Community also has a Sustainability Plan that analyses the business context and relationship with stakeholders. Based on these analyses, the Port has reviewed the business context for the purpose of analysing its environmental impacts under the Port of Barcelona Management System.

Stakeholders

The Port of Barcelona's sustainable action is developed based on its stakeholders' concept of the environment. That is to say, proactively with respect to the needs and expectations of the groups who have an interest in this area.

The main stakeholders have been grouped into five levels in order to facilitate a more detailed analysis of their needs and expectations.

In this way, we can forge the best possible relationships and determine which communication channels are most appropriate in each case.

- 1 LEVEL ONE
 PORT AUTHORITY WORKERS AND EMPLOYEES
- 2 COMPANIES IN THE PORT COMMUNITY (CONCESSIONAIRES, SERVICE PROVIDERS, SHIPOWNERS AND SHIPPERS, ETC.)
- B LEVEL THREE FREIGHT TRANSPORT OPERATORS AND CLIENTS
- LEVEL FOUR
 PUBLIC BODIES AND ADMINISTRATIONS
- 5 LEVEL FIVE

 BARCELONA CITY
 EL PRAT DE LLOBREGAT CITY







Environmental management

The Port of Barcelona's commitment to sustainable development is shared by all the workers that make up the organisation. All areas and departments of the APB participate directly or indirectly in environmental management.

Organisation and scope



Team and functions

The Department of Environment is part of the General Sub-Directorate of Port Operations and Planning, and is headed by the person directly in charge of the Environment and the Environmental Management System (EMS).

However, this system is transversal and interacts with the functions of various departments.

As an example, the following managers and operations are also involved in environmental action:

- Facility construction
- Dredging operations
- Maritime operations
- Terminals and concessions
- Cargo Handling
- Vehicle traffic management
- Wharf Operations
- Strategic planning
- Suppliers and subcontractors
- Quality management
- Emergency plan
- Waste management
- Human Resources
- Information technology
- Research and development
- Innovation
- Internal and external communication
- Port services













The team

Department of Environment

Scope of the EMS

The scope of the system includes all the facilities and activities undertaken by the Barcelona Port Authority in the performance of its functions related to the facilitation and organisation of the passage of goods through the port by maritime, rail and road transport.

Specifically, the activities that fall within the scope of the EMS include management of the port's public domain, construction and maintenance of infrastructure, and management and supervision of port and commercial services related to the transport of goods.

The port-city area of Port Vell is not included in its scope. The sports area and other facilities in the commercial and logistics area not directly related to port activity are not included. Barcelona and Girona coastal lighthouses, which fall under the purview of the APB, are not included within the scope of the system either.

CNAE 52.22 Activities incidental to maritime and inland waterway transportation NACE Rev.2 (52.22)

The Port of Barcelona's environmental management complies with current legislation, with **ISO Standard 14.001:2015** and with **EMAS Regulation**¹, as well as with the industry standard **Port Environmental Review System (PERS)** developed by the European Sea Ports Organisation (ESPO).

Information and monitoring

The EMS is documented using manuals, procedures and monitored records, as well as plans and programmes.

- Environmental objectives programme
- Environmental training plan
- Internal and external environmental communication plan
- Environment emergency plan
- Environmental audit plan

Scope of certification/validation:

Management of the port's public domain, maritime transport activities, construction and maintenance of facilities, as well as the management and supervision of port and commercial services related to maritime, land and rail freight transport in the port.

¹ REGULATION (EC) No. 1221/2009 of the European Parliament and of the Council of November 25, 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), Regulation (EU) 2017/1505, as well as its amendments as dictated by Decision 2017/2285/EU and Regulation 2018/2026/EU.



Activities and procedures

CONSTRUCTION OF FACILITIES

New building, maritime, land and dredging projects; the carrying out and environmental monitoring of construction works; soil decontamination projects..

MAINTENANCE AND UPKEEP OF INFRASTRUCTURE AND FACILITIES

Infrastructure maintenance and upkeep; waste collection and street cleaning services for public and common areas; water surface cleaning; gardening and maintenance of green areas; workshop waste management; water, electricity and fuel consumption; consumption of office materials and other goods and services; vehicle fleet management; management of the port sanitation network.

SHIPS AND MARITIME NAVIGATION

Regulation of maritime operations; regulation of nautical port services; atmospheric emissions; ballast water discharge; accidental spillages; vessel repairs.

MANAGEMENT OF THE PORT'S PUBLIC DOMAIN: TERMINALS AND CONCESSIONS

Land use planning; third party occupancy authorisations; authorisation of cargo handling activities; regulation of port services; emergency plans for terminals.

ADMINISTRATIVE MANAGEMENT

Waste generation; consumption of electricity, water and office consumables.

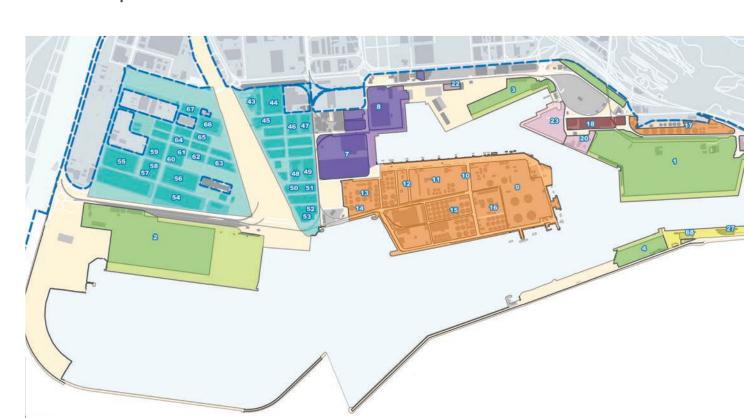
LAND AND RAIL TRANSPORTATION

Activity regulation; atmospheric emissions; accident rate.

ENVIRONMENTAL MANAGEMENT

Monitoring and improvement of the environmental management system of the Port of Barcelona: Monitoring of water and air quality in the port environment. Prevention and remediation of soil contamination. Prevention of accidental contamination due to spills of hydrocarbons or other chemical substances into port waters. Protection of the port environment from third party actions.

Schematic map of the Port of Barcelona











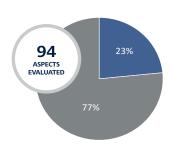


Impact analysis and evolution

Analysis methodology

Every year the Port of Barcelona identifies the direct and indirect aspects and impacts of port activity that falls within the scope of the system, for normal, abnormal and emergency conditions.

Environmental aspects



Average impact:

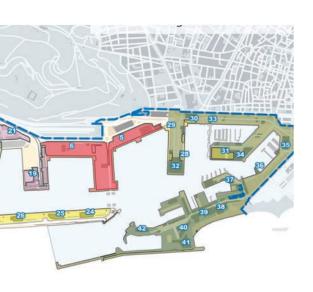
■ Direct ■ Indirect UI: 4.5 ui UI: 12.4 ui

The significance rating of each direct and indirect aspect is determined by taking into account four analysis criteria:

- Frequency of occurrence (F)
- Magnitude or quantity (M)
- Level of impact on the environment and surroundings (G)
- The Port Authority's capacity to control or influence in the prevention or reduction of the environmental impact generated by the aspect (C)

The final rating of each element (**UI: Units of Impact**) is calculated as the product of the score assigned for each criterion ($F \times M \times G \times C$), and significant aspects are defined as those whose rating is higher than the average of all the aspects.

In 2020, the most significant direct environmental aspects were those associated with the APB's consumption. However, **the environmental aspects with the greatest impact are those which are indirectly associated with port activity** in terms of atmospheric pollution, port waste and wastewater generation and, as well as materials and energy consumption.









Significant direct environmental aspects under normal operating conditions.

CONSUMPTION

Consumption of network water in communal areas

Electricity consumption in offices and communal areas

Consumption of non-renewable resources

Fuel consumption by Port vehicles and vessels

Consumption of non-renewable resources

ATMOSPHERIC EMISSIONS

Emissions of the Port's fleet of vehicles and ships

Atmospheric pollution

CLIMATE CHANGE

GHG emissions from fuel and electricity consumption Global warming

Significant indirect environmental aspects under normal operating conditions.

WASTE

Ships dumping solid waste (Marpol V)

Discharge of oily water from ships (Marpol I) and of contaminated water from tanks (Marpol II)

Waste production by terminal and concession workshops

Risk of soil and water contamination

Risk of soil and water contamination

CONSUMPTION

Electricity consumption in terminals

Consumption of non-renewable resources

ATMOSPHERIC EMISSIONS

with bulk solids (terminals and concessions)

Emission of suspended and settleable particulate matter due to earthmoving at construction sites

Damage to health and property

Emission of suspended and settleable particulate matter by vehicles and machinery

Damage to health and property

Gas and particulate emissions from ships and vessels during navigation

Damage to health and property

Emission of combustion gases from vehicles and machinery (concessions)

Damage to health and property

Damage to health and property

Emission of suspended and settleable particulate matter in operations

Damage to health and property

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CLIMATE CHANGE

GHG emissions from vessels

GHG emissions from freight transport by land

Climate Change

GHG emissions from fuel and electricity consumption (terminals and concessions)

Climate Change

BIODIVERSITY

Deposit of hull fouling and ballast water discharge

Risk of introduction of invasive species

Significant indirect environmental aspects under emergency conditions.

PORT WASTEWATER DISCHARGE

Accidental spillages during bunkering operations

Accidental spillages of liquid products from ships during operations

Product or fuel spillages as a result of a maritime accident or fire on a boat

Accidental spillages of liquids or solids on wharves (terminals and concessions)

Risk of damage to ecosystems

Risk of damage to ecosystems

IMPACT ON SOIL

Accidental spillages or tank leaks that contaminate the soil

Risk of soil and water contamination

Environmental incidents

Type	2018	2019	2020
Activation of the environmental emergency plan PIM (Internal Marine Plan)	6	3	7*
Deviations from environmental audits	8	9	2
Legislative non-compliance sanctions	0	0	0
Environmental incidents by type	113	143	149
*ACTIVATIONS OF THE PIM (Internal Marine Plants) ACTIVATIONS OF THE PIM (Internal Marine) ACTIVATIONS OF THE	ns on mooring I		
21/09/2020 - Oil spill into the sea			
25/09/2020 - Fuel spill during fuel supply to vessel.			

Environmental incidents are classified into different categories according to their nature and/or severity, as shown in the table above. The main incident types are:

Contaminating spillages in the maritime service area 22%

Large floating debris in docks17%Liquid spillages on roadways13%Spillage of solids on roadways13%



Environmental planning

The Port of Barcelona has a **2020 Environmental Programme** within the framework of its environmental management system. It establishes objectives and targets for significant aspects, both direct and indirect, as well as for certain important issues detected in the context analysis and in the analysis of risks and opportunities. Progress and degree of compliance is tracked by the Environment Committee.

A decade of improvements in environmental matters

The graph below shows some of the main milestones reached by the APB in environmental and sustainability matters.

Sustainability plans and programmes

It should be noted that the Port of Barcelona has other specific plans geared towards pollution control and improving the environment.

- Water quality monitoring programme
- Air Quality Improvement Plan (2016-2020)
- Internal Marine Plan for spillage containment
- Emergency and Self-Protection Plans
- Ship waste reception plan
- Environmental Communication Plan

The following sections show the main actions and results of some of these plans.

2011. Automatic atmospheric NO2

monitoring station at ZAL.

Environmental milestones

1995 - 2000	2001 - 2010	2011	2012	2013	2014		
1996. First meteorological station.	2001. Commissioning of the new port	1	2012. Adherence to VOLUNTARY				
1997. Incorporation of equipment to	sewage system, with 36 km of collectors and sixteen pumping stations.	1	AGREEMENTS				
combat marine pollution caused by accidental spillages.	2001. As part of the introduction of			nentation of boni or good environn			
1998. Initiation of monitoring of benthic populations as bio-indicators.	the peregrine falcon to Barcelona, a reintroduction point was installed at the Contradique Wharf.	 	practices.				
2000. Mobile automatic air quality control unit.	2003. Opening of the new entrance channel	2014. Port of Barcelona commitment					
	2003. The Llobregat WWTP begins operation.		agreement to promote natural gas as a cleaner alternative fuel.				
	2004. Procedures for warnings and action to be taken by the control centre in the event of environmental incidents.		2014. Attainr certification a	•			
	2005. Automatic atmospheric SO2 monitoring station at Section VI.						
	2005. First Internal Contingency Plan for marine pollution.						
	2008. First inventory of pollutant gas and particulate matter emissions.						

2010. Start of port water quality monitoring in compliance with the

Directive.













2015 2016 2017 2018

2016. Completion of the Environmental Noise Map.

2016. Adouin's gull breeding colony at the Adosado wharf.

2016. Implementation of port monitoring of ship waste collection service (MARPOL).

2017. First supply of gas in Spain to a passenger ferry for its auxiliary engine.

2017. Pilot test of electrical connection to a docked ship from a generator with a natural gas engine on the wharf.

2017. Attainment of PERS certification.

2018. First supply of gas to a Balearia ferry powered by natural gas.

2018. Inauguration of a gas station for the supply of natural gas to trucks and vehicles

2018. First environmental communication plan.

2018. Completion of soil remediation works at the Contradique wharf.

2019

First LNG supply by barge to the AIDA NOVA cruise ship in the Mediterranean, on a continuous fortnightly basis.

APB agreement for the port wharf electrification project. Request of high voltage electrical connection from Red Eléctrica de España (Spain Electricity Network) in order to be able to supply electricity to ships.

European EMAS Award in the Medium-Large Public Company category.

First natural gas-powered ferry HYPATIA ALEJANDRIA (BALEARIA), and first to use batteries while in port (GRIMALDI)

2020

First experiences with the creation of shared energy consumption communities using photovoltaic generation.

Approval by the Government of Catalonia of our own ship emissions inventory methodology.

Creation of a database of contaminated soil in the port area.





The 10 environmental priorities of European ports (ESPO, 2020).



Building on a long tradition dating back to 1996, ESPO (The European Sea Ports Organisation) and EcoPorts regularly monitor the main environmental priorities of European port authorities. This data is important as it identifies the highest priority environmental issues that ports are working on and sets the framework for ESPO's quidance and the initiatives they implement.

2020

C: 0%

Review of the programme of objectives

1. THE PATH TOWARDS ENERGY TRANSITION

Improve energy efficiency in APB by 30% by 2030 compared to 2008 and install 50MWp of photovoltaic energy in the port.

• Improve energy efficiency by 5% in 2020.

• Complete the remaining 10% of the "Project for new lighting with LED technology in the APB-WTC offices". Reduce by 30% overall electricity consumption by PC power supply (plugs) and E27, E28, E33, E34, E35, E39 and E45 lighting

C: 100%

Improve lighting next to the truck parking lot and Llobregat lighthouse (P43).

Reduce P43 lighting consumption by 10% this first year

• Electrical efficiency improvements and installation of photovoltaic panels in PIF building.

Reduce electricity consumption at the PIF by 25%.

Objective postponed

• Shared consumption model in the port area in 2020.

2. RESPONSE TO THE CLIMATE EMERGENCY

Reduce GHG emissions by more than 50% by 2030 compared to 2008.

• Inventory of GHG emissions from port activities. Partially achieved

3. IMPROVEMENT OF AIR QUALITY IN THE PORT ENVIRONMENT

Reduce NOx emissions by more than 50% by 2030 compared to 2008.

• Update the Port Air Quality Improvement Plan in 2020. C: 75%

• Promote LNG as a mobility fuel. Partially achieved

Completion of natural gas powered straddle carrier pilot projects

C: 80%

4. IMPROVE RESPONSE TO ACCIDENTAL SPILLAGES AT SEA

Incorporation of new means of response in the Prat dock and external waters.
 Improve operational response
 C: 30%

• Update PIM C: 75%

5. COMMUNICATE MORE

• New initiatives to encourage internal participation in 2020. Objective postponed

• Update materials and content for external communication. C: 25%

EMAS **2020**











Programme of objectives

2021-2024

1. THE PATH TOWARDS ENERGY TRANSITION

Improve energy efficiency at APB by 30% by 2030 compared to 2008 and have 50MWp of photovoltaic energy installed at the port.

• Improve energy efficiency by 5% in 2021.

Remodelling of the ASTA building (2021-2024)

Street lighting adaptation and improvements pending in (2021-2024)

Improvements in electrical efficiency and installation of photovoltaic panels in the PIF building.

Reduce electricity consumption at PIF by 25%. (2021-2022)

• Promote the installation of renewables on concession roofs.

Obligation in concession contracts for self-consumption and pooling of roof use (2021)

Targeted environmental bonuses (2021)

• Shared consumption model in the port area.

Development of shared consumption model in the port area (2021-2022)

Implementation of a self-consumption energy system at Moll Pescadors. (2021-2022)

2. RESPONSE TO THE CLIMATE EMERGENCY

Reduce GHG emissions by more than 50% by 2030 compared to 2008.

· Promotion of new clean fuels.

Development of a project aimed at stimulating demand for H₂ in port transport (2021)

· Inventory of GHG emissions from port activity.

Inventory of ship emissions (2021-2022)

Inventory of emissions from concessions and onshore activities (2021-2022)

3. IMPROVEMENT OF AIR QUALITY IN THE PORT ENVIRONS

Reduce NOx emissions by more than 50% by 2030 compared to 2008.

• Update Port Air Quality Improvement Plan in 2021.

Replace vehicles with hybrid or gas/gasoline units (2021)

APB Staff Mobility Plan (2021)

· Ship electrification plan.

Develop pilot projects at Ferry Terminal and BEST (2021-2023)

• Promotion of LNG as a mobility fuel.

Completion of natural gas-powered straddle carrier pilot projects (2021)

4. IMPROVEMENT OF PORT WATER QUALITY

Create a high quality 2025 monitoring plan.

• Improve response to accidental spillages into the sea.

Incorporation of new means of response in the Prat dock and external waters. (2021)

· Water quality management system.

Implementation of ROM 5.1 (2021-2022)

5. COMMUNICATE MORE

- New initiatives to encourage internal participation in 2021.
- Updating of materials and content for external communication.





The 2030 Agenda for Sustainable Development represents a global commitment to address the social, economic and environmental challenges of globalisation, putting people, the planet, prosperity and peace at the heart thereof, under the motto: "leave no one behind".

The Agenda aims to advance towards a society with inclusive economic growth and greater social cohesion and justice, in peace and with a sustainable environment on the horizon. It sets out seventeen strategic objectives with specific targets to be achieved by 2030.

Agenda 2030

Ports of the State and the stateowned port system as a whole are committed to contributing to the achievement of these objectives, within their scope of activities and competencies, through the initiatives outlined below. In this Environmental Statement, as well as in its Sectoral Sustainability Plan, the Barcelona Port Authority identifies and details the Sustainable Development Goals it complies with and for which it is developing monitoring and improvement actions.







Optimise the management and use of water in the ports.

Modernise and improve the level of monitoring of the port water distribution network to optimise the management thereof and minimise consumption.



Improve energy efficiency and boost the use of renewable energies.

Reduce energy consumption in Port Authority facilities and consumption involved in port companies' activities, and provide incentives for renewable generation initiatives when technically and economically feasible.



Promote rail transport to and from ports.

Optimise land transport to and from ports, enabling and promoting the use of railroads as a more efficient alternative to road transport.



Improve the mobility of heavy vehicles in the port area.

Reduce PM10, NOx and SOx emissions related to truck traffic through urban areas and while waiting at port access points, caused by the trucks circulating and staying in the port and its environs.

Monitor diffuse emissions in the handling of bulk solids and liquids.

Reduce atmospheric emissions generated by the handling and storage of bulk solids and liquids in port facilities.

Promote alternative energies in transport.

Reduce emissions of CO2, PM10, SOx and NOx from ships en route or at berth by opening a facility to provide alternative fuels, with special emphasis on the use of Liquefied Natural Gas in maritime transport and port services, as well as the use of electrical connections to ships in port.



Recovery of construction waste from port landfills.

Encourage usage of construction and demolition waste from port landfills in those cases where it is technically feasible.

Improve waste traceability and the extent of waste assessment.

Ensure proper waste management in ports and improve the percentage of waste that goes through a recovery process.



Optimise the response to marine pollution emergencies.

Implement an early and effective response to potential marine pollution emergencies that occur in the port's service area, minimising the impact of such events on the natural environment and on port operations.

Contribute to the improvement of water and sediment quality in the ports.

Reduce water and sediment pollution in the docks due to diffuse discharges from port operations and channelled discharges from facilities.

Contribute to the prevention of waste dumping by ships at sea.

Contribute to the reduction of waste dumping by ships at sea by encouraging the delivery of MARPOL waste to port.







Environmental performance and monitoring

The analysis of the performance and evolution of the environmental behaviour of the Barcelona Port Authority considers the total surface area of the port and its staff. However, as a whole, this environmental performance is directly related to the increase in port activity, whether due to an increase in goods traffic or to expansions and works in progress.







Natural resources

The following sections show the basic environmental indicators related to resource consumption, and their most significant direct and indirect environmental aspects.

Furthermore, the commitment of the Port of Barcelona also extends to knowledge, monitoring and tracking of the other impacts and aspects of port activity that may affect the environment and the port environs. The important analysis of aspects associated with the circular economy in the Port's logistics chain means that subsequent statements will also take into account information relating to tonnage and resources moved, thanks to data provided by maritime traffic control and also by the port's own terminals and concessions.









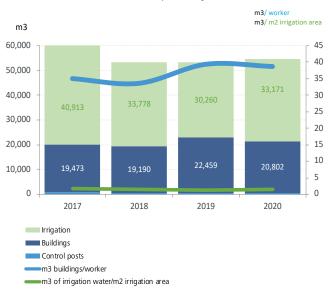


Water consumption

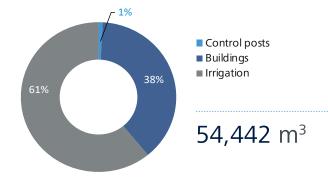
The Port of Barcelona's water supply comes from the public companies Aigües de Barcelona and Aigües del Prat.

The highest recorded consumption* was for gardening and irrigation of green areas, which used 33,171 m³, corresponding to 61% of total consumption in 2020.

Evolution of water consumption by use



Consumption rates	2017	2018	2019	2020
m³ of water buildings/ worker.	35.0	33.6	39.3	38.7
m³ of irrigation water/m²	1.7	1.4	1.3	1.4



In 2020, water consumption for irrigation increased compared to the previous year. The variability in this category of consumption is influenced by the climatology and rainfall data of the year in question. The reduction in water consumption in offices is associated with the restrictions on staff access to facilities due to the COVID-19 pandemic and the increase in remote working.

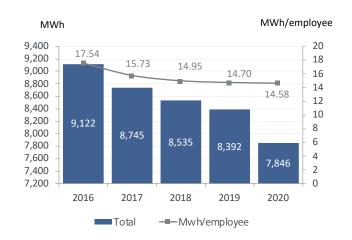
In order to reduce the use of water for irrigation, APB applies the following criteria:

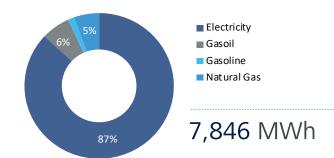
- Prioritisation of native ornamental and xerophytic plant species, which take root easily and have low irrigation requirements.
- Drip irrigation systems for trees and shrubs.
- Drought tolerant grass species with low irrigation requirements.
- Irrigation systems with partial meters, and progressive implementation of remote control to detect leaks by setting maximum flow thresholds per time period.

Energy consumption

The main area of energy consumption of the Barcelona Port Authority is the supply of electricity to buildings and lighting the roads and facilities, followed by the consumption of diesel fuel, natural gas and gasoline.

Evolution of energy consumption





The following sections present detailed data for different energy sources, as well as some of the actions that have contributed to the reduction of the Port of Barcelona's energy consumption.

In 2020, the data for all the years of analysis of thermal energy consumption by the Barcelona Port Authority offices in the WTCB building has been included.



Electricity consumption

Electricity consumption for the lighting of public roads and common areas of the port area, as well as for lighting, equipment power supply and air conditioning for buildings, falls under the scope of the Port Authority's Environmental Management System.

In 2020, total electricity consumption decreased by 7%, mainly due to the reduced activity and lower occupancy of buildings because of the COVID-19 pandemic lockdown. Consumption for outdoor lighting was maintained, with a slight increase due to the opening of new illuminated areas.

In order to meet this objective of progressively reducing electricity consumption, APB applies the following criteria

- Modernisation of the public lighting network.
- Change luminaires with continuous consumption, or that are used for more than ten hours a day, to LED technology.
- Incorporation of measures and actions to increase the energy efficiency of air conditioning in buildings.

Fuel consumption

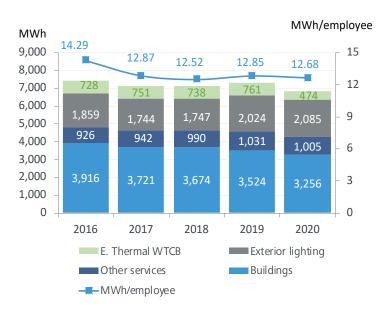
There is a single tally of natural gas consumption for both heating and DHW in the ASTA building, which increased by 9% in 2020. Given that this year was not particularly cold, the increase in gas consumption was likely influenced by users' higher DHW use.

Also noteworthy is a 14% reduction in diesel consumption. This reduction will continue as the electric vehicle fleet is used more.

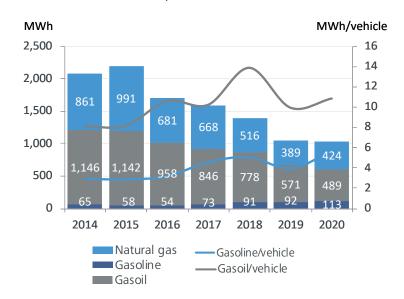
The APB's fuel consumption is mainly in its fleet of vehicles (port police cars and motorcycles, inspection vehicles, assigned vehicles, vans and maintenance trucks, and two of its own vessels). Diesel consumption (not used in transport) is becoming increasingly less significant as it is used to run temporary electric generators which are progressively being replaced by electrical connections.

Since January 2017, 100% of the energy supplied to APB and its investees (WTCB, Cilsa, Port Vell) is of renewable origin.

Evolution of electricity consumption according to use



Evolution of fuel consumption



Consumption rates	2015	2016	2017	2018	2019	2020		
MWh diesel / vehicle	8.2	10.6	10.2	13.8*	10.0	10.8		
MWh gasoline / vehicle	2.9	3.2	4.6	5.1	3.9	5.6		
* increase due to the replacement of diesel vehicles with electric vehicles								











Electric mobility

Of the Port Authority's total fleet of almost 100 vehicles, 41 are electric.

- 17 passenger cars for the shared vehicle pool
- 9 maintenance service vans
- 2 electric cars for specific services
- 2 assigned electric cars
- 3 assigned plug-in hybrid passenger cars
- 8 Port Police electric motorcycles

In 2021, six of the eight electric motorcycles in use will be replaced with new electric motorcycles.

To supply energy to the new fleet vehicles, the Port of Barcelona has installed 44 recharging points for its own use at various points in its facilities. 28 of them are in the parking lot of the World Trade Center Barcelona building, where the Port's corporate headquarters are located, fourteen have been installed in the ASTA services building (Ronda del Port) and two additional chargers for Port Police motorcycles are at l'Estació Marítima de Drassanes (Moll de Barcelona).

In addition, three new charging points have been installed for public use: two slow charging points at the Moll de l'Energia and the other at the maritime station. These points are part of the **Charging points for electric vehicles installation plan**, which aims to have a total of 27 points distributed throughout the port area by 2022.





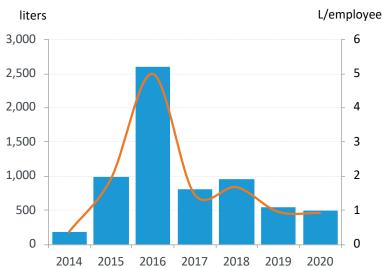
Consumption of other materials

Workshop products and materials

The empty containers of some of the products used in the workshop constitute hazardous waste, such as paint, enamel, turpentine, solvents, sprays, lubricant, grease, drill oil, degreaser and drain cleaner.

The use of these products and materials depends to a large extent on the number of necessary maintenance activities carried out, which means that their consumption varies depending on the maintenance and repair requirements of each year.

Consumption of hazardous materials





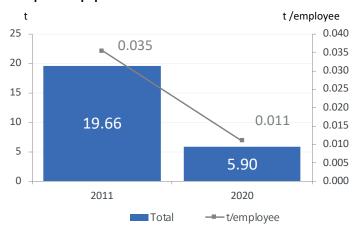
Paper consumption

In 2009, the APB launched the "Green Office" initiative, a programme of actions to reduce environmental impacts caused by office activities.

The project consisted of the preparation of a **Guide to Best Practices** by a group of employees who voluntarily dedicated their time and effort to compile a set of initiatives, proposals and recommendations for reducing the use of office consumables and adopting a responsible consumption model.

In 2020, paper consumption (in tonnes of paper purchased) was 5.90 t, a reduction of 37% from 2020, largely due to the implementation of remote working due to the pandemic.

Consumption of paper



Improvement of water quality



Port Sanitation Network

Port water cleaning services

Water quality tracking

Sediment quality tracking

Monitoring of operations that represent a risk to water quality

In terms of the environment, improving port water quality is one of the ports' main concerns.

In general, port waters usually receive wastewater discharge from nearby urban and industrial areas and also discharge from the port's own facilities.

In Barcelona, the development of the city port (Port Vell) has led to increased demands to improve the appearance and water quality of the docks.

Port Sanitation Network

One of the main actions aimed at improving port water quality was the construction of the port's new sewage treatment network, with a total length of more than 30 km of collectors and sixteen pumping stations.

The network collects wastewater generated by activities within the port's service area and connects through fourteen points to the metropolitan interceptor sewer which carries it to the Llobregat and Besós **treatment stations**. The network is remotely managed through thermal and hydrocarbon sensors, water level buoys in the pumping stations, and pump actuators.









City Sanitation Network

Another factor in the improvement of port water quality has been the progressive reduction of discharge from the city of Barcelona's unified sanitation system during rainy periods.

Organic matter going into the docks due to discharge from the city's sewage system has decreased by 75% since 1995, thanks to containment and flood control measures and the connections between sewage basins that the city has implemented over the years.

Port water cleaning services

The Port of Barcelona uses specialised vessels to **collect** and remove floating waste from the water surface every day of the year during daylight hours.

As a consequence of Storm Gloria in 2020, a large amount of floating debris was collected, mainly reeds and plant debris, which resulted in 96 extra tonnes of waste, in addition to the usual amount collected as shown in the graph.



Monitoring of marine environment quality: water quality

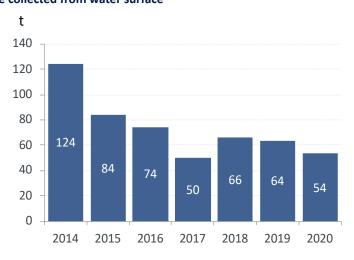
During 2020, the Port of Barcelona continued to monitor port water quality in collaboration with the Catalan Water Agency, in compliance with the Water Framework Directive. This monitoring is part of the Catalonia Monitoring Plan for Coastal Water Bodies.

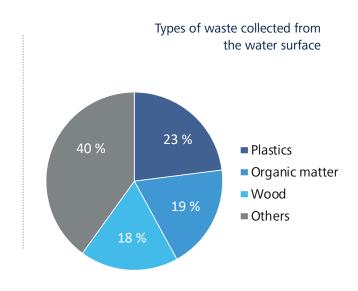
The Port of Barcelona is in charge of tracking the quality of the marine environment through periodic water and sediment sampling campaigns inside and outside the port, during which the main pollutants such as heavy metals, organic compounds (PCB's, polyaromatic hydrocarbons, organochlorine, pesticides and others) are analysed.

A summary of the measurement of physico-chemical parameters and the main pollutants in internal and external waters from 2017 to 2020 are shown in the table on the next page.

The main pollutants found are those derived from nautical-port activity and urban anthropic pressure, and some of these factors are outside the scope of port management. In general, a stabilisation or improvement in water quality is evident in spite of the increase in port operations and ships in recent years.

Waste collected from water surface







Physico-chemical parameters	2017		2018		2019		2020	
	External Waters Zone II	Internal Waters	External Waters Zone III	Internal Waters	External Waters Zone III	Internal Waters	External Waters Zone III	Internal Waters
Temperature (°C)	22.67	22.45	20.31	20.29	17.88	17.86	18.22	18.53
Salinity (PSU)	37.710	37.701	37.819	37.776	38.076	38.040	37.743	37.619
Turbidity (FTU)	1.20	4.04	1.08	6.45	0.65	2.74	1.30	4.02
Density (kg/m3)	1,026.19	1,026.11	1,026.765	1,025.473	1,027.762	1,027.764	1,027.243	1,027.090
Chlorophyll (µg/l)	0.37	1.67	0.68	1.08	1.00	2.13	1.21	2.01
SPM (mg/l)	-	3.15	-	-	2.08	7.12	0.83	3.6
Average Dissolved oxygen (mg/l)	6.0	5.6	6.4	5.9	5.6	5.6	4.8	4.6
Average OX saturation (% saturation)	107.4	98.9	87.9	81.3	80.4	78.5	82.4	80.9

Nutrient concentration	20	17	20	18	20	19	20	20
Inorganic nitrogen NO3 (µmol/litre)	0.94	2.38	1.92	2.34	1.00	2.06	0.80	1.56
Inorganic nitrogen NO2 (µmol/litre)	-	-	-	-	0.19	0.30	0.16	0.27
Inorganic phosphorus (µmol/litre)	0.53	0.99	0.07	0.32	0.09	0.31	0.05	0.17
Inorganic silicon (µmol/litre)	0.37	0.57	1.23	2.11	0.61	1.32	0.88	1.82
Ammonium	-	-	-	-	0.66	2.67	0.34	1.47

Pollutants	2018		2019		20	20
Benzo(a)pyrene (µg/l)	0.0001	0.0003	0.0001	0.0002	0.0006	0.0006
Sum of the sixteen PAHs (EPA) (µg/l)	0.0198	0.0146	0.0081	0.0164	0.0058	0.0147
Cybutryne (µg/l)	0.0005	0.0005	0.0005	0.0010	0.0005	0.0005
Zn (μg/l)	17.30	17.87	2.40	3.33	8.33	5.29
Cd (µg/l)	0.675	0.681	0.036	0.038	0.025	0.027
Ni (μg/l)	2.10	2.29	0.50	0.59	0.50	0.50
Hg (μg/l)	0.005	0.005	0.005	0.005	0.005	0.007

Monitoring of marine environment quality: sediment quality

The port seabed receives and accumulates part of the waste resulting from port activity and from nearby industrial and urban areas, in addition to being a reservoir of historical pollution from activities carried out in the past.

The mesotrophic conditions typical of the port, which limit the concentration of dissolved oxygen near the seabed, make it easier to reduce environments that cause the release of metals and organic pollutants from their own sediments in dynamic equilibrium with the water column.











In general, the environmental conditions of the sediments have remained stable or have improved during the last few years, just like the water, although the historical build-up in the oldest area of the port is still evident.

In the case of dredging of port bottoms to maintain or increase draughts or to carry out maritime works, great care is taken when characterising the sediments to be removed so that they are suitably relocated in accordance with the guidelines for the characterisation of dredging materials published by the Ministry of Public Works and Transport.

All works involving dredging of the seabed are subject to strict, independent environmental oversight to ensure proper management of the dredged sediments in line with their degree of contamination.

Monitoring of marine environment quality: Bioindicators

Benthic communities, or the groups of living beings that inhabit seabed sediment, are used as indicators of the health and environmental quality of the sediment, as these organisms accumulate a kind of history of what's happened in the sediment where they live.

The composition and structure of the communities present in Port waters are also affected by environmental pollution.

Tracking of benthic communities has been conducted since 1998 and the results show an improvement in water and sediment quality in the Port of Barcelona.

The attached table shows measurements of the main parameters that define the composition of the benthic communities at the port's internal and external stations over the last few years.



Benthic communities	20	2018		2019		2020	
	External Waters Zone III	Internal Waters	External Waters Zone III	Internal Waters	External Waters Zone III	Internal Waters	
Richness (Taxons/800cm2)	58	49	43	46	59	39	
Abundance (Individuals/800cm2)	235	583	170	302	210	222	
Shannon Diversity (H')	3.6	2.374	3.1	2.754	3.5	2.78	

Monitoring of operations that represent a risk to water quality

The APB gives instructions that regulate the Application and Approval Procedure for minor painting works on external structures of ships, hull cleaning and other routine maintenance and upkeep operations. This procedure sets out the conditions necessary for authorisation, in order to minimise the risk of accidental spillage of paints and other products into port docks. Such works are limited on wharves with higher vulnerability to pollution than others.

Adequate prevention and response measures, as well as immediate warning procedures to be complied with by operators in the event of an incident, have been introduced in the regulations for port services relating to the reception of ship waste and the supply of bunker fuel to ships, which are activities with a high risk of accidental oil spills.



Improvement of air quality



The Port of Barcelona Air Quality Improvement Plan

Immission monitoring stations

Emissions from port activity

Actions to improve the atmospheric environment

Air quality indicators

Monitoring, evaluation and actions to improve air quality in the port environment are priority activities for the Barcelona Port Authority.

The Port of Barcelona Air Quality Improvement Plan

Since 2016, the Port Authority has been implementing the Air Quality Improvement Plan in its environs, which includes various actions aimed at reducing emissions of polluting gases and suspended particulate matter.

This plan, which was approved by the Board of Directors at its July 2016 meeting, includes a total of 53 concrete and specific actions, grouped into nine lines of action:

- Ship emissions.
- Road traffic emissions.
- Terminal machinery emissions (offroad vehicles).
- Promotion of rail transport and Short Sea Shipping.
- Emissions from the handling of bulk solids.
- New road and rail access.
- Emissions from port works.
- Sustainable mobility for all companies located in the port.
- Adjustment and updating of the Port's air quality monitoring networks.

For each of these lines of action, concrete and feasible actions have been proposed, to be implemented in three phases: immediately, short term and medium term.



In 2020, the plan continued to be updated and kept alive, by incorporating increasingly effective actions to reduce emissions.

The main action taken under the plan has been the electrification of the main docks so that ships can be connected during their stopover in Barcelona, thus avoiding the emissions from their auxiliary engines. Electrification is also planned for the cruise ship, ferry, container ship and car-carrier berths, and the power required is estimated at 78 MW. The electrical power will come from the 220kV high voltage network.













Immission monitoring stations

For air quality monitoring in the port environment, the APB has a network of meteorological stations and a network of pollution monitoring stations with PM_{10} particulate matter samplers (suspended particles less than 10µm in diameter) and PM_2 , as well as automatic analysers to measure gaseous pollutants in the air.

The Port's meteorological network consists of a total of seven stations equipped with wind speed and direction sensors; three of them are also equipped with rain, temperature and relative humidity, atmospheric pressure and solar radiation sensors.

The Port's network of sequential high volume samplers (HVS) consists of eight units: five samplers that collect samples of PM₁₀ suspended particles and three PM_{2.5} samplers. The PM₁₀ particle sampler at the station located in Port Vell is part of the Government of Catalonia's Air Pollution Monitoring and Forecasting network, and as such its immission values are official. The rest of the stations give reference values, for indicative measurements.



The Port of Barcelona also has three automatic stations that measure the concentration of gas pollutants in ambient air, such as nitrogen oxides and sulfur dioxide..

In the *Unitat Mòbil* station, a BTX (Benzene, Toluene and Xylene) analyser and an ozone (O₃) analyser have also been installed.



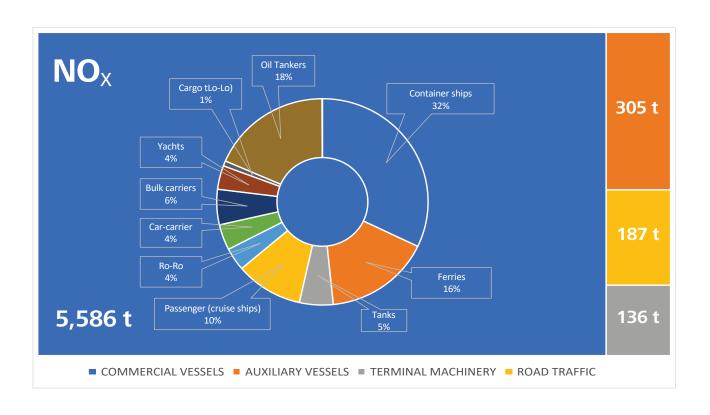


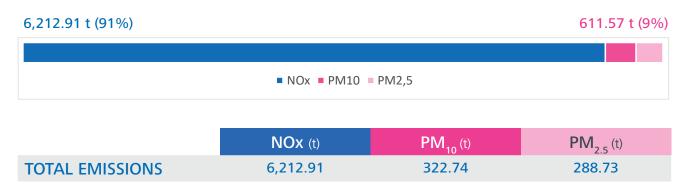
2020 Emissions from Port activity.

Estimates of atmospheric emissions of polluting gases from port activities indicate that emissions from ships are the most significant, accounting for more than 95% of total nitrogen oxide and particulate matter emissions.

Every few years, the APB reviews these estimates and updates them using a calculation methodology that has been agreed with the Barcelona City Council and the Government of Catalonia. Port emissions represent 7.6% of the city's NO_{ν} air pollution and 1.5% of PM_{10} pollution.

Taking as a reference the NO_x , PM_{10} and $PM_{2.5}$ parameters from the inventory of mass emissions in the port in 2020, we observed that the former is the most common (91%). For this reason, the distribution of the main emitting agents for this parameter is shown below.











Commercial boats	NOx (t)	PM ₁₀ (t)	PM _{2.5} (t)
Container ships	1,793.22	101.03	90.17
Ferries	908.04	51.5	45.72
Tankers	287.89	15.93	14.27
Cruise ships	576.69	29.76	26.38
RoRo	199.55	12.49	11.14
Car-carrier	223.98	11.1	9.88
Bulk carriers	309.81	12.45	11.02
Yachts	207.85	7.6	6.13
Cargo ships (LoLo)	45.31	1.96	1.72
Oil tankers	1,030.56	56.92	51.39
Others	3.07	0.29	0.26
TOTAL	5,585.97	300.54	268.08

Auxiliary boats	NOx (t)	PM ₁₀ (t)	PM _{2.5} (t)
Tugboats	235.95	4.51	4.21
Practice vessels	25.51	0.49	0.45
Mooring vessels	3.69	0.07	0.07
Bunker barges	39.69	3.54	3.51
TOTAL	304.84	8.61	8.24

Terminal machinery	NOx (t)	PM ₁₀ (t)	PM _{2.5} (t)
Auxiliary earth machinery	135.52	8.62	8.62
TOTAL	135.52	8.62	8.62

Road traffic	NOx (t)	PM ₁₀ (t)	PM _{2.5} (t)
Passenger cars	8.67	0.56	0.38
Vans (LDV)	4.67	0.25	0.17
Trucks (MDV)	10.65	0.32	0.23
Lorries (HDV)	153.71	3.53	2.75
Coaches	8.22	0.25	0.21
Motorcycles	0.66	0.06	0.05
TOTAL	186.58	4.97	3.79



Actions to improve the atmospheric environment

Intermodality

The promotion of maritime and rail transport of goods to and from the port is a way to reduce emissions of polluting gases and particles compared to road transport.

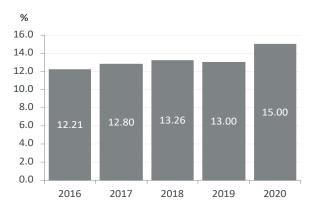
For years, the port has been committed to promoting the transport of cargo by rail, short-sea shipping (**SSS**) and on the Motorways of the Sea (MoS), as a strategy to build loyalty and expand its *hinterland* or area of influence, which, in turn, has an impact on the reduction of pollutant gas and particle emissions compared to land transportation.

The cabotage unit is the ITU (Intermodal Transport Unit), which is the equivalent of a truck or a flatbed loaded on a ferry vessel. Every ITU moved by ship is therefore equivalent to taking a truck off the road.

The following graph shows the ITUs moved, replacing road transport, in the Port of Barcelona in recent years.

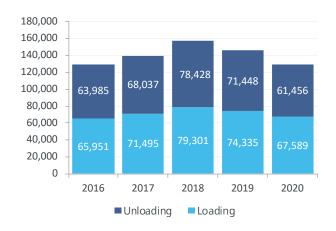
Most general cargo is handled in containers, the unit of which is the TEU, equivalent to a twenty-foot container. In general, it can be said that every TEU moved by train is equivalent to taking one truck off the road.

Percentage of TEU'S moved by FFCC

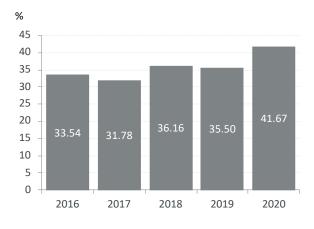


As can be seen in the graph above, the TEUs moved by train in the Port of Barcelona represent 15% of the total TEUs moved in the last year, an increase with respect to previous years.

UTI's Movement



Percentage of automobiles moved by FFCC



Similarly, the percentage of vehicles transported by rail increased to 42% of total traffic in 2020.

The switching of freight transport from road to modes of transport with lower emissions also makes it possible to save on other externalities not included in the cost of road transport. These include medical expenses due to accidents, medical expenses due to respiratory diseases caused by pollution, investment in facilities and the associated amortisation and maintenance costs.

Economic savings on port traffic externalities associated with rail use and SSS

The economic contribution of the Port of Barcelona, as a result of the offer of intermodal transport, is very important and can be evaluated using a calculation methodology proposed by the European Commission in 2019. This methodology takes into account monetisation of the impacts associated with pollution, climate change, noise, accidents, traffic congestion and facility use. 'to demonstrate this, below is a graph of the associated economic savings.

Evolution of externalities savings. Use of Rail and SSS









Promotion of Gas Use

Among the actions included in the **Air Quality Improvement Plan** those aimed at promoting the use of natural gas as an alternative fuel for the transport of goods by sea and land stand out.

This facilitates effective reduction of polluting emissions, an increase in the competitiveness of transport activity and, by extension, that of other transport and distribution intensive activities and of the industry as a whole.

The availability of liquefied natural gas (LNG) at the ENAGAS terminal located in the port is an opportunity to promote this cleaner fuel. To promote the adoption of LNG, the Port of Barcelona is working on four lines of action:

- Make natural gas supply infrastructures available for ships and trucks, i.e., have ENAGAS berths ready to supply barges and, in turn, have barges to provide the service in the port.
- Regulate operations which supply the new LNG fuel to ships, prioritising safety and alignment with other existing regulations in order to give operators legal certainty.

- Carry out pilot and demonstration projects that highlight the feasibility of using this fuel as an alternative to traditional fuels in all sectors of port transport operations.
- Give bonuses to ships which use these new fuels in order to incentivise their adoption during the first phase of implementation.

In 2017, the first ferry with an auxiliary natural gas engine, the BALEARIA company's ABEL MATUTES, called at the port and was supplied with LNG from a tanker truck. This is the first example of the work done by the Port of Barcelona in order to be ready to supply this fuel to ships that require it.

In 2018 a cruise ship, the CARNIVAL shipping line's AIDA PERLA, was regularly supplied with LNG from tanker trucks to fuel its auxiliary gas engine during its stopover in Barcelona.

In 2019, the Port of Barcelona became the first port in the Mediterranean to use barges to supply ships with LNG, which is similar to how ships are supplied with conventional fuels (fuel oil and diesel).









Also in 2019, tankers supplied LNG to the BALEARIA company's first new ferries that are powered entirely by natural gas.

From 2017 to 2020, 78,000 m^3 of LNG was supplied to ships in the Port of Barcelona, 27,000 m^3 from tanker trucks (TTS) and 51,000 m^3 from barges (STS).

Services and volume of LNG delivered to vessels at the Port of Barcelona since 2017.

From tanker trucks	2017	2018	2019	2020	TOTAL
No. of operations	42	18	4	212	276
Tanker trucks involved	42	18	4	596	660
Ships	Abel Matutes, Aida Perla	Abel Matutes	Hypatia de Alejandría	Abel Matutes, Nápoles, Sicilia, Bahama Mama	
M³ supplied	886.11	344.61	322.93	25,437.82	26,991.47
From Barges	2017	2018	2019	2020	TOTAL
No. of operations	0	0	17	7	24
Ships			Aida Nova, Costa Smeralda	Costa Smeralda	
M³ supplied	0	0	37,222	13,711	50,933
Ships	Abel Matu-tes, Aida Perla	Abel Matu-tes	Hypatia de Ale-jandría	Abel Matutes, Nápoles, Sicilia, Bahama Mama	
TOTAL OPERATIONS	2017	2018	2019	2020	TOTAL
No. of operations	42	18	21	219	24
Ships			Aida Nova, Costa Smeralda	Costa Smeralda	
M³ supplied	886.11	344.61	37,544.93	39,148.82	50,933





As regards land transport, the Port has had an LNG (Liquefied Natural Gas) and CNG (Compressed Natural Gas) supply station for both trucks and light vehicles since 2018.

As for demonstration projects, the Port of Barcelona participates in a total of five pilot projects for the presentation of natural gas as a transport fuel. These projects are:

Project CLEANPORT, led by Balearia and Naturgy (which was completed in 2019), which consisted of the installation of a natural gas auxiliary engine in a passenger ferry that runs between Barcelona and Palma de Mallorca.

The EPM1 sub-activity of the CORE LNGas hive project, led by APB, which consists of a mobile natural gas enginegenerator that electrically connects the shipping company SUARDIAZ's L'AUDACE vessel during its port calls. The connection pilot project was carried out in the port of Barcelona at the end of 2017, for more than a month.

The EV4 sub-activity of the CORE LNGas hive project, led by APB, which consists of the design of a natural gas-powered port tugboat, and the provision of the necessary supply facilities and related safety measures.

The EPM2 sub-activity of the CORE LNGas hive project, led by APB, which focuses on the conversion of two diesel engines of a machine at the APMTerminal container terminal to natural gas engines. Testing is planned for 2019.

The REPORT project of the RIS3CAT MOBILITAT ECO community, also led by APB, which consists of the conversion of 26 trucks that regularly work in the port area to natural gas.

Reduction of ship emissions

Ships are the main source of port activity emissions and as such reducing these emissions is an important challenge.

However, port authorities have few tools to help them achieve the goal of reducing these emissions, since ship emissions are regulated at the international level through conventions sponsored by the IMO (International Maritime Organization).

The main actions we are carrying out are focused on reducing polluting emissions from port activity in order to minimise the impact on the health of citizens that live in the vicinity, and the decarbonisation of port activities. These actions are:

Promote natural gas as a cleaner mobility fuel, as discussed above.

Incentivise better performance by ships using bonuses related to port fees.

In 2019, the company GRIMALDI refurbished two of its ferries that make regular stopovers in Barcelona, installing storage batteries with a capacity of more than 5,000 KWh. These are charged during the journey and supply the stored electricity to the vessel during its stay in port, replacing the auxiliary diesel engines. This action represents an annual saving of about 100 t of NOx.







Progressively electrify the wharves to allow ships to electrically connect to the wharf and thus avoid emissions from auxiliary engines during their port call.

It is estimated that the electrical connection of ships at the main wharves will lead to a more than 50% reduction in polluting emissions of nitrogen oxides and a 25% reduction in particulate matter emissions by 2030, as compared to 2017 levels.

To this end, the Port of Barcelona will make an investment of more than 60 million euros to progressively electrify the main wharves over a period of eight years, starting with the high-voltage network (220 kV).

The promotion of new fuels with very low or zero pollutant and greenhouse gas emissions for ships, heavy vehicles and machinery used in the terminals.

New zero-emission fuels include hydrogen, synthetic hydrocarbons and hydrogen-bearing compounds (such as ammonium or methanol), as well as some biofuels.

The promotion of these new fuels involves following guidelines similar to those for the introduction of natural gas, such as: giving information and promoting awareness of how necessary and feasible they are; pilots projects to demonstrate their feasibility in different mobility sectors; the provision of adequate facilities to supply them to ships and, finally, the regulation of port activities related to these new fuels.









Sustainable mobility

The Port Authority promotes a bus service within the port area to transport personnel who work for the companies located in the Port's service area. This internal bus (line 88) is part of the Barcelona public transport network.

In addition, as a way of discouraging private transport, APB provides public transport cards (T-trimester) to all employees who choose to travel to their workplaces by public transport.

APB employees that use public transport cards

Evolution	2016	2017	2018	2019	2020
No. of people	243	251	239	231	224

Monitoring of bulk solids operations

Most of the traffic of bulk solids, which can release particulate emissions into the atmosphere at the Port of Barcelona, is handled in closed facilities which are equipped with wind protection systems and, in some cases, with suction and air filtering.

For this reason, problems caused by handling bulk cargo on open docks are very limited in our port, and are confined to the Contradique South wharf and the West Wharf.

The Port has had regulations in place for these activities since 2005, including best practices required of operators unloading/loading and handling bulk solids (Ordinance of operations and berthing at the Contradique South wharf and the West Wharf, approved by the Director General of the Port Authority on April 12, 2005). One of the stipulations of the regulation is that operations must cease when the wind exceeds a certain speed.

Environmental monitoring of works

Moreover, all works developed by the Port Authority are subject to external environmental monitoring, independent of the contractor. This includes verifying that the contractor complies with the pollution prevention and minimisation criteria established for the project, as well as monitoring the impacts that the construction process has on the environment, especially particle emissions and noise. This environmental monitoring of port works is discussed in more detail later in this report.

New road and rail access to the port

Progress has been made with the planning of the new road and rail access routes planned from the south to the Port of Barcelona. Once completed and in service, the new access routes will allow goods to be moved in and out of the port area farther away from the city centre, which will reduce congestion and, therefore, the effect of related emissions on the city's air quality.



Air quality indicators

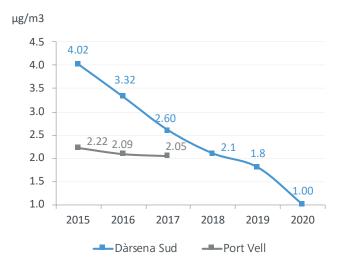
Air quality in the port area has improved since the beginning of the 2000s, when monitoring of immission levels of the main polluting gases began.

The following graphs show air quality levels measured between 2015 and 2020 for the different pollutant gases in the port area.

Sulfur dioxide concentration levels are low. Current European regulations set a daily average of $125 \ \mu g/m^3$ as a maximum threshold, which may not be exceeded more than three days a year.

In 2020, the reduction in the immission values of this pollutant was a consequence of the reduction in ship traffic due to the pandemic, and of the entry into force of the mandatory use by ships of fuels with lower sulfur content during navigation, which went from 3.5% to 0.5% sulfur content by mass.

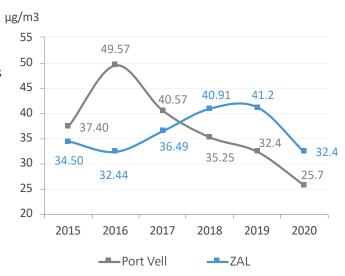
Average concentration of SO₂



The values for nitrogen oxides, the reference level for which is 40 $\mu g/m^3$, were somewhat high at some of the automatic measuring stations, especially the one located in the ZAL port.

In 2020, a significant reduction in the average values of this pollutant was observed as a consequence of the reduction in mobility due to the pandemic.

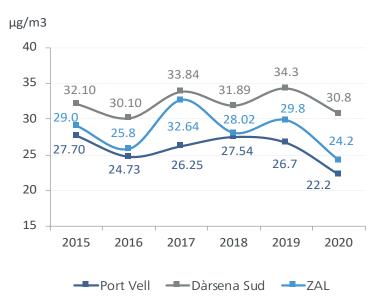
Average concentration of NO,



The concentration values of suspended particulate matter (PM₁₀) in the air, strongly associated with onconstruction work and bulk solids operations, can generally be considered low. The highest values were at the Dársena Sud station, influenced by the traffic.

As with the other pollutants analysed, the reduction in immission values in 2020 was a consequence of the reduction in vehicle traffic due to the pandemic.

Average concentration of PM₁₀







Climate strategy



Adherence to the OCCC's Voluntary Agreements

Renewable energy supply

BCN Zero Carbon Project

Eco-calculator

Short Sea Shipping promotion

Ports are being called on to play an important role as agents of change in the decarbonisation of maritime transport and of their own activity.

According to preliminary calculations made by the Port Authority, the sum total of activity carried out in the port area emits some 315,000 tonnes of CO₂ a year, of which 215,000 tonnes come from ships (including emissions from anchoring, manoeuvering and during their stay in port); about 78,000 tonnes of CO₂ comes from electricity consumption by all the facilities within the port premises, and the remaining 20,000 tonnes of CO₂ comes from emissions from vehicles, both light and heavy, terminal machinery and industry.

The Port of Barcelona has made commitments to reduce its greenhouse gas emissions at three levels:

Emissions from port activity

Port Authority emissions

Emissions from concessionaires and Port Community operators

The goal set by the Port of Barcelona is to reduce CO_2 emissions to 50% of 2017 levels by 2030, a target that is in line with EU objectives, based on the Paris agreements, to reduce emissions by 55% by 2030 and by practically 100% by 2050, as compared with 1990 levels.

For its part, the IMO (International Maritime Organization) has set out an initial strategy for decarbonisation of the maritime sector, which sets the target of an emissions reduction of at least 50% by 2050 compared to 2008.

















COMMITMENTS OF THE PORT AS A **WHOLE**

Energy transition

The Port of Barcelona has undertaken its energy transition process, the goal being to achieve an energy model based on three pillars: renewable energies, energy storage, and a smart electrical grid that permits optimal management responses to new consumption. The photovoltaic generation potential on roofs and surfaces in the port area is about 92 MW of peak power, with an annual production of about 120 GWh. Wind potential, however, is much lower due to the low wind resource and limitations on tower height due to the proximity of the airport.

In the future, renewable photovoltaic generation could meet the electricity demands of ships connected to the grid, and could also complement the power supply to port facilities.

2020 saw the launch of several pilot programmes which created shared energy consumption communities among various concessionaire facilities. The aim is to make the most of photovoltaic generation by ensuring that the surpluses produced at one facility can be used by neighbouring facilities, with energy stored in batteries and sensorisation of the power grid to make it intelligent and able to decide on the best use of the electricity produced at any given moment.

One of the pilot programmes began in 2019 in the Moll de Pescadors fishing port with the collaboration of the Fishermen's Guild of Barcelona.

ELECTRIFICATION OF WHARVES

Electrification between 2021 - 2025 (pilot schemes)

Electrification between 2025-2030

Electrification from 2030

Electrification plans in advanced stages (specific studies required)





Promotion of new fuels

The promotion of new zero-carbon fuels for ships, heavy vehicles and machinery used in terminals will also be key to making progress in the decarbonisation process, and meeting the emissions reduction targets set by the European Union (EU) and the International Maritime Organization (IMO) for 2030 and 2050.

In July 2018, the Port of Barcelona joined the world's leading ports in the World Ports Climate Action Plan (WPCAP) programme, which aims to promote and encourage the decarbonisation of activities in the port and maritime sector.

One of the main initiatives of this programme is to support and facilitate the technological development of new fuels that don't emit carbon and also emit very low levels of pollutants into the atmosphere.

Electrical connection of ships

Along with the objective of reducing polluting emissions, in 2019, the Port of Barcelona also made public its commitment to electrifying the wharves where cruise ships, container ships, vehicle ships and ferries make their port calls. This would mean they can be connected during their stay in port, which would avoid emissions from their auxiliary engines.

The project will develop over a period of seven to ten years, beginning with connection to the high voltage grid in order to access the electrical power necessary to connect the ships, some 80,000kW. The aim is to design a new medium voltage (25 kV) electrical network infrastructure, separate from the company's distribution network, exclusively to provide services to docked ships.

According to the task schedule, this network will be deployed progressively, through transformer stations and command centres, in order to help it branch out to the wharves that will connect to ships.

COMMITMENTS AT THE PORT AUTHORITY LEVEL

Buildings and facilities

The Port Authority is taking action to ensure energy savings and maximum efficiency in its buildings and facilities, in addition to the introduction of renewable energy generation. This action includes the following:

- Actions to improve the energy management of the APB offices in the WTC building, by replacing compact lamps with LEDs and switching lighting on and off by sectors.
- Installation of renewables at Fisherman's Wharf: the new fish market buildings, the old net shed and the net yard.
- Installation of renewables in the PIF building

Street lighting

The Port Authority is progressively improving its public lighting network, installing LED lamps and improving lighting management by defining different brightness levels for different times.

Vehicle fleet

Of the approximately 100 units in the fleet (including motorcycles, light vehicles and trucks), 41 units are currently electric (mainly light vehicles and motorcycles). The remaining vehicles will be progressively replaced with new electric vehicles.











Adherence to the OCCC's Voluntary Agreements

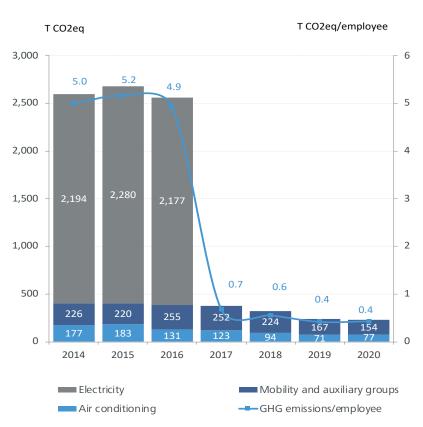
The Port of Barcelona adheres to the Voluntary Agreements to reduce greenhouse gas (GHG) emissions developed by the Government of Catalonia's Office of Climate Change (OCCC in the original acronym). By signing this agreement in 2012, the organisation committed to gradually reducing direct and indirect (Scope II) emissions from fuel consumption by its fleet of 120 vehicles, two vessels and some generators, as well as to reduce its electricity consumption.

As can be seen in the adjoining graph, 231 tonnes of CO2eq emissions were attributable to the APB in 2020, of which 154 tonnes came from fuel consumption for mobility and 77 tonnes for heating.

Electricity with renewable generation certification

Since 2017, all electricity consumed by APB and its investee companies (Port 2000, WTC Barcelona and CILSA) has renewable energy guarantees of origin, so the associated emissions do not count as greenhouse gas emissions.

GHG emissions









COMMITMENTS AT THE PORT COMMUNITY LEVEL

Extension of the electric vehicle recharging points plan to concession facilities.

The concession contracts foster the installation of electric recharging points at facilities, in order for staff to have access to recharging facilities for their electric vehicles.

Promotion of OCCC voluntary agreements

The Port encourages concessionaires to adhere to the voluntary agreements to reduce GHG emissions set out by the Government of Catalonia.

Promotion of clean fuels in terminal machinery

Environmental bonuses and concession clauses also encourage concessionaires to renew their machinery in order to incorporate units that run totally or partially on electricity (if possible) or other clean fuels.

Equipment and resources of port service companies

The license conditions oblige service companies to progressively adapt to best practices and to incorporate equipment that generates fewer emissions.

Promoting energy efficiency and renewable generation in buildings and facilities

The environmental bonuses for concessionaires included in the Ports Law and in the new concession contracts promote efficient energy development and the generation of renewable energy on the roofs and flat surfaces of facilities and buildings.



Map of the photovoltaic potential on roofs in the port area (in kW peak).











World Ports Climate Action Program (WPCAP)

In 2018, the Port of Barcelona joined an initiative promoted by the world's leading ports aimed at laying the foundations to accelerate the decarbonisation of port activity and maritime transport, in line with the IMO (International Maritime Organisation) commitment to reduce greenhouse gas emissions by at least 50% by 2050 compared to 2008.

The initiative, which includes the ports of Vancouver, Los Angeles, Long Beach, New York, Hamburg, Antwerp, Rotterdam, Gothenburg and Buzan, is split into five working groups focused on concrete actions.

The Port of Barcelona leads the group focused on supplying ships with electricity from wharves, and also participates as a partner in the group focused on sustainable fuels for ships.

In the area of innovation, the Port has joined the Catalonia Energy Research Institute to study the role of hydrogen, and other clean fuels derived from it, as possible fuels with zero emissions of pollutants and greenhouse gases for land and maritime transport of goods.

Eco-calculator

Customers of freight companies and other links in the logistics chain are increasingly interested in knowing about environmental externalities, so that they can integrate them into their decision making processes regarding transport routes.

In response to this concern, the Port of Barcelona has made a tool available to freight companies and logistics operators which calculates the CO₂ emissions of their transport routes, and shows the most environmentally efficient alternative routes.

Short Sea Shipping promotion

Escola Europea - Intermodal Transport is the leading centre for logistics and intermodal transport training in Europe. Its objective is to promote intermodal transport as a basis for the development of sustainable logistics in Europe.

The School began its activity in 2006 as a training centre for European professionals and students in the world of logistics, transport management and international trade. Years later, it has gained knowledge and experience in national and international project management, communication, content development in collaboration with recognised European institutions, and the promotion of logistics clusters.

Since its creation, the school has worked closely with the European Shortsea Network and, more specifically, with the Shortsea Promotion Centres, which along with promoting short-sea shipping, also promote the school's work in every EU country.







Prevention of soil contamination



The Port of Barcelona aims to prevent soil and groundwater contamination; as the owner we are ultimately responsible for their environmental condition.

For this reason, we carry out continuous tracking of the condition of the subsoil in the port areas which are under concession to terminals and operators, as well as in areas not under concession.

When necessary, contaminated soil remediation actions are carried out in the port area, either by the Port Authority itself or by the terminals and concessionaires.

There are a total of 32 sites in the Port of Barcelona where assessment of soil or groundwater characterisation has been carried out; of these, as of 2020 remediation has been carried out at twelve.

In 2020, a total of fifteen operations involving contaminated soil were underway, of which six are remediation and tracking operations, the remaining nine being characterisation and preliminary studies.

In 2020, a database of contaminated soil was created, and soil and groundwater contamination data from more than 600 survey points has been entered, creating more than 1,000 records (one survey point can have more than one record).

The database will make it possible to quickly connect soil contamination values with concession areas, and thereby predict in time whether it is necessary to take action to characterise or remediate an area of soil

The database will also provide information on the background contamination level, and values for some uncommon pollutants found at various sites.









Environmental monitoring of port works



Dredging

Consumption of materials,
riprap and aggregates

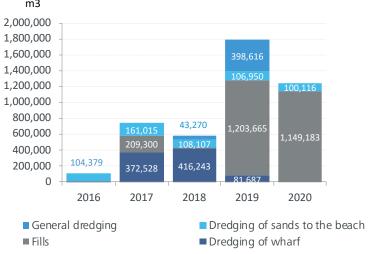
All works developed by the Barcelona Port Authority are subject to environmental monitoring by independent technical advisors, contracted directly by the APB. This ensures that the construction complies with provisions defined for the project at all times, and thereby minimises any impact on the environment.

Dredging

All maritime works involving the dredging of marine sediment, or dredging works carried out to maintain or improve draughts, scrupulously follow guidelines for the characterisation of dredged material and the relocation thereof in the maritime terrestrial public domain.



Dredging volumes in works m3



External waters next to the South Breakwater. *Ocellate torpedo*

Evolution of dredging and backfilling

Total volumes	2017	2018	2019	2020
Dredged material in m ³	533,543	567,620	587,253	100,116
Backfill in m³	209,300	14,170	1,203,665	1,149,183











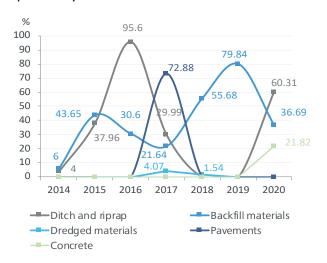


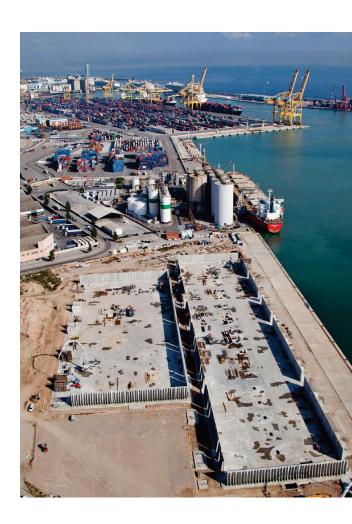
Consumption of materials, riprap and aggregates

The consumption of materials for port works is an important environmental aspect to be considered. Below is a table of the materials used in recent years in development projects carried out by the Port Authority in the Port of Barcelona.

Recycled materials used in the works, and their % of the total for each type of material used, were as follows:

Consumption of recycled materials





Evolution of materials consumption

Material type	Units	2017	2018	2019	2020
Gravel and riprap	t	729,626.41	230,103.30	834,326.55	909,56.08
Concrete	m³	44,780.18	39,626.96	54,326.55	13,631.70
Steel	t	4,607.28	144,369.24	3,121.09	218.44
Dredged materials	m^3	372,527.81	416,243.29	480,484.65	100,115.61
Backfill materials	m³	209,300.01	14,169.79	1,203,664.65	1,149,183.19
Screed	m^3	8,500.34	9,038.04	6,940.36	2,204.97
Agglomerate	t	5,423.42	18,259.42	23,150.63	6,756.25



Waste management



Non-hazardous waste **Hazardous Waste Management of** concessionaire waste **Management of** ship waste The Port of Barcelona is responsible for the removal and management of different types of waste generated in its own buildings, port facilities and communal areas, as well as waste from street cleaning.

The scope of our rubbish collection responsibilities includes waste generated by bars and restaurants located within the port.

The only building area whose waste is not managed by APB is the offices and occupied floors of the WTC East building. In this case, interior and office cleaning waste management is taken care of directly by the service manager of the building that APB occupies.

APB undertakes selective collection of recoverable waste: paper, glass and packaging from outdoor bins, and paper, packaging, toner and used batteries from waste baskets and bins located inside APB buildings.

Finally, APB also manages ordinary waste generated by our own activities and waste from one-off cleaning operations.



Total waste generation t/employee 1,200 2.5 1.96 1.95 1.93 1,000 2.0 1.52 1.41 800 1.5 600 1,120 1,114 1,037 1.0 400 792 782 0.5 200 0 0.0 2016 2019 2017 2018 2020 Total waste -t/employee

Waste by type 1% ■ Hazardous waste ■ Non-hazardous waste

* Including waste generated by the APB and third-party waste managed by the APB.









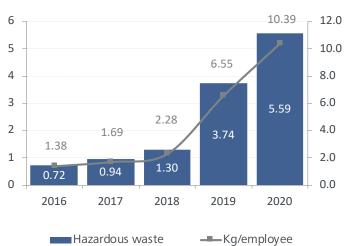
Generation of non-hazardous waste



Waste collection services

- General waste in common areas, bars and restaurants.
- Selective collection from buildings.
- Waste from warehouses and workshops.
- Removal of waste from one-off or accident clean-ups.

Generation of own hazardous waste t 6 10.39 12.0







Hazardous waste generated by the APB

TYPE (tonnes)	CER	2016	2017	2018	2019	2020
Non-chlorinated mineral engine oils, transmission oils and lubricants	130205	0	0	0	0.04	0
Gases in pressurised containers (including halons) that contain hazardous substances	160504	0.023	0	0.27	0.166	0.01
Containers that contain traces of or are contaminated by hazardous substances	150110	0.508	0.223	0.87	1.085	0.26
Metal packaging	150111	0	0.237	0	0	0
Lead batteries	160601	0.076	0	0	0	0
Batteries	200133	0.024	0.01	0.05	0.109	0
Fluorescent bulbs/bulbs	200121	0	0.113	0.07	0.004	0.02
Halogen-free machining emulsions and solutions	120109	0.013	0	0.04	1.1	0.16
Laboratory chemicals containing hazardous substances	160506	0.071	0.354	0	0.875	0
Medical	180103	0	0	100 L*	0	0
Other solvents and solvent mixtures	140603	0	0	0	0.052	0.76
Absorbents and filtration materials	150202	0	0	0	0.313	4.12
Bilge oil collected from docks	130402	0	0	0	0	0.25
Discarded equipment that contains dangerous components	160213	0	0	0	0	0.02
TOTAL (t)		0.715	0.937	1.3	3.74	5.59

^{*} Amount not included in the total

External hazardous waste not generated by the APB

TYPE (tonnes)	CER	2016	2017	2018	2019	2020
Hydrocarbons	130402	0	0	0	0	0
Fireworks	130402	0	0	0	0	0
Bilge oils collected from wharves	130402	16.2	5.2	0	0.18	0
Oily water from water separators/oily substances	130507	27.9	45.3	51.42	11.08	0
Absorbents	150202	0.15	0.68	1.70	0	0
Other solvents	140603	0.17	0	0.22	0	0
Used packaging	150110	0.51	0.22	0	0	0
Used oils	130205	0.18	0.29	5.86	0	0
TOTAL (t)		45.11	51.69	59.2	11.26	0









Concession waste management

The concessions and facilities that operate in the port area manage their own waste and, if applicable, sign up to the waste producer registry, thereby complying with their waste management obligations.

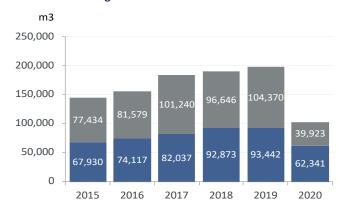
Ship waste management

According to the 1973 International Convention for the Prevention of Marine Pollution from Ships (known as the Marpol 1973/78 Convention), ports must have adequate facilities to provide a port service to receive waste from ships.

The following table shows waste delivered to the port in recent years for the categories included in Convention Annexes Ic (oily liquid wastes from engine oil, bilge water or scrubber sludge), Annex Ib (cargo tank wash water containing oil) and Annex V (solid waste). The reduction in the reception of this type of waste in 2020 was due to the decrease in ship transit owing to the COVID-19 pandemic.



MARPOL waste management



- Solid wastes (Marpol V)
- Residues with hydrocarbons (Marpol I)

MARPOL waste delivered by ships

TYPE (m³)	2015	2016	2017	2018	2019	2020
Oily bilge and engine fluids (Ic)	62,455	69,196	77,915	85,703	85,419	54,153
Oily fluids from tanker cleanings (lb)	5,475	4,921	4,122	7,170	8,023	5,050
Solid waste (V)	77,434	81,579	101,240	96,646	104,370	39,923
TOTAL (m³)	145,364	155,696	183,277	189,519	197,812	99,126



Ecology and Biodiversity



Interaction with natural areas and protected species

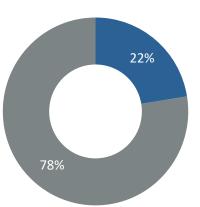
Monitoring the introduction of invasive species

Bird control

EMAS indicator

Unsealed surface area: 2,337,219 m²

Sealed surface area: 8,084,042 m²



Total surface area of the nature-oriented area: 8000 m²

The port occupies 1,042 ha of land near the Llobregat Delta Nature Reserves.

Interaction with natural areas and protected species

The presence of the Llobregat Delta Nature Reserve adjacent to the port area makes it necessary to take precautions so that port activity and works interfere as little as possible with ecosystems and populations of birds and other species. It is worth highlighting that an important Audouin's gull (Larus audouinii) breeding colony has developed at the East Breakwater since 2016. Since then, about 600 pairs have bred every year, making this colony one of the most important in the Western Mediterranean.

Another innovative and proactive means of aiding with the preservation of animal species over the last ten years has consisted of providing the cormorant population with a new habitat.

As such, a total of 8,000 m² of land located within the port area can be said to be dedicated to the conservation and promotion of biodiversity.

Monitoring the introduction of invasive species

Ports are risk points for the introduction of allochthonous species that can become invasive species under certain circumstances.

There are numerous means of introduction in a port, from the discharge of ship ballast water or the detachment of *fouling* from vessel hulls, to introduction via packaging (containers, for example) or inside goods themselves.

The Port of Barcelona has conducted studies and tracked animal and plant species in order to detect allochthonous species that may become invasive. So far, tracking has not detected any species recognised as invasive.

Phytoplankton monitoring, focused on the search for introduced allochthonous species, has been carried out for several years.

Among all the species and genera detected and identified, there is no evidence of the presence of introduced species, although there is mention in the scientific literature of the presence of *Alexandrium catanella* in phytoplankton *blooms* in the 1990s.

The monitoring of benthic species, which live permanently in the substrate, as indicators of water quality has been extended, not only to the sedimentary bottoms of the port waters, but has also covered the species identified in the vertical transects of the wharf. None of the studies mention the presence of introduced invasive species.











In this regard, in 2003 and 2004 the University of Barcelona conducted a study on fouling organisms and their succession to colonise new substrates. The report mentions the sporadic and isolated presence of a single unidentified bryozoan that could possibly represent an introduced species.

As regards ballast water, a taxonomic and viability study of organisms present in the ballast water of some ships berthed at the Port of Barcelona was carried out in 2004. The study identified up to 40 species of phytoplankton and 42 species of zooplankton in a single tank. The work concluded that the viability of these organisms depends mainly on the amount of time they were in the tank water.

Another study on terrestrial arthropods in the port area carried out in 2004 detected the presence of the Argentine ant *Linepithema humile* and of the *Bradysia* fly, two introduced species that had already been present in the area for many years.

Bird control

The presence of seagulls in the Port's facilities and wharves is considered a problem due to potential annoyances, dirtiness and damage to the facilities. Since 2000, the Port of Barcelona has set up deterrents at the cruise ship terminals using loudspeakers that blare continuously.

On some occasions, gull nests have had to be removed from facilities. In 2001 and 2002, the Port of Barcelona participated in the reintroduction of the peregrine falcon (Falco peregrinus) to the city of Barcelona, by rearing three chicks in an artificial nest set up in a grain silo. As a result of the initiative, the Peregrine population is consolidating and in 2020 three of the nine pairs that there are in Barcelona were raised in the port.

The continued presence of the falcons has a deterrent effect on the pigeon population that descends from the city daily to feed at the Contradique wharf and other port areas.



Great Cormorant (Phalacrocorax carbo)



Hydrozoa (Pennaria disticha)



Mediterranean red sea star (Echinaster sepositus)



Environmental noise monitoring and management



Port Vell
Commercial port

The port as a territory has to manage environmental noise pollution using a Noise Map; a management tool that allows graphic visualisation of the current noise situation.

Port Vell

In 2014, the Port of Barcelona created a Noise Map of the Port Vell sector, a zone where the intersection between the Port's activities and residential areas can generate more areas with acoustic impacts.

The Noise Map considers the levels of noise coming from different sources (road traffic, maritime traffic, industrial activities and airborne noise (aircraft) separately, calculating the emission values for each hour.

The main conclusion of the study was that the noise levels obtained are influenced by road traffic, and to a lesser extent by the ferries moored to the wharves of Port Vell.

Commercial port

In 2015 and 2016, the Noise Map was completed with the inclusion of the rest of the port territory (the commercial port).

Unlike with Port Vell, the study considered two sources of noise: land traffic noise and maritime traffic noise, and maps were made for the day, evening and night periods. The study defined the Acoustic Impact Zone, the area affected by the activity and development of port facilities.







Environmental emergency plans



Internal plans
Self-Protection Plan
Meteo-oceanographic
alert system
Control Centre
action procedures

The Port of Barcelona has organised and systematised the response to environmental emergency situations using four operational instruments.

Internal Marine Plans

The Port of Barcelona has an active policy in place to prevent incidents and accidents involving spills of hydrocarbons or any other chemical products into port waters.

The prevention and response tool for these incidents is the Port of Barcelona's Internal Marine Plan (PIM in the Spanish acronym), developed by the APB and approved by the Directorate General of the Merchant Marine, which details how the response should be organised and the means to be used to carry it out.

The PIM, part of the National Marine Pollution Response System, aims to organise the response to accidents or incidents of harmful chemical or hydrocarbon spills into the marine environment, which may cause damage to the marine ecosystem, to property or to people's health.

The port's PIM is coordinated with the PIMs of the port terminals that handle chemicals and hydrocarbons.

The Port Authority, duly coordinating with the Maritime Authority, is responsible for the direction of the PIM.

In 2020, there were 33 reports of oil and other substances spilling into port waters, of which only seven episodes required the PIM to be activated to the alert phase, and none resulted in activation to the emergency phase.





Self-Protection Plan

Another tool for responding to environmental emergencies is the Port's Self-Protection Plan (PAU in the Spanish acronym), which is activated in the event of accidents or incidents of any kind that may pose a risk to people.

The port's PAU is divided into eleven sectors and includes the PAUs of all the port's terminals and concessions. The PAU has three levels of activation: an initial alert level, level 1 for an emergency in a terminal, level 2 for an emergency in the port sector and level 3 for an emergency in more than one port sector.

The PAU is divided into two areas, maritime and terrestrial. The designated first responders are the Barcelona Fire Brigade specialists in Port operations.

Meteo-oceanographic alert system

The Port of Barcelona has a procedure for dealing with Meteo-Oceanographic Alert Situation (SAM in the Spanish acronym) notifications, which consists of a procedure for responding to wave overtopping and wind intensity forecasts provided by Puertos del Estado (Ports of the State).

In the event of storm or wind warnings, the response consists of giving the alarm to port areas which may be affected (Port Authority, Maritime Authority, terminals and their users), and activating prevention and activity restriction measures according to the expected risk threshold.

Control Centre action procedures

One of the Port Authority's main management tools for controlling environmental incidents is to trigger the procedures that the Port Police Control Centre follows when they receive warning of an incident.

These action procedures that the Control Centre uses for environmental incidents (PCC in the Spanish acronym) include nineteen response and warning procedures for the most common incidents, such as dust emissions, ship emissions, marine fauna at docks, terrestrial animals, water pollution, spillages on the roadway or esplanade, noises, smells and other similar incidents.

The procedures consist of a system for receiving alerts and making calls to affected parties, and a Wharf Guard Control Centre action plan.

Each PCC is the responsibility of the relevant department, and the Department of the Environment is responsible for keeping them up to date.

Environmental incidents

Incident	2020
Polluting spillage in maritime service area	33
Large floating debris at docks	26
Waste at docks	12
Marine animals at docks	1
Liquid spillages on roadways	19
Solid spillages on roadways	19
Risk of tree falling	3
Live Land Animals	9
Dead birds	0
Dust from bulk solids operations	3
Calls from people affected by soybean asthma	0
Black smoke from a ship's funnel	11
Noise from a ship	3
Complaints about unpleasant smells	3
PREVENTIVE warning or declaration of EPISODE of air pollution by NO2 and/or particulate matter	0
Any incident detected in the port's sewage system	7
Total	149







Environmental cost ratio

Environment budget in 2020*

Contaminated soil: characterisation	€ 40,000
Ship waste collection service (MARPOL service)	€ 4,300,000
Water Framework Directive	€ 83,600
Air Quality Plan Studies	€ 36,500
ISO 14.001 Certification	€ 14,870
Maintenance of meteorological network	€ 36,500
Core-Clean Port	€ 67,800
Automatic air quality network maintenance	€ 46,706
Manual air quality network maintenance	€ 31.000
Soybean Agreement - Air monitoring network maintenance	€ 57,500
Miscellaneous expenses. Department of the Environment	€ 3,491
WPCAP	€ 14,460
Communication	€ 7,935

^{*} Excluding staff items.



Stakeholders



Active participation

Best environmental practices

Agreements with concessionaire companies on best environmental practices

The Port of Barcelona is promoting a Sectoral Sustainability Plan, which began as an initiative of the Sustainability Working Group of the Steering Council for the Development of the Port of Barcelona, with the aim of responding to the demands and expectations of the stakeholders of the Port Community.

This plan expresses the will to act collectively, beyond the individual responses of each of the organisations that make up the Port Community; that is, to act jointly as a port collective.

Since it was set out in 2016, actions have been defined as part of the Plan which take into account the expectations of the Port Community's stakeholders.

In this sense, the Sustainability Report is a key tool that measures to what extent these expectations have been met, including those relating to the environment.

In 2020, new Port Community organisations and companies have joined the Port Sustainability Plan, bringing the total number to 79.

Based on the data provided by the member organisations, environmental, social and economic performance indicators have been developed to explain more precisely how the Port Community responds to the needs of its stakeholders. Strategic lines of the Sectoral Sustainability Plan:

- Raise awareness of and distribute the Port of Barcelona's Sectoral Sustainability Plan.
- Create a community to develop the Port of Barcelona's Sector Sustainability Plan (ambassador role).
- Consider the expectations of the relevant groups.
- Promote environmental sustainability.
- Promote social sustainability.
- Promote economic sustainability.









Environment Intranet Section

APB constantly updates the Environment section of the corporate intranet, posting news and videos of interest on its blog, as well as direct access to internal operational procedures and documents related to the environment. This system allows micro-surveys to be carried out to consult staff on specific topics.

Sustainability Group

The Port Community's participation tool for environmental issues is part of the Environmental Quality Working Group, which is part of the Corporate Social Responsibility Group of the Port Community's Steering Council, which also includes the Social Responsibility and Occupational Risk Prevention Groups.

The Environmental Quality Working Group was created in 2004 and is composed of members of the port community companies, which includes various companies of the port sector.

The Working Group has implemented two noteworthy initiatives (among others), which are:

• The creation of an electric power purchasing group exclusively for private companies in the port area that voluntarily join the group.

The auction to award its electricity supply contract is held annually, together with that of the Port Authority. The private companies that make up the purchasing group participate in the auction as different lots from the Port Authority and, once the best price has been obtained, they may or may not come to an agreement with the winning company.

A purchasing group has been formed for every auction since 2010, and about 20 companies join the group each year.

 The design and organisation of technical and awareness-raising seminars for members of the Port Community. In order to raise awareness and keep the members of the Port Community informed, technical seminars are held every four months that cover current issues or issues relevant to port activities. The aim of these seminars is to provide a support service to the companies that carry out their functions and activities in the port area. We choose topics with some common interest for most of them, and every effort is made to illustrate them clearly and always from a practical point of view, as applicable to the port environs.





The following were the seminars held in the 2017-2020 period:

05/04/2017	Seminar: "Adaptation of environmental management systems to the new ISO 14.001:2015 and its effects on EMAS."
02/11/2017	Technical seminar on "Soil contamination prevention and remediation actions in the port environs"
30/11/2017	Seminar: "Promotion of electric mobility at the Port of Barcelona"
14/11/2018	Seminar: "Tax deductions for environmental investments"
28/02/2019	Seminar: "Hydrogen in an emission-free Europe"
29/03/2019	Seminar: "Tools and requirements for communication about sustainability"
25/04/2019	Seminar: "Presentation of results of the CLEANPORT project (installation of a gas auxiliary engine on a ferry)"
30/10/2019	Seminar: "Sustainable mobility in the port"
06/03/2020	Seminar: "Water quality and sanitation"

Participation in international conferences

The Port of Barcelona actively participates in organising European conferences to communicate and present topics related to sustainability in the area of port activity.

Some noteworthy examples from 2019 and 2020 are the following:

- First National Congress on Air Quality. Various administrations. Sabadell
- Blue Eco Forum Workshop on coastlines. Barcelona
- LNG Bunkering. Spanish Energy Club. Madrid
- The benefits of creating EQS in the Mediterranean. Barcelona
- LNG Bunkering. Barcelona
- Green Port Congress. Oslo
- 3rd Workshop on marine litter. Catalonia Waste Agency. Barcelona.
- Congress on international cruise ship emissions project. IAPH. Hamburg
- Yokohama Maritime Forum. IAPH. Yokohama
- Seminar "Circular economy and collective action with a view to 2030", organised by Pacte Industrial of the Barcelona Metropolitan Region. Barcelona
- CE HOTSPOT 2020: CIRCULARITY IS THE ANSWER. Barcelona









Best practices and environmental protection projects

European projects to promote natural gas as a fuel for cargo mobility

The port of Barcelona is located next to a large city and there is growing concern about the impact of port activity on the city's air quality, particularly in relation to the concentration of NO_{x} and suspended particulate matter.

The most significant sources of air pollutant emissions are ships during their entry and manoeuvering operations, and during their stay in port.

The port has few tools to effectively regulate these emissions as they are regulated by the IMO.

In the case of maritime transport, many shipowners are now beginning to opt for this change and are considering the option of natural gas propulsion when ordering new ships.

Along with the promotion of natural gas as an alternative fuel for the transport of goods by sea, it is also important to implement effective actions to promote its use in land transport.

The Port of Barcelona is pursuing three goals:

- To develop facilities to enable the supply of natural gas to ships and trucks.
- To demonstrate the use of natural gas in different modes of transport and vehicles, as a way to show the feasibility of its use as an alternative fuel.
- To safely regulate the supply operations of this new fuel, as well as the management of facilities.

Many countries and regions of the world are already fostering the use of natural gas trucks for reasons of pollution, fuel economy and security of supply.



APB participates in various projects, sometimes as a leader or coordinator and sometimes as a partner. We always try to ensure that our demonstrations cover the broadest possible range of sectors, and the many ways that natural gas can be used as an alternative fuel.

With a budget of €17.5 million, these projects directly involve 27 organisations who have collaborated in their development in the 2017-2020 period.



CORE LNGas hive project. Sub-Activity EPT1: Pilot test of mobile generator with natural gas engine to supply RoRo ship from wharf. 2014-2022

The port is acting as coordinator and the project consists of the construction of a mobile gas generator on the wharf to supply electricity to the ship L'AUDACE (RoRo ship) during its stay in port.

CORE LNGas hive project. EPM1 Sub-Activity: Construction of loading arm at regasification terminal. 2014-2022

The port is a partner in this project, which consists of the construction of a flexible, cryogenic loading arm at one of the two LNG regasification terminal berths located in the port, to enable the loading of LNG to barges.

CORE LNGas hive project. EPM2 Sub-Activity: Modification of fuel supply barge to also supply LNG. 2014-2022

The port is acting as coordinator and the project consists of modifying a barge to accommodate LNG tanks and other equipment required to supply LNG to ships.

CORE LNGas hive project. Subactivity EV4: Design of a gas-powered tugboat. 2014-2022

The port is acting as coordinator and the project consists of the design of a port tugboat powered by natural gas in compressed natural gas tanks.

CLEANPORT Project: Installation of a natural gas auxiliary engine on a ferry for use during its stay in port. 2014-2020

The port is a partner and the project consists of replacing the diesel auxiliary engines of a ferry with a natural gas engine.

Internal project: Expansion of a refuelling station to incorporate LNG and CNG supply for trucks and vehicles. 2018

CORE LNGas hive project. EPM3 Sub-Activity: Conversion of the diesel engines of two straddle carrier machines to run on natural gas. 2014-2022

The port is acting as coordinator and the project consists of replacing two diesel engines of two machines at the container terminal with natural gas engines.

REPORT Project. RIS3CAT Programme: Transformation of 25 trucks to dual capacity. 2015-2021

The port is leading this project which consists of the transformation of 25 diesel truck engines to dual gas-diesel capacity with advanced technology.









Best practice agreements with concessionaire companies

The State Ports and Merchant Marine Law provides for the establishment of a tax credit based on the activity level of port facilities that have a concession, authorisation or licence for the handling of goods.

This bonus is intended to encourage best environmental practices, and requires the facility to implement an environmental management system and sign an agreement with the Port Authority on best environmental practices. This follows the model in the Port of Barcelona's Guide to Best Environmental Practices, approved by the APB on November 20, 2011 and revised on November 28, 2012.

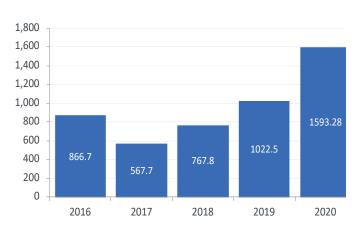
In the agreement, the facilities commit to the development of a programme of improvements which involves economic investment in new equipment, systems and supplies.

Since 2016, the companies that have signed this agreement with the APB have made investments that

qualify for tax credits in the amounts shown in the graph below.

Evolution of subsidized environmental investment

Thousands of Euros







Environmental compliance



Port Authority Competencies

Basic applicable legal requirements

Reference documents

Port Authority Competencies

From an environmental point of view, the APB's competencies as laid out in the Ports Law are as follows:

- Fight pollution.
- Maintain and improve water quality.
- Ship waste collection service.
- Prevent soil contamination.
- Prevention and control of environmental risks (PAU and other instruments).
- Bonuses to ships and concessionaires for environmental performance.
- Environmental monitoring of concessions and activities through Ordinances, Instructions, contract specifications and concession specifications.

From a broad point of view, the Port Authority's environmental operations also include the following competencies and management areas:

- Monitor air quality and look to improve it.
- Monitor water quality and look to improve it.
- Manage wastewater generated by the facilities in the port service area.
- Manage environmental noise.
- Manage hazardous and nonhazardous waste.

The Barcelona Port Authority complies with all applicable legal requirements.



Basic applicable legal requirements

The main legislation that the Barcelona Port Authority must comply with is based on:

- 1. International conventions for the protection of the sea
- 2. European Union sectoral environmental legislation
- 3. State and regional environmental legislation
- 4. Municipal ordinances and regulations





International agreements

The 1973/78 International Convention for the Prevention of Pollution from Ships is one of the main international conventions that affect port activity. The convention makes it mandatory for ports to provide adequate and sufficient facilities for ships to leave their waste on land.

The Port of Barcelona has been granted three licences to provide port services to receive oily liquid waste from ships, and two licences to receive solid waste.

Air quality

The main regulations that apply to the port are those related to air quality and atmospheric protection.

- Law 34/2007 of November 15, concerning air quality and atmospheric protection, defines and sets out air quality objectives and serves as the regulatory framework for the preparation of national, regional and local plans to improve air quality.
- Royal Decree 102/2011, of January 28, concerning air quality improvement, transposes the contents of Directive 2008/50/EC of May 21, 2008 and Directive 2004/107/EC of December 15, 2004 into Spanish law.
- This royal decree was amended by Royal Decree 39/2017, to transpose Directive 2015/1480 to our legal system. This directive sets out rules regarding reference methods, data validation and location of measurement points for the assessment of ambient air quality.

Water quality

The main regulations that apply to the port are those related to the tracking and evaluation of surface water and environmental quality standards, as well as those related to discharges from unified sanitation systems into port waters.

 Royal Decree 817/2015, of September 11, which establishes the criteria for tracking and evaluation of surface water status and environmental quality standards. Royal Decree 509/1996, of March 15, 1996, developing Royal Decree-Law 11/1995, of December 28, 1995, which set out standards to be applied to urban wastewater treatment, and subsequent amendments.

Soil contamination

The main regulations that apply to the port are those relating to potentially contaminating activities and the criteria and thresholds for soil contamination levels.

- Law 22/2011, of July 28, concerning Waste and contaminated soil.
- Royal Decree 9/2005, of January 14, which sets out the list of activities which could potentially contaminate soil and the criteria and standards for the declaration of contaminated soil.

Energy transition and climate change

The main regulations that apply to the port in terms of climate change are those that encourage the use of renewables and allow electricity grids to be opened to new uses. The future Climate Change and Energy Transition Law will set out a legal framework to enable this transition

- Royal Decree-Law 17/2019, of November 22, which adopted urgent measures to adapt compensation parameters affecting the electricity system, and which addresses the procedures for thermal generation plants ceasing activity.
- Royal Decree 244/2019, of April 5, which regulates the administrative, technical and economic conditions for electricity self-consumption.
- Royal Decree-Law 15/2018, of October 5, concerning urgent measures related to energy transition and consumer protection.



Most relevant legal provisions in 2020

The main environmental legislation applicable to each specific activity is listed below:

- 1. Royal Decree-Law 23/2020, of June 23, which **approves measures related to energy** and other areas for the reactivation of the economy.
- 2. Entry into force of the **maximum sulfur limit for marine fuels in ships** during navigation of 0.5% sulfur by mass.



Reference documents

Guides and EMAS sectoral reference documents

On May 18, 2019, COMMISSION Decision (EU) 2019/61 of December 19, 2018, entered into force; it concerns the sectoral reference document on best environmental management practices, sectoral environmental performance indicators and benchmarks of excellence for the public administration sector, under the framework of Regulation (EC) No. 1221/2009 concerning voluntary participation by organisations in a Community eco-management and audit scheme (EMAS).

The APB, as an organisation that falls within the public administration sector, takes into account this sectoral reference document (SRD) when implementing and maintaining its management system and assessing its performance through its environmental statement.

To this end, this SRD sets out a list of Best Environmental Management Practices (BEMP), performance indicators and benchmarks of excellence that must be considered when dealing with those environmental aspects assessed as being significant or high impact.

Given the characteristics of the activity carried out by the APB within the public administration sector, the following sections concerning its significant environmental aspects are applicable:

- 3.1. Best environmental management practices for sustainable offices,
- 3.11. Best practices for environmental management in green public procurement and
- 3.12. Best environmental management practices in environmental education and information dissemination.

For this reason, the APB has taken into account the BEMP included in these sections when planning measures and actions to improve its environmental performance. In addition, others were identified that were already being implemented, and some which have been considered even though they are not directly related to its significant environmental aspects. All actions undertaken, as well as those planned for the future, are described in the different sections of this environmental statement.

Likewise, the sector-specific indicators for significant environmental aspects have been included in the EMAS indicators table attached at the end of this document.



Benchmarks of excellence

The benchmarks of excellence are intended to measure the level of environmental performance, taking as a reference the results obtained by the organisations in the sector with the highest levels of environmental performance.

The APB's performance relative to the benchmarks in the sections that apply to it, when results upon evaluation are favourable, are shown below.

Office waste generation (3.1.3.)

 No waste generated in office buildings is sent to landfills.

All office waste is collected selectively for final appraisal by authorised waste managers.

 Total waste generated in office buildings is less than 200 kg/full-time equivalent employee/year.

In 2020 the office waste generation indicator was 25.61 kg/full-time equivalent employee/year, well below the benchmark value.

Consumption of office supplies (3.1.4.)

 The office paper used is 100% recycled or certified with an ISO type I (2) eco-label (e.g., the EU ecolabel).

Currently, all paper purchased is PEFC certified, which guarantees that the raw material is obtained from sustainable forests.

Worker commutes (3.1.5.)

 Tools that encourage sustainable commuting for workers are developed and implemented.

The APB offers public transport tickets to its employees free of charge.

• Videoconferencing facilities are available to all staff, and their use is tracked and promoted.

All office and port police staff have access to on-line platforms for videoconferencing. Although in 2019 a low usage percentage was recorded, a large increase has already been perceived in 2020 owing to the implementation of the state of emergency brought about by the COVID-19 pandemic, which will strengthen habits of using these platforms in the coming years.





Reference documents

The information and data contained in this Environmental Statement has been obtained or calculated from our own sources, many of which are reported officially to different environmental agencies and authorities.

The images and graphics included in this Environmental Statement are either produced by the Company or acquired directly or indirectly from their authors for use in this Environmental Statement.

Excerpts taken from this Statement

The Barcelona Port Authority may edit and publish excerpts or summaries based on the information contained in this verified statement, with the goal of better dissemination and communication of information on environmental management.

To this end, it shall compile data and contents accurately, without modifying those already verified, and may indicate or reference these in the event of using other units or equivalences that may be more comprehensible to the recipient of the information.

The digital version of these excerpts will be available to the public, grouped in one place on the APB website so as to be easier to locate.

In any case, any modification to this Environmental Statement shall be communicated and transmitted to the certifying body for review and verification that such changes do not alter what has already been verified and established in accordance with the European EMAS Regulation.

Basic environmental indicators

The following table shows the basic environmental indicators relative to the number of workers and the surface area of the APB.



Indicators

Ratio \mathbf{R} = Magnitude A / Magnitude B

	ENVIRONMENTAL MAGNITUDE VALUE				RATIOS R / WORKER				RATIOS R / SURFACE AREA			
INDICATOR	2018	2019	2020	Unit A	2018	2019	2020	Unit R	2018			Unit R
Magnitude B	2010	2019	2020	OHIL A		571 workers		Official	24,354 m ²			OTHE IX
Wagiitaac B			CONSU	MPTIO	N OF MAT				2 1,55 1 111	2 1,55 1 111	2 1,33 1 111	
Paper	12	9	6	t	0.02	0.02	0.01	t/worker	0.00	0.00	0.0002	t/m²
Auxiliary maintenance mat.	955	541	491	L	1.67	0.95	0.91	L/worker	0.04	0.02	0.02	L/m ²
Gravel and riprap	230,103	834,327	90,956	t	402.98	1461.17	169.06	t/worker	9.45	34.26	3.73	t/m²
Concrete	39,627	54,327	13,632	m³	69.40	95.14	25.34	m³/worker	1.63	2.23	0.56	m³/m²
Steel	144,369	3,121	218	t	252.84	5.47	0.41	t/worker	5.93	0.13	0.01	t/m²
Dredged materials	416,243	480,485	0	m³	728.97	841.48	0.00	m³/worker	17.09	19.73	0.00	m³/m²
Backfill materials	14,170	1,203,665	1,149,183	m³	24.82	2107.99	2136.03	m³/worker	0.58	49.42	47.19	m³/m²
Screed	9,038	6,940	2,205	m³	15.83	12.15	4.10	m³/worker	0.37	0.28	0.09	m³/m²
Agglomerate	18,259	23,151	6,756	t	31.98	40.54	12.56	t/worker	0.75	0.95	0.28	t/m²
			ENE	RGY CC	NSUMPT	ION						
Total energy consumption*	7796	7631	7372	Mwh	13.65	13.36	13.70	MWh/worker	0.0026	0.0025	0.0024	MWh/m²
Electricity consumption*	6411.00	6578.07	6346.73	Mwh	11.23	11.52	11.80	MWh/worker	0.0021	0.0022	0.0021	MWh/m²
Fossil fuels	1385.08	1052.66	1025.72	Mwh	2.43	1.84	1.91	MWh/worker	0.06	0.04	0.04	MWh/m²
Energy consumption for heating ****	-	389.49	424.22	Mwh	-	706.24	812.68	Kwh/FTE	-	15.99	17.42	KWh/m ²
Electricity consumption in buildings ****	-	3523.87	3255.97	Mwh	-	6389.61	6237.50	Kwh/FTE	-	144.69	133.69	KWh/m ²
Total energy consumption in buildings ****	-	3913.36	3680.19	Mwh	-	7095.85	7050.18	Kwh/FTE	-	160.69	151.11	KWh/m ²
			WA	TER CO	NSUMPTI	ON						
Water for irrigation**	33,778	30,260	33,171	m³	59.16	52.99	61.66	m³/worker	1.44	1.29	1.41	m³/m²
Water in buildings	19,190	22,459	20,802	m³	33.61	39.33	38.67	m³/worker	0.79	0.92	0.85	m³/m²
Total water***	53,324	53,138	54,442	m³	93.39	93.06	101.19	m³/worker	1.11	1.11	1.14	m³/m²
			W	ASTE GI	NERATIO	N						
Total waste	1120	1114	1037	t	1.96	1.95	1.93	t/worker	0.05	0.05	0.04	t/m²
Total hazardous waste	60	15	6	t	0.11	0.03	0.01	t/worker	0.00246	0.00062	0.00023	t/m²
Gases in pressurised containers (including halons) containing hazardous substances	0.27	0.166	0.01	t	0.0005	0.0003	0.00002	t/worker	0.000011	0.000007	0.0000004	t/m²
Containers that contain traces of or are contaminated by hazardous substances	0.87	1.085	0.26	t	0.0015	0.0019	0.0005	t/worker	0.000036	0.000045	0.000011	t/m²
Batteries	0.05	0.109	0.11	t	0.0001	0.0002	0.0002	t/worker	0.000002	0.000004	0.000005	t/m²
Fluorescent bulbs/bulbs	0.07	0.004	0.02	t	0.0001	0.00001	0.00004	t/worker	0.000003	0.000000	0.000001	t/m²
Electrical/electronic waste	1.13	1.424	1.5	t	0.0020	0.0025	0.0028	t/worker	0.000046	0.000058	0.000062	t/m²
Toner	0.21	0.3515	0.28	t	0.0004	0.0006	0.0005	t/worker	0.000009	0.000014	0.000011	t/m²
Halogen-free machining emulsions and solutions	0.04	1.1	0.16	t	0.0001	0.0019	0.0003	t/worker	0.000002	0.000045	0.000007	t/m²
Laboratory chemicals containing hazardous substances	-	0.875	0	t	-	0.0015	0.0000	t/worker	-	0.000036	0.000000	t/m²
Medical	0.1	0	0	t	0.0002	0.0000	0.0000	t/worker	0.000004	0.000000	0.000000	t/m²
Bilge oil collected from wharves	-	0.18	0.25	t	-	0.0003	0.0005	t/worker	-	0.000007	0.000010	t/m²
Oily water from water separators/oily substances	51.42	0	0	t	0.0901	0.0000	0.0000	t/worker	0.002111	0.000000	0.000000	t/m²
Absorbents	1.7	0.313	4.12	t	0.0030	0.0005	0.0077	t/worker	0.000070	0.000013	0.000169	t/m²
Other solvents	0.22	0.052	0.76	t	0.0004	0.0001	0.0014	t/worker	0.000009	0.000002	0.000031	t/m²
Used oils	5.86	0.04	0	t	0.0103	0.0001	0.0000	t/worker	0.000241	0.000002	0.000000	t/m²
Paper and cardboard	35.97	27.797	28.25	t	0.0630	0.0487	0.0525	t/worker	0.001477	0.001141	0.001160	t/m²
Light packaging	4.68	10.053	4.23	t	0.0082	0.0176	0.0079	t/worker	0.000192	0.000413	0.000174	t/m²
Glass	1.32	0	2.08	t	0.0023	0.0000	0.0039	t/worker	0.000054	0.000000	0.000085	t/m²
Scrap	5.04	3.42	15.88	t	0.0088	0.0060	0.0295	t/worker	0.000207	0.000140	0.000652	t/m²
Rubble from smaller works	387.67	550.46	343.92	t	0.6789	0.9640	0.6393	t/worker	0.015918	0.022602	0.014122	t/m²
Tyres and bumpers	67.52	27.28	6.35	t	0.1182	0.0478	0.0118	t/worker	0.002772	0.001120	0.000261	t/m²
Ordinary	529.62	444.7	513.48	t	0.9275	0.7788	0.9544	t/worker	0.021747	0.018260	0.021084	t/m²
Ordinary												



	ENVIRONMENTAL MAGNITUDE VALUE			RATIOS R / WORKER				RATIOS R / SURFACE AREA				
INDICATOR	2018	2019	2020	Unit A	2018	2019	2020	Unit R	2018	2019	2020	Unit R
Magnitude B	}				571 workers	571 workers	538 workers		24,354 m ²	24,354 m²	24,354 m²	
Sewer cleaning waste	22.94	44.48	63.26	t	0.0402	0.0779	0.1176	t/worker	0.000942	0.001826	0.002598	t/m²
Clothing	-	0.152	0.11	t	-	0.0003	0.0002	t/worker	-	0.000006	0.000005	t/m ²
Hygiene	-	-	0.1	t	-	-	0.0002	t/worker	-	-	0.000004	t/m²
Gardening	-	-	49.16	t	-	-	0.0914	t/worker	-	-	0.002019	t/m²
Discarded equipment with hazardous components	-	-	0.02	t	-	-	0.00004	t/worker	-	-	0.000001	t/m²
Medical waste	-	-	0.08	t	-	-	0.0001	t/worker	-	-	0.000003	t/m²
BIODIVERSITY												
Total soil use	11,089,000	11,099,000	10,421,261	m²	19,438	19,438	19,370	m²/worker	-	-	-	-
Total sealed surface area	9,399,000	9,399,000	8,084,042	m²	16,461	16,461	15,026	m²/worker	-	-	-	-
Total surface area of the nature-oriented area	8,000	8,000	8,000	m²	14	14	15	m²/worker	-	-	-	-
EMISSIONS												
CO ₂ eq emissions	318	238	231	teq CO ₂	0.56	0.42	0.43	t CO ₂ eq /worker	0.01	0.01	0.009	t CO ₂ eq /m2.
CO2eq emissions buildings ****	-	71	77	teq CO ₂	-	128.75	148.15	Kg CO ₂ eq /FTE.	-	2.92	3.175	Kg CO ₂ eq /m2.

Notes:

- * Surface area of facilities + lighted exteriors: 3,041,743 m^{2.}
 ** Irrigated green areas: 23,512 m^{2.}
- *** Irrigated green areas + facilities: 47,866 m².
- **** Sectoral indicator for public administration associated with significant environmental aspects

FTE: Full-time equivalent employee



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Environmental management

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Air quality improvement

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Climate Strategy

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Prevention of soil contamination

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Waste management

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Ecology and biodiversity

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Environmental emergency plans

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Stakeholders

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Environmental compliance, guidelines and references

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Statement Validation



ENVIRONMENTAL STATEMENT VALIDATED BY:

ENVIRONMENTAL VERIFIER: LLOYD'S REGISTER QUALITY ASSURANCE ESPAÑA, S.L.U.

NUMBER: ES-V-0015

VERIFIER: FERNANDO ADAM MATAMALA

Certificates









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SUSTAINABLE GEALS