



## OPS Master Plan for Spanish Ports project

2015-EU-TM-0417

Project co-financed by Connecting Europe Facility (CEF)

<p><b>Member States involved:</b> Spain</p>
<p><b>Implementation schedule:</b> Start date: November 2016 End date: December 2019</p>
<p><b>Budget:</b> Estimated total cost of the action: €6,206,574 Maximum EU contribution: €1,641,815 Percentage of EU support: 26.46%</p>
<p><b>Project Coordinator:</b> Organismo Público Puertos del Estado <a href="http://www.puertos.es">www.puertos.es</a></p>
<p><b>Additional Information:</b> <i>European Commission</i> <a href="https://ec.europa.eu/transport/">https://ec.europa.eu/transport/</a> <i>Innovation and Networks Executive Agency (INEA)</i> <a href="http://ec.europa.eu/inea/">http://ec.europa.eu/inea/</a> <i>INEA's fact-sheet:</i> <a href="http://ec.europa.eu/inea/sites/inea/files/fiche_2015-eu-tm-0417-s_final.pdf">http://ec.europa.eu/inea/sites/inea/files/fiche_2015-eu-tm-0417-s_final.pdf</a>  <i>Project website:</i> <a href="http://www.porweratberth.eu">www.porweratberth.eu</a></p>

- **OPS promotes areas free of noise and air pollution in ports**
- **On-shore power supply to ships at berth can help to ensure that the concentrations of Sulphur oxides and nitrogen SOx and NOx are kept below the limits established by the WHO.**
- **On-shore power supply for alternative H2 fuel for an auxiliary port service vessel**
- **Cooperation with ports to provide OPS to reduce emissions from shipping**
- **On-shore power supply to ships receives 9.6 Euros funding for each CO2 ton is avoided**

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## OPS promotes areas free of noise and air pollution in ports

06/06/2019 Electricity supply to ships at berth allows definition of zones without noise and air pollution in ports. Port authorities of Tenerife, Las Palmas and Baleares are completing definition of zones without noise and emissions at those berths which are provided with on-shore power supply from the electric grid.

These berths can be visualized below,



San Sebastian de la Gomera



Santa Cruz de la Palma

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Santa Cruz de Tenerife



Palma de Mallorca

Designation of these zones is being established in other ports in Europe. For example, the Port of Amsterdam has designated up to 4 zones the same as the one indicated below where OPS facilities are available at berth and generators are prohibited.



Port of Amsterdam

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**On-shore power supply to ships at berth can help to ensure that the concentrations of Sulphur oxides and nitrogen SOx and NOx are kept below the limits established by the WHO.**

02/06/2019. Maritime traffic on the Iberian Peninsula -located at the crossroads of the great maritime routes- leaves a significant trace of main atmospheric pollutants, Sulphur Oxides and Nitrogen Oxides (SOx, NOx) between them.

When ships approach port or are docked, pollution directly affects the population of port-cities. Thus, the connection of vessels to the electricity grids prevents high concentrations of these pollutants from exceeding the limit values.

The World Health Organization (WHO) establishes an average value of 20 and 40 µg / m3 for these pollutants, respectively. The WHO considers that by exceeding such concentration values there is a risk for the population:

- “SO2 can affect the respiratory system and pulmonary functions and causes eye irritation. The inflammation of the respiratory system causes cough, mucous secretion and aggravation of asthma and chronic bronchitis; It also increases the propensity of people to contract respiratory system infections. Hospital admissions for heart disease and mortality increase on the days when SO2 levels are highest. In combination with water, SO2 is converted into sulfuric acid, which is the main component of acid rain that causes deforestation. “
- Epidemiological studies have revealed that the symptoms of bronchitis in asthmatic children increase in relation to prolonged exposure to NO2. The decline in the development of lung function is also associated with the NO2 concentrations recorded (or observed) currently in European and North American cities. “

In the attached maps -based on simulations of the European program Copernicus ECMWF- both emission traces of Sulfur Oxides and Nitrogen Oxides (SOx, NOx) from the routes of the

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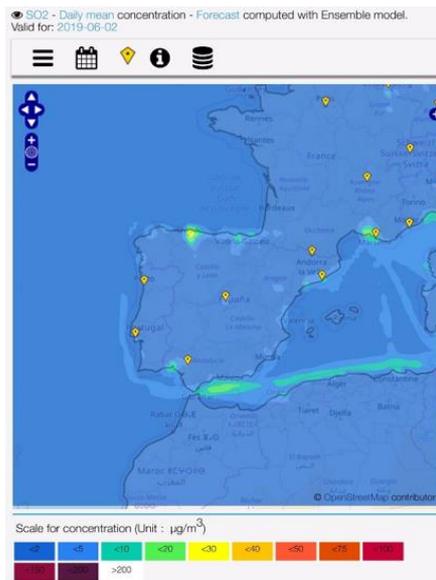
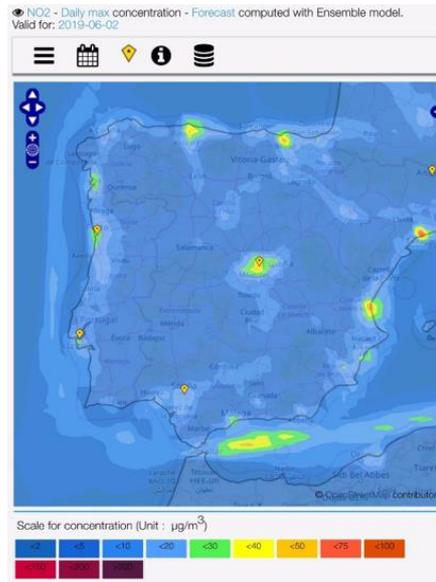
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sailing ships, as well as the concentration of such pollutants in the large port cities that can be seen in the surroundings of the established limits.



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## On-shore power supply for alternative H2 fuel for an auxiliary port service vessel

29/05/2019. Port authorities that are partners within “OPS MASTER PLAN for Spanish ports” project lead by PUERTOS DEL ESTADO postulated before Centro para el Desarrollo Tecnológico e Industrial (CDTI) to validate use of hydrogen as alternative fuel to fossil fuel for auxiliary boats in ports. Project refers to a vessel with 15 m length, 5 m beam and 2 m draught to monitor marine infrastructure building (i.e. breakwaters, dredging, etc.) and bathymetry works.

This proposal was addressed to the call of expression of interest for Innovative Solutions Orientated to national public demand (SIOD) under the auspices of CDTI and would allow construction of first auxiliary port boat propelled by hydrogen cell. Hydrogen being energy vector is able to feed with renewable electric energy by means of electrolyzer located in port areas close to the quay.

Port Authorities participating in project definition are Las Palmas, Tenerife and Baleares. As these port authorities administer several ports within correspondent archipelagos, it makes the case ideal for testing H2 vessel performance while sailing between ports.

## Cooperation with ports to provide OPS to reduce emissions from shipping

20/05/2019. United Nations body OMI adopted resolution MEPC.323(74) on Invitation to Member States to encourage voluntary cooperation between the port and shipping sectors to contribute to reducing GHG emissions from ships.

This could include regulatory, technical, operational and economic actions, such as the provision of: Onshore Power Supply (preferably from renewable sources); safe and efficient bunkering of alternative low-carbon and zero-carbon fuels; incentives promoting sustainable low-carbon and zero-carbon shipping; and support for the optimization of port calls including facilitation of just-in-time arrival of ships.

(more info at <http://www.imo.org/es/mediacentre/pressbriefings/paginas/11-mepc-74-ghg.aspx>)

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## On-shore power supply to ships receives 9.6 Euros funding for each CO2 ton is avoided

06/05/2019. "OPS MASTER PLAN for Spanish ports" project has been selected by financial program CLIMA within 2018 call, that is managed by National Office on Climate Change.

CLIMA financially supports projects contributing to reduce global warming of atmosphere. That is the case for OPS MASTER PLAN that promotes elimination of noise and air emission impacts of berthed ships on nearby population.

Thanks to CLIMA shipowners that switch off auxiliary engines in port and plug into electric grid will receive 9.8 Euros every ton of CO<sub>2</sub> avoided in port.

PUERTOS DEL ESTADO manages CO<sub>2</sub> emissions acquisition that will be certified by correspondent Port Authorities based on actual electricity consumption of ships at berth.

First OPS facilities benefiting from this trading of CO<sub>2</sub> emission would be ships of FRED OLSEN and ARMAS in ports of Santa Cruz de Tenerife, San Sebastián de la Gomera y Santa Cruz de La Palma; also, SASEMAR fleet and connected to the grid tugs could receive this new funding.

More info about CLIMA at:

<https://www.miteco.gob.es/es/cambio-climatico/temas/proyectos-clima/convocatorias-proyectos-seleccionados/default.aspx>

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