EFFICIENCY OF ENERGY IN MARITIME TRANSPORT

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ABSTRACT

As the world's only reliable, global, cost-effective and energy-efficient mass transportation method for energy, materials, foods and products, maritime transport is central to sustainable development. And the maritime transportation system itself must, therefore, ensure that its development is also sustainable. The growing demand for transportation results in increased energy usage and emissions, affecting public health, Economy and the environment. It is essential to extend short-sea shipping in the EU in order to reduce the pressure on existing onshore infrastructure and to achieve emission targets. There are no simple solutions for reducing shipping pollution – a radical energy efficiency approach is called for. With the growing concerned over greenhouse gases and consumption of fossil fuels, the maritime industry governing body IMO has already taken positive steps by implementing Energy Efficiency Design Index which will monitor the amount of CO2 and other greenhouse gas emissions from ships.

The development of shipping transportation industries is associated with the environmental pollution. One of the main factors from Greenhouse Gases (GHGs) emission is carbon dioxide (CO2). carbon dioxide (CO2) emissions from shipping are currently too huge that almost emits around 1000 million tons of CO2 annually and is responsible for about 2.5% of global greenhouse gas emissions, and they are predicted to increase between 50% and 250% by 2050 – depending on future economic and energy developments. This is not compatible with the internationally agreed goal of keeping global temperature increase to below 2°C compared to pre-industrial levels, which requires worldwide emissions to be at least halved from 1990 levels by 2050. Ships' energy consumption and CO2 emissions could be reduced by up to 75% by applying certain energy consumption methods.

Lowering energy consumption helps to reduce carbon dioxide (CO2), sulphur oxides (SOx) and nitrogen oxide (NOx) emissions because of reduced load on the vessels diesel generators. A single average size seawater cooling pump can save $29,000 and 117 tons of CO2 per year. When applied ship-wide and fleet-wide these savings can be tremendous. The reality for the marine industry is that cost-efficient technology to save energy exists; it is just not being implemented rapidly enough. The result is that the industry faces an energy-efficiency gap. Researchers have found the reasons for the slow uptake of new technology are organisational failure, lack of time...
and shortage of competence. There is often no long term energy strategy with energy issues being
given low priority.

SEEMP is ship specific plan which can be efficiently implemented on vessels. The Marine
Environment Protection Committee (MEPC) of the IMO has prescribed certain technical
considerations and measures for reducing the CO2 emissions, with an agreed timetable for
adoption. This is what comprises the Energy Efficiency design Index (EEDI) which is on the
verge of being enforced soon.

This paper will discuss the problem concerns of ship’s gases emission and how it affects the
marine environment, and the different ways to incentivize energy-efficient ship operations to
encourage faster implementation of energy-efficiency measures and the inculcation of an energy-
efficiency culture, which lies at the heart of a sustainable maritime transportation system. In the
future of the maritime industry, its expected to have a new vessel design that fits the “targets” of
EEDI and will not be justified unless energy efficiency is monitored and balanced during the
operational life of the vessel too.