

# **Piraeus Port Authority S.A.**



## **Environmental Report**

**September 2016**

# 1. INTRODUCTION

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This Environmental Report demonstrates how the Piraeus Port Authority S.A., through established management systems, has continued its journey towards environmental excellence in the port, during 2014-2016.

This report does not address port users, tenants or contractors' operations, as environmental performance reporting is their own responsibility.

PPA SA integrates sustainability into all of its business decisions and activities as part of its role and advocate to preserve the environment and its limited resources for future generations. Information related to the port of Piraeus is available on the web-page of the Port Authority "<https://www.olp.gr>".

Protection is a priority for PPA SA in the provision of port services. The aim is to prevent, monitor and address environmental impacts associated with the daily operation of port services. It monitors developments in environmental legislation and new technologies that are developed to protect the environment and ensure the upgrade of its environmental performance.

PPA SA is member in the ECOPORTS European ports network, since 2011. This network aims at the cooperation and exchange of views and best practices among European ports on issues related to the environmental protection. PPA's environmental performance was the main criterion for its inclusion in the ECOPORTS network. The Environmental Management System applied is accredited by "PERS" / Port Environmental Review System. PERS has been developed by the European Sea Ports Organization ESPO as an Environmental Management System specifically set for port services. Furthermore, PPA has been awarded the International Standard "ISO 14001" for the Cruise Services and the Car Terminal.

For the evaluation and improvement of environmental performance, quality monitoring programs are applied to monitor the atmospheric, sound and marine environment, while the waste management of PPA's land facilities have been organized in such a way as to enhance recycling and reuse.

## **2. NATURE AND SIZE OF PORT ACTIVITIES**

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*Piraeus Port Authority SA was founded in 1930 as a public entity, which was converted into a Limited Company by means of Law 2688/1999; since 2003 it is listed on the Athens Stock Exchange. Its purpose is to manage and operate the Port of Piraeus, where it is seated, or other ports. The Company's scope spans throughout the whole range of port services, for all kinds of vessels, cargos and passengers. Moreover, PPA SA leases to third parties the use of premises and facilities under its responsibility.*

*The Port of Piraeus is the main sea gateway of Greece and one of the largest in the Mediterranean, since its geographical position makes it a focal contact point between the islands and the mainland, as well as an international marine tourism and transit trade center. The PPA SA functions as a development lever of the local and national economy, since its operations may affect the social and financial well-being of thousands of citizens and businesses; moreover, it plays a significant role concerning the developments in the fields of shipping, tourism, islands and maritime and land transports.*

*Piraeus Port offers unique advantages because of its strategic position and its infrastructure. It is the natural port of Athens just 10Km away from the capital, it is the country's main imports and exports gateway. It is the first European port after*

*the Suez Canal with the necessary infrastructure to serve transit trade and overland transport.*

**Figure 1.** Location of the port of Piraeus.



*Its main comparative advantages are summarised in the following:*

- *Strategic location on Asia's – Africa's - Europe's crossroads*
- *Adequate infrastructure and natural depth to serve the largest modern container, car and cruise ships.*
- *Operation of container terminals in the Free Zone of Type I.*
- *Operation of container, cruise and car terminals 24 hours a day, 365 days a year, as well as a Ferry Station.*
- *Supply of shipyard services.*
- *Land transport by train or by road to the Balkans and Central Europe.*
- *Implementation of an integrated information system for all port operations.*

- *Operating conditions and safety on the basis of international standards and regulations (ISPS).*
- *Certification by AEO - Authorized Economic Operator.*
- *Qualified and experienced staff for all port functions.*
- *Among the first ports in the Mediterranean to apply an Environmental Management System certified by PERS and ISO 14001.*

*In a glance, the port serves nearly 18 million passengers per annum, more than 2.0 million cruise passengers, approximately 0.5 million cars with more than 70% destined for other Mediterranean countries, and 2.7 million containers (TEU) per annum at two terminals.*

### 3. ENVIRONMENTAL POLICY STATEMENT

*The Piraeus Port Authority SA (PPA SA) services all types of cargo (conventional and unitized) from all origins to all destinations (import-export and transshipment), passenger traffic in relation to both coastal and cruise lines, and also hosts vessel repair activities. Thus, port's complexity of activities, may result in the emergence of environmental issues, related to port-area water body, noise and air quality.*

*The port facilities, in relation to the nature of activity conducted, include:*

- a) the operation of four domestic passenger terminals and two cruise terminals,*
- b) the operation of three container terminals (Piers I, II, III), including loading-unloading, transshipment and storage facilities of containerised cargo, as well as designated area for temporary storage of containerised dangerous goods,*
- c) the operation of two car terminals, including storage facilities,*
- d) the premises and land exploitation,*
- e) the exploitation of the ship repair zone and four dry docks (two floating and two stationary).*

*The first four types of the aforementioned activities are under the direct operational responsibility of PPA SA. The management of the ship repair-zone and the dry docks is performed by subsidiary companies of PPA SA, while the*

*relevant works and services on ships, are provided by private ships repairing and building companies.*

*Concerning the utilization of land areas, PPA SA operates a number of premises under its jurisdiction. Specifically, assigns third parties contracts for spaces used for: the operation of ships construction and repair, several industrial complexes, passenger recreational activities, canteens, warehouses, ship supply agencies and underground parking space in Ag. Nikolaos area. PPA SA also operates an underground parking area that serves mainly passengers who use the port. PPA SA retains the overall environmental supervision of these activities, while each private entity has to operate under specific environmental terms set by PPA SA.*

*PPA SA recognizes that port activities and its commitment on providing cost-effective and competitive facilities and services, could have impact on the environment. In this framework, PPA SA seeks to achieve long-term sustainable development by minimizing adverse emissions on the natural environment (air, land and water) and the society, in all its operations, activities and facilities. As such, PPA SA acknowledges the significance of environmental issues related to air, soil, noise and water quality and resources consumption. In this respect, priorities of our policy will be the effective management of waste, generated from port installations and ships, monitoring noise quality in the entire port area, Passenger and Commercial terminals and monitoring air quality at the Passenger and Cruise Terminals.*

*PPA SA is also environmentally sensitive and aware of all the environmental issues related to the development/expansion plans and works (current and future), the coastal resources and the need to monitor the adverse effects in the environment from ships, private companies and contractors that are facilitated and activated within the port area.*

*\* Environmental management system*

*Maintenance and further development of the currently implemented Environmental Management System (EMS), in order to deliver continuous improvement of the port's environmental performance, having as final target the PERS certification maintenance and also the certification of all the port services and activities (beyond the already Cruise ones) according to the ISO 14001 or EMAS standards. Currently, Cruise and Car Terminal Services have been awarded with ISO 14001.*

*\* Legal compliance*

*Compliance with all national laws, port regulations, international conventions and European directives under which, directly or indirectly, it operates. Also, PPA SA endorses the principles of the European Sea Ports Organization (ESPO) Environmental Code of Practice. In Addition, PPA SA will strive to introduce best port environmental practices, beyond any legal requirement.*

*\* Contracts-Leases-Concessions*



*PPA SA, in all its contracts and leases, shall ensure that its customers, tenants and contractors are required to comply with all applicable environmental laws. Appropriate environmental terms and procedures will be also established for all kinds of concessions of port operations.*

*\* Communication-Consultation*

*Carrying out of consultation and communication activities with all interested parties (port employees, ships, private transport companies, port users, contractors, tenants, suppliers) in order to enhance their environmental awareness and emphasize their environmental responsibilities according to the PPA SA environmental policy. Proper co-operation with national/local authorities and local community towards their environmental priorities and responsibilities.*

*\* Employees Training-Awareness*

*Assurance of adequate resources for staff training and information campaigns in order to keep the necessary knowledge and skills required from the nature of their activities, as well as to raise staff and port users' environmental awareness and improve port's environmental performance.*

*\* Accidents-Incidents*

*Commitment to prevention of pollution by maintaining a high level of preparedness and organizational operation of all appropriate contingency plans to respond effectively to any incident in the port area liable to harm the natural and social environment.*

*\* Resources conservation*

*Implementation of schemes and actions (e.g. energy review, proper infrastructure maintenance, possibilities of renewable energy resources, environmentally friendly technology) to improve energy, water and fuel efficiency within port operations.*

*\* Waste*

*Establishment of appropriate procedures for the minimization, reuse and recycling of port wastes and procurement of environmentally friendly materials, where appropriate.*

*Continuous monitoring and supervision of both ships-generated and port's installation generated waste handling and systematic review of all relevant legislative and technical requirements.*

*\* Air Quality*

*Implementation of a monitoring programme on air quality and CO2 footprint estimation in order to identify, assess and quantify port's significant air emissions and develop appropriate actions and operational techniques to protect and improve air quality within the port area.*

*\* Marine environment*

*Work and consultation with all port users and the city to identify, monitor and quantify all possible polluting loads and development of administrative and operational techniques to eliminate such pollutants and improve quality of the marine environment.*

*\* Noise*

*Implementation of an integrated monitoring programme of acoustic environment, covering the entire port area and focusing on the reduction of noise levels from sources related to container terminal operations, construction works, vehicles movements.*

*\* Environmental monitoring and reviewing*

*Monitoring, analysis, assessment, evaluation and review of both the port's environmental management performance (Policy, Action plans, Objectives, Targets, Compliance with legislation, total EMS, etc) and the environmental quality of the port area with special reference to its significant environmental aspects, according the appropriate performance indicators.*

*\* Resources*

*Adequate availability of necessary resources (human, equipment, financial) to implement and achieve our Environmental Policy and standards.*

*\* Publicity*

*Implementation of a regular programme of publicity campaigns on a variety of environmental issues related to port activities, communication of the environmental policy to the public (employees, tenants and contractors) and publication, every two years, of an Environmental Performance Report, available to the personnel, the public and other interested parties.*



#### 4. ENVIRONMENTAL MANAGEMENT SYSTEM

*The Port of Piraeus maintains an EMS which is compliant with the European Sea Ports Organisation (ESPO) "PERS" and the International Standard "ISO 14001" for the Cruise Services and the Car Terminal.*

*PERS stems from work carried out by ports themselves and it is specifically designed to assist port authorities with the functional organisation necessary to deliver the goals of sustainable development. PERS is adapted to deliver effective port environmental management and its implementation is independently certified by Lloyd's Register.*

*The ESPO Green Guide (2012) recommends PERS as 'the only port sector specific environmental management standard.'*

*Port of Piraeus has systematically identified that its significant activities interact with the following key priority issues (environmental issues):*

- Noise*
- Waste*
- Hazardous cargo*
- Marine quality*
- Air quality*
- Resources consumption*
- Risk/emergencies*

- *Compliance with regulations*

*The Port is committed to the principles of the ESPO Green Guide and establishes objectives and targets to achieve performance improvement in accordance with the Guide's '5Es':*

- *Exemplifying: Setting a good example towards the wider port community by demonstrating excellence in managing the environmental performance of our operations, equipment and assets.*
- *Enabling: Providing the operational and infrastructural conditions within the port area that facilitate port users and enhance improved environmental performance within the port area.*
- *Encouraging: Providing the incentives to port users that encourage a change of behaviour and induce them to continuously improve their environmental performance.*
- *Engaging: With port users and/or competent authorities in sharing knowledge, means and skills towards joint projects targeting environmental improvement in the port area and logistics chain.*
- *Enforcing: Making use of mechanisms that enforce good environmental practice by port users where applicable and ensuring compliance.*

*In 2005, Port of Piraeus was successful in certifying its EMS to the PERS standard and has recently submitted an application for its fifth re-certification. Furthermore, on March 2016, the port has been awarded the certification ISO 9001:2008 and ISO*

*14001:2004 for the Provision of Port Cruise Services for the second time and for the Car Terminal Services for the first time.*

## 5. ENVIRONMENTAL MANAGEMENT ORGANIZATION

*PPA SA has set up the appropriate organisational structure and designated staff to deal with the objectives specified in the policy statement.*

*The following figure presents the PPA's organizational structure for port environmental management. Environmental responsibilities of key personnel have been established, so that everyone knows actually the tasks assigned.*

*The Port Security & Environmental Protection Department has the general supervision on all port environmental aspects and takes the lead in managing the organization's commitments to environmental compliance, pollution prevention and continual improvement in the pursuit of a new goal of a sustainable port environment.*

*The Environmental Officer may report to the CEO through the Directorate of Administration, while according to the circumstances, for the dealing with specific issues, the Environmental Officer may ask the scientific assistance of external consultants (e.g. Universities, Private Companies and Experts).*



## 6. OVERVIEW OF THE PORT'S PERFORMANCE AND ENVIRONMENTAL ACTIONS

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*The Environmental Report enables PPA SA to present qualitatively and quantitatively the effectiveness of its environmental management programme, year by year.*

*PPA SA is committed to caring for the environment in which it operates and conducting its operations in a sustainable manner. PPA SA will continue to monitor and measure the influences of its operation on the environment, and to investigate, use, and, where possible, improve on best available environmental management technologies and practices.*

*PPA SA strives for excellence in environmental performance and seeks to set the highest benchmarks. Its performance during 2014-2016 continued to be in high level.*

### *7.1 Objectives and performance indicators*

*The environmental policy states a commitment to continual improvement. To control this process, PPA SA set a system of performance indicators, which are linked with specific environmental objectives.*

*Table 1. Objectives and performance indicators set by PPA SA for the period 2014-2016.*

Objectives	Performance Indicators
	<b>NOISE</b>
To ensure compliance with the relevant national legislation.	<ul style="list-style-type: none"> <li>Number of complaints per year</li> <li>Level of noise at port limits</li> </ul>
	<b>PORT WASTE</b>
To ensure compliance with relevant national legislation and priorities To improve port waste management	<ul style="list-style-type: none"> <li>Amount of biodegradable waste per annum</li> <li>Amount of recyclable waste per annum.</li> </ul>
	<b>HAZARDOUS CARGO</b>
To minimise the risk and the potential effects on environment and humans during an accident	<ul style="list-style-type: none"> <li>Amount of hazardous cargoes loading/unloading per annum and category</li> <li>Number of accidents per year</li> </ul>
	<b>SHIP-GENERATED WASTE</b>
To ensure compliance with all relevant legislation (MARPOL, 2000/59/EC, Hellenic)	<ul style="list-style-type: none"> <li>Implementation of the ship generated waste management plan</li> <li>Number of complaints for inadequacy of waste reception facilities</li> </ul>
	<b>MARINE QUALITY</b>
To minimise marine contamination from port activities	<ul style="list-style-type: none"> <li>Frequency of monitoring and concentrations' level of key quality parameters (physical, chemical, biological)</li> <li>Concentration levels of key quality parameters (physical, chemical, biological)</li> </ul>
	<b>AIR QUALITY</b>
To ensure compliance with the relevant national legislation	<ul style="list-style-type: none"> <li>Concentration of monitoring parameters</li> <li>Number of monitoring stations</li> <li>CO<sub>2</sub> footprint estimation</li> </ul>
	<b>RESOURCES CONSUMPTION</b>
To improve energy efficiency	<ul style="list-style-type: none"> <li>Level of fuel (engine and heating) consumption per year</li> <li>Level of electricity consumption per year</li> <li>Level of energy consumption for lighting</li> <li>Energy efficiency estimation</li> <li>Number of Photovoltaic Power Stations</li> </ul>
	<b>RISK/EMERGENCIES</b>
To prevent emergency situations and minimise their impacts	<ul style="list-style-type: none"> <li>Number of incidents (spills)</li> </ul>
	<b>COMPLIANCE WITH REGULATIONS</b>
To comply with all relevant environmental legislation and other standards	<ul style="list-style-type: none"> <li>Number of fines or indictments for non-compliance with regulations per year</li> <li>Number of complaints from the residential near to the port area</li> </ul>

*The objectives have been established considering the legal and other requirements registration, the significant environmental aspects, the financial and business requirements and the views of interested parties, while the indicators selected are relevant to the significant environmental aspects of the port and its policy statement.*

*Table 1 summarises the key environmental issues of PPA SA and the relevant objectives and performance indicators set for the period 2014-2016.*

## *7.2 Noise*

*The majority of the port noise sources are located at passenger and container terminal and are related to ships' engines, vehicles movement, equipment safety/security alarms and containers' putting on dock. As the major part of the port is surrounded by a circular road which serves both the city's*

*traffic needs and the entrance to the port, the identification of the noise levels coming directly from the port, either the night or the day hours, becomes complicated.*

*The most "sensitive" receivers near to the port activities are:*

- The residences of Perama settlement, at NW of the container terminals*
- The school facilities and the residences of Perama, at N of the container terminals*
- Residences, workers and churches around the central port*

*PPA applies a comprehensive noise monitoring programme in order to determine existing noise levels, evaluate alternative mitigation ideas and apply targeted programs to minimize impacts.*

*PPA is committed to investigate the complaints that set from the neighbourhood area in order to minimise impacts on the community and review the action to be taken.*

*The noise monitoring programme consists of 17 spots covered all the port area, commercial & passenger, while further measurements for linking the noise levels with the transport load are made around the port are made. Each set of measurements is repeated every six months (winter and summer period) and for each spot is indicated if PPA contributes primary or not to the noise levels.*

*The noise measurements are performed with the noise analysers Norsonic-116, Norsonic-118 and Norsonic-140a, using in parallel the calibrator Norsonic N-1251. The calculation of the transport load was made with the MetroCount 5600*

*Vehicle Classifier System, as well as manually in spots where no automatic measurements could take place.*

*The following table presents the Leq noise levels dB(A) in the main spots where PPA is considered as the primary noise source. The evaluation of the results shown, in general, conformity with the specified limit values.*

### *7.3 Marine quality*

*In accordance with the Environmental Terms of port's Operation issued by the competent Hellenic Ministry, PPA has established a comprehensive programme to monitor the seawater quality throughout the port area and identify, where appropriate, possible mitigation measures.*

*The programme is applied with the cooperation of the Universities of Piraeus and Cardiff (UK). As no specific Hellenic legislative framework defines the limits of the environmental parameters for port waters, international and European standards are applied.*

*The indicators being measured include:*

- OC, pH, TDS, Conductivity, Salinity, Turbidity, Dissolved Oxygen*
- BOD & COD*
- Heavy Metals Ni, Zn, Cu (in water column)*
- Nutrients (NH<sub>4</sub><sup>+</sup>, NO<sub>3</sub><sup>-2</sup>)*
- Oil hydrocarbons (in water column)*
- E-coli, Total Coliforms, Enterococci*

*Samples are taken twice a year from a grid of 27 locations, as presented in the following figures (green for the passenger port and red for the outer port).*

*The port-water quality, in terms of the abovementioned factors, can be influenced by a variety of internal and external factors, such as the vessel's stay at the port, the sedimentation yield from the docks after rainwater, the inflows of illegal sewages into port from shore enterprises and the city, the weather conditions, the currents and the waves levels during the year, the range of the port-water renewal.*

*Based on the measurements done the last seven years (2008-2016), the following data could be summarized:*

- The values of the physicochemical parameters of OC, pH, TDS, Conductivity, Salinity, Turbidity, Dissolved Oxygen do not vary notably during the years and show a good sea-water quality.*
- The values of the nutrients do not also vary notably during the years and show a normal distribution.*
- The values of the heavy metals inside the water column (at surface, -1m and -3m) do not vary notably during the years and their concentrations range within the normal limits presented in a sea water column.*
- The concentrations of oil hydrocarbons in 2015-2016 are smaller than the previous years and within the normal limits presented in a sea water column.*

#### *7.4 Air quality*

*In accordance with the Environmental Terms of port's Operation issued by the competent Hellenic Ministry, PPA applies since 2009 a comprehensive programme to monitor air quality, through a specialised monitoring station and identify, where appropriate, possible mitigation measures.*

*Figure 7. View of the monitoring station.*



*The permanent monitoring station has been installed on the west area of the central port of Piraeus, suitably equipped with specialized instruments and calibrated to measure/record the concentration of specific air pollutants during all day. The monitoring program is implemented in cooperation*

*with the National Technical University of Athens and records the following parameters:*

- ◆ Nitrogen oxides (NOX) ◆ Xylenes
- ◆ Sulfur dioxide (SO<sub>2</sub>) ◆ Ethylbenzol
- ◆ Carbon monoxide (CO) ◆ Ozone (O<sub>3</sub>)
- ◆ Toluene (C<sub>7</sub>H<sub>8</sub>) ◆ Benzene (C<sub>6</sub>H<sub>6</sub>)
- ◆ Particulate matter PM<sub>10</sub>

*The main port activities involved in air emissions are emissions generated by ship engines, local boiler houses of the enterprises and emissions produced by transport vehicles and cargo handling machinery.*

The results of the monitoring program helps PPA to identify the main sources of air pollution within the port area, record the significant air pollutants, assess the extent of the contribution of port operations to the air quality of the wider municipal-residential area and evaluate alternative mitigation ideas and targeted programs to minimize impacts.

The following Diagram 1 shows the BTEX yearly concentrations range during 2010-2016. The mean values are quite low and within the legislative limits.

Diagram 1. BTEX yearly mean values during 2010-2016.

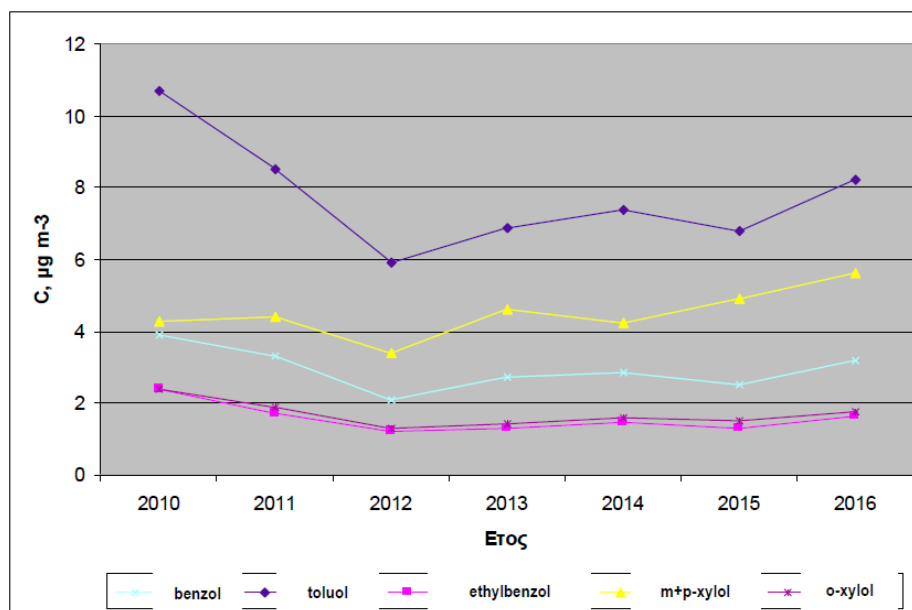
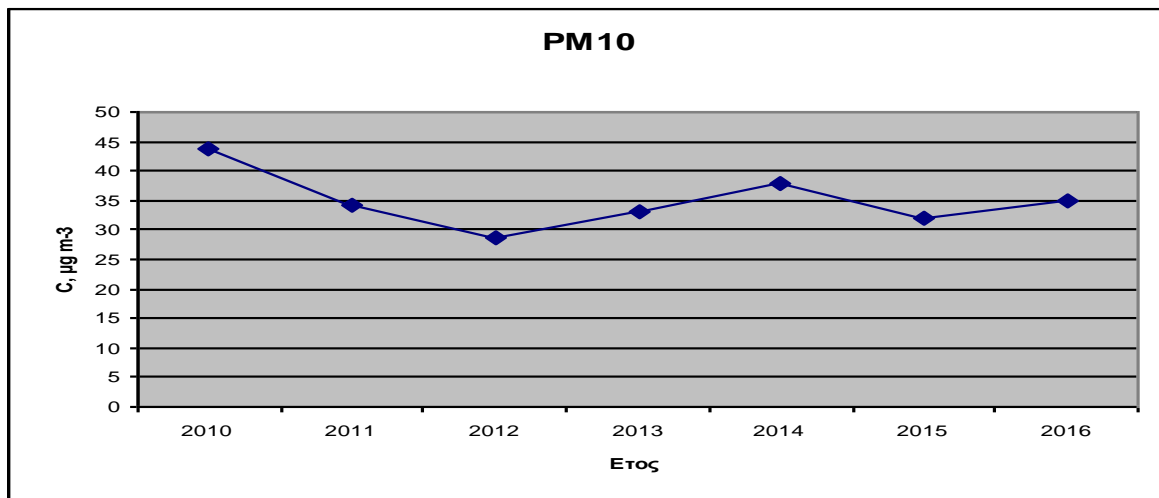


Diagram 2 shows the PM10 yearly concentrations range during 2010-2016. In 2014-2016 the annual mean value was 35  $\mu\text{g/m}^3$ , smaller of the limit of 40  $\mu\text{g/m}^3$  specified by Directive 2008/50/EC. The mean daily values of PM10 may exceed the limit value locally and for a very short while, during ships high traffic periods

*Diagram 2. PM10 yearly mean values during 2010-2016.*



*The NO<sub>2</sub>, SO<sub>2</sub> and CO concentrations during 2010-2016 presented no exceeding of the legislative limits of the mean hourly and mean 8hr values.*

*In 2014-2016, no complaints were received related to air quality, odour and light spills.*

### *7.5 Resources consumption*

*PPA SA recognizes that the resources consumption must be used in an efficient way across the port sector. In the following diagrams the annual amount of electricity, heating oil and fuel consumption are presented.*

*The gradual decrease of fuel oil consumption resulted from the rational use and maintenance of the port's machinery and vehicles. The consumption of heating oil depends usually on the weather conditions, while the gradual decrease show in general*



*the results of the proper maintenance and upgrade of the central heating systems applied the last years.*

*Electricity consumption depends on the daily operational needs and activities. Port of Piraeus' nature and size favours a high amount of daily energy consumed (e.g. ship-to-shore cranes, terminals lighting, reefer containers, administration buildings, workshops). PPA has continued to raise awareness on the subject throughout 2014/15 by promoting initiatives and behaviours to improve the balance of the demand and supply of energy and to reduce energy consumption.*

*Moreover, in the frames of PPA's Investment Plan 2011-2016, The PPA's first solar park generating energy using photovoltaic panels has been put into operation in July 2016, generating up to 430 kWp. The installation in the Piraeus freight port is 1,080 metres in length and has been linked up to the Public Power Corporation electricity grid.*

*The Solar Park has been implemented through an open international tender and installed in Neo Ikonio, the most power-hungry section of the port where the cranes loading, unloading and stacking containers are based. The installation will provide 635,000 'green' kWh per year to the electricity grid, corresponding to 635 tonnes of CO2 emissions that are avoided.*

*PPA SA has recognised the need to reduce resource consumption and particularly to save energy while continuing to*

*provide a safe and secure working environment. Electricity and oil usage has been identified in various energy efficiency reviews as an area for potential reduction. Indicative energy saving measures implemented by PPA SA are:*

- *Staff environmental awareness*
- *Purchasing of electrical equipment with > A energy class and certification*
- *Appropriate maintenance of the cooling and heating infrastructures*
- *Replacement of incandescent lamps with energy saving ones*
- *Improvement of buildings' energy efficiency*

*Further renewable and more efficient energy options across the port will continue to be investigated over the next years, while PPA will continue to encourage its tenants to explore renewable and other energy options through the adoption of good available practices.*

## *7.6 Waste*

*Ships, workshops, cargo handling, maintenance activities, buildings, passengers are potential sources of waste generation in a port area.*

*The management of the waste generated by the port activities is one of the most important aspects of PPA's environmental management, in view of the manifold port activities, the large*

*number of workers and the very high traffic of passengers through the port facilities.*

*Beside the daily collection and management of the biodegradable waste, a programme for the alternative management of the special waste streams generated from port activities is being implemented since 2009. The main waste streams in the port include:*

*(a) Waste generated in offices and other administrative activities*

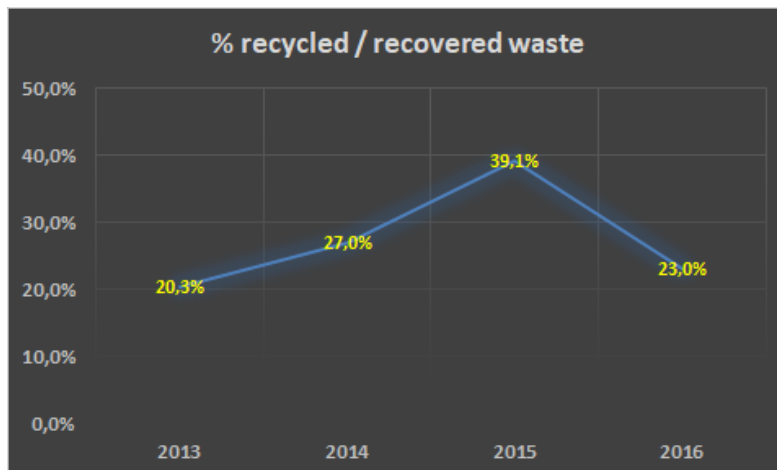
- ✓ Paper*
- ✓ Glass*
- ✓ Packaging*
- ✓ Empty ink cartridges & toners*
- ✓ Used batteries and accumulators*
- ✓ Waste electrical and electronic equipment*
- ✓ Biodegradable*

*(b) Waste generated in workshops & other areas*

- ✓ Waste lubricating oils*
- ✓ Batteries of industrial type*
- ✓ Waste electrical and electronic equipment*
- ✓ Tires*
- ✓ Waste timber*
- ✓ Operating waste workshop*
- ✓ Operating waste tanks (floating and fixed)*
- ✓ Scrap and metal*

- ✓ *Waste from excavation, construction and demolition*
- ✓ *Biodegradable*

*The program is implemented in collaboration with companies authorized in the waste recycle sector and include, mainly: identification of waste streams, location of appropriate receptacles, setting of signs, appointment of persons in charge for supervising the specific waste management,*



*communication with the recycling companies. Towards improving the effectiveness of the practice, PPA has developed a Handbook on*

*Waste Alternative Management, which includes thoroughly all the procedures and steps that port employees should follow for the appropriate waste collection and management.*

*Diagram 6. Types and amounts of shore generated waste during 2013-2016.*

*Diagram 6 shows the proportion in % of the waste driven for recycling/recovery in relation to the total waste generated by port operation.*

*The ratio has been raised from 20.3% in 2013 to 39.1% in 2015, falling again in 2016, showing, however, the dynamics of the PPA's efforts towards the four principles of waste reduction (reduce, reuse, recycle and replace).*

*Ship-generated waste, as appointed by MARPOL 73/78 and Directive 2000/59/EC, are collected and managed by specialized contractors according to a comprehensive waste*

*management plan, approved by the competent Hellenic Ministry. Diagram 7 shows the % composition of the waste received at port's reception facilities during 2013-2016.*

*Diagram 7. Analogy on the composition of the received ship-generated waste.*



*Oily waste, domestic & operational solid waste, hazardous waste, cargo residues, sewage and air cleaning remnants are appropriately managed through specific procedures, responsibilities and methodologies.*

*It should be noted that sewage coming from cruise ships are directly collected through a reception network system linked to the Biological Treatment Plant of Athens.*

*The whole operational framework is monitored by the Office of Port Reception Facilities.*

## *7.7 Risk / Emergencies*

*PPA SA acknowledges that the occurrence of emergencies due to its operation may have a significant impact on the environment.*

*PPA SA, through its staff and control procedures, tries daily to ensure that its activities are performed with the highest business and safety standards and requirements.*

*PPA SA responds to and investigates all reports of marine pollution and has highly trained staff and equipment to manage clean-up activities.*

*Emergency situations are fully covered by appropriate contingency plans:*

- The port Wide Environmental Emergency Preparedness and Response Plan, in coordination with appropriate responding local and national agencies, for situations such as fire and explosion.*
- The Oil and HNS (Hazardous and Noxious Substances) Spill Contingency Plan, according to the Hellenic legislation, the OPRC Convention and the HNS Protocol.*

*PPA SA has responded successfully to oil spill pollution call-outs over the past two years, all of which were minor and efficiently managed.*

## *7.8 Hazardous cargo*

*PPA applies a structured methodology for the documentation, handling, stowage and storage of dangerous cargo, which acts in parallel as a guidance material to assist port users to better understand the requirements for the management of dangerous goods within the port of Piraeus. The provisions set specify the relevant criteria for hazardous goods handling in freight containers, covering import, export, transshipment and in transit dangerous goods.*

*No relevant accidents on personnel or significant environmental emergencies have been reported during 2014-2016. It is noted that such events are managed, among others, through the Emergency Preparedness and Response Plan which covers situations such as fire, explosion, cargo spills, personnel accidents, etc.*

## *7.9 Environmental compliance*

### *7.9.1 Environmental notices*

*There were no environmental notices issued for poor or nonconforming environmental performance against PPA SA in 2015/2016 PPA's approach is to integrate the identification and management of environmental risks and issues across business functions and processes at all levels of the port of Piraeus, making environmental management an integral part of the way PPA SA does business.*

### *7.9.2 Legal compliance*

*We achieved almost 100% timely compliance with reporting conditions of environmentally related permits.*

### *7.9.3 Accidents and incidents*

*During 2014-2016 no major or serious/significant environmental accidents/incidents were recorded. All the reported incidents were minor in nature, and control mechanisms have been applied to prevent their recurrence.*

### *7.9.4 Environmental and community complaints*

*We received no complaints related directly to our activities during the reporting period. On other complaints related to issues beyond our control, PPA SA assisted as far as possible in investigating and resolving them.*

### *7.10 Best practices*

*Two indicative examples of successful approaches to environmental issues developed by PPA SA, during 2014-2016, are short described in the following. These examples of best practice are positive indications of the port management's ability to deliver environmental protection and sustainable development.*

#### *7.10.1 Installation of a Solar Power Plant*



*Towards the reduction of the greenhouse gas emissions generated by port operation and the promotion of the renewable energy use, PPA SA installed a 430.80 kWp Solar Power Plant. The Plant, through 1436 photovoltaic panels of 300Wp each one, is located in the area of the Container Terminal, along a wall and on the ground, covering an area not previously used. The operation of the Plant began in August 2016. It is estimated that almost 635 MWh will be produced annually, resulting in an annual reduction of 635 tons of CO<sub>2</sub> emissions.*

*Figure 8. PV panels installed along a wall and on the ground.*



#### *7.10.2 Optimization of the management of the oily ship generated waste*

*PPA SA, assessing the forthcoming increasing trends for adequate waste reception facilities, proceeded to a more sustainable model for the treatment of the oily waste collected from the ships calling at the port of Piraeus. To this end, as the oily waste treatment was performed so far through a floating separator, a land-based treatment facility has been installed based on the "zero waste principle", the reduction of the*

*environmental risk and the enhancement of the valorisation of the final product. The installation of the facility was chosen through an international tender, having long term contract. The treatment capacity of the facility is capable to handle all types of oily waste.*

## 7. CURRENT AND FUTURE COMMITMENTS

*Protection is a priority for PPA SA in the provision of port services. The aim is to prevent, monitor and address environmental impacts associated with the daily operation of port services. It monitors developments in environmental legislation and new technologies that are developed to protect the environment and ensure the upgrade of its environmental performance.*

*PPA SA aims to contribute to solutions to environmental and social issues, which are inextricably linked with the life and the social fabric of the cities surrounding the port facilities. PPA SA has always recognized its own responsibility in terms of the principles and values that characterize our culture. PPA SA attracts economic growth and it currently expands its economic contribution to the local and national economy by means of a social and environmental strategy that reflects its history.*

*For the evaluation and improvement of environmental performance, quality monitoring programs are applied to monitor the atmospheric, sound and marine environment, while the waste management of PPA's land facilities have been organized in such a way as to enhance recycling and reuse.*

*The involvement of all staff is essential to achieve positive results and is encouraged through educational and information programs. Services for environmental protection are also offered to vessels, including ship waste reception facilities. Ships can deliver waste and cargo residues, generated during their journey, for proper management at the port's reception facilities.*

*The energy needs of a port are huge, both for the operation of buildings and facilities, as well as for the servicing of cargo and ships. Measures are taken to use energy in an efficient and cost saving way.*

*The landscape configuration of the port is also pursued and to that purpose green building actions are implemented by selecting specific plant species suitable for the local conditions and with low maintenance needs. This way, along with the aesthetic improvement of the area also improved microclimatic conditions are achieved in the region.*

*Port of Piraeus is justifiably proud of its environmental performance history, especially since establishing a certified EMS (PERS) in 2005. Best Environmental Practice is now the standard for our daily operations and services. We recognise that the journey towards excellence is continual and the Top Management has identified key requirements for the next years which will allow us to take the next steps. These include:*

- Continue annual air quality monitoring*
- Continue annual noise monitoring*
- Continue annual marine quality monitoring*
- Continue co-operation with ECOPORTS and ESPO*
- Continue provision of Marpol ship-generated waste reception facilities*
- Energy and water use reduction in compliance with specific targets*
- Promote the landscape and the aesthetic image of the port*
- Continue invest in port staff environmental and capacity training*
- Continual legal compliance*

- *Enhance environmental and social performance through proactive engagement with key stakeholders*
- *Smooth implementation of PERS*
- *Smooth implementation of ISO 14001 for cruise and car terminal services*

*In conclusion, sustainable development is a key priority for the Port Authority of Piraeus. PPA is not only a very big business for Greece but also a major organization that can and should play a key role in the growth of the national economy.*



## *CONTACT INFORMATION*

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