



CNSS

Clean North Sea Shipping

The Interreg IVB
North Sea Region
Programme

*Investing in the future by working together
for a sustainable and competitive region*



Clean North Sea Shipping

The shipping industry is currently at a crossroads. Regulations limiting air emissions are getting tighter and ship owners need to take steps in order to improve their performance. At the same time the pressure is on port owners and authorities to develop an appropriate infrastructure and provide alternative energy and power sources for ships calling at their ports.

CNSS KEY TOPICS

The Clean North Sea Shipping (CNSS) project (<http://cnss.no>) is part funded by North Sea Region Programme (Interreg IV B). The project is currently working on a list of recommendations which pull together a range of different experiences within the key areas of clean shipping technology, ship emissions - status and

scenarios - and policy options.

LNG AND OPS - THE WAY FORWARD

The clean shipping technology work has looked into a range of different technologies as a means to reduce air emissions. These include water addition at different stages in the combustion process, engine modification, concepts for post-emission treatment such as Scrubbers and Selective Catalytic Reduction (SCR), and the utilisation of alternative fuels. It is evident that Liquid Natural Gas (LNG) fuelled engines have the best overall performance having 60% reduction of NO_x, 90-100% of SO_x, 90% of particles (PM) and 0-25% of CO₂. This option is only rivalled by Onshore Power Supply (OPS) for ships while at berth, which reduces emissions of NO_x, SO_x and PM by more than 90% compared to the conventional auxiliary engine approach. Undoubtedly, OPS and LNG are proven as the way forward for the reduction of noxious emissions as well as greenhouse gases. However, this is only the beginning of the road towards zero emissions and there will be plenty of challenges to overcome in the future.

EMISSIONS AND SCENARIOS

The CNSS project has developed air quality models that couple ships' activities within the North Sea region and their emissions with meteorological data to determine not only the produced

emissions, but their travel in the air and aggregated densities in urban areas and ports. In a conducted scenario, using CNSS' simulation model, it was revealed that the contribution to the NO_x emission from shipping will be escalated by 28%, if NO_x Tier III regulation is delayed by another 5 years. The project is currently analysing the impact in terms of increased concentrations for different regions.

INDICES

The project has in particular analysed two key indices, namely Environmental Ship Index (ESI) and Clean Shipping Index (CSI), in detail. A number of strengths and weaknesses of each has been highlighted.

This study has identified the need for a unified indexing scheme considering real ships' exhaust gas emissions both at sea and near population centres and hence the need to develop incentives capable of delivering real environmental benefits for good shipping practices.

WHERE ARE WE HEADING?

CNSS will present its conclusions and recommendations at the final conference in March 2014 in Bergen, Norway. The recommendations will address a range of different topics including infrastructure, incentives, environmental indices, emission management practices for ports and more. ●



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For further information, check our web site <http://cnss.no>

The Clean North Sea Shipping project (<http://CNSS.no>) focuses on the reduction of air pollution and greenhouse gas emission from ships. The project partnership includes ports, industry, regional public authorities and research institutions.