The MariFuture will be producing two papers for presentation at IAMU 2017 in Varna, Bulgaria in September 2017. The first paper concerns ship energy efficiency in support of the EU funded MariEMS project (http://www.mariems.com)and the second paper will report on the EU funded ACTS Plus project (http://advanced.ecolregs.com/)and its recent developments. This article contains a summary of both intended papers.

Paper 1 - Maritime accounts for approximately 90% of trade in the world today. In 2007 the global shipping industry estimated to have emitted 1,046 million tons of CO_2, 3.3 % of global emissions, and in 2015 this reached some 6 % of world total. The Industry has taken steps to reduce its Air Pollution and Carbon footprint. IMO introduced several new regulations such as the Ship Energy Efficiency Management Plan (SEEMP), Energy Efficiency Design Index (EEDI), & Energy Efficiency Operational Index (EEOI), while the MARPOL new regulations has imposed strict emissions caps in emission control areas. Ship owners have reacted to full fill these requirements meeting the future environmental requirements set for 2025. New ecological vessel concept for the northern sea areas, VG EcoCoaster, a 5000dwt dry cargo vessel, designed to operate in the northern conditions meeting ice class 1A requirements. Energy efficiency as high priority in all designs and ships is slow steaming using bio-fuel.

MariEMS is an industry-academia collaboration project funded by EU under the Erasmus+ programme. Project started in October 2015 and the duration is 30 months. The purpose of this Partnership is the development of an energy management job requirements as well as a training specification, and the development and implementation of an online learning and assessment system for the proposed training programme so that current cadets, as well as existing seafarers, can up-skill themselves to the new regulatory requirements and good practice.

The first set of objectives have been the design and development of the first international job specifications and training programme for the Maritime Energy Management role including learning materials. The project also entails the design and development a tailor made e-learning delivery platform for the proposed Maritime Energy Manager training programme. The intention is to to present the MariEMS job specification(s), training specification, training programme, and online delivery platform to International Regulators and awarding, accrediting and licensing bodies to secure international recognition and begin the process of setting the international standard for this new management role and educational area.

The paper presentation includes a demonstration of the MariEMS online e-learning platform.

Keywords: maritime energy management, energy efficiency, online, e-learning,

Paper 2 - It has been almost 40 years since the 1972 International Regulations for Preventing Collisions at Sea known as COLREGs were introduced, and regular amendments have been taking place accordingly ever since. Collision avoidance concerns ships colliding

with other ships. Over the last half-century despite improvements in navigational aids such as ARPA and attempts to raise the standards of training through the various STCW conventions, collisions still occur. Many studies and accident reports indicate that the accidents were caused by either human error or are associated with human error as a result of inappropriate human responses. Collisions commonly represent many of these accidents.

This paper discusses key issues regarding the application of Collisions Regulations (COLREGs) at sea and reports on the outcome of a recent EU funded eCOLREGs project known as ACTs and report on a Pareto Analysis supporting the work being carried out in a new project called ACTS Plus which considers more complex cases where there are several rule applying or where there are more than two ships involved in the collision. This paper does not attempt to examine each and every rule included in regulations but the EU Project ACTs and ACTS Plus online platform include some 290 scenarios many developed and videoed in ship simulators for those interested to review and explore more. ACTs Plus involve more complex scenarios. This paper discusses the importance of studying cases where the applications of certain rules or where more than one rule applies are open to misinterpretation. Special references will be made to project MAXCMAX where an attempt is being made to computerise the COLREGs.

Keywords: *COLREGs, maritime education and training, collision avoidance, Pareto Analysis*