Retrofitting towards climate neutrality

D1.1 Engineering and Preparations for retrofitting

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D1.1 Report for engineering and preparations for retrofitting **Green Marine**

EXECUTIVE SUMMARY

This document is the deliverable "D1.1 – Engineering and Preparations for retrofitting" of the European Union project "Retrofitting towards climate neutrality" (here referred to as "**Green Marine**"), with **grant agreement No. 101096522**.

Deliverable D1.1 is part of WP1 - Demonstrate retrofitting existing fleets. The WP1 objectives are related to conducting the necessary preparations for retrofitting, integration of our solutions in a sea/river borne vessel; implementing an air circulation system to save at least 50% more energy and prevent infections (business case); integrate, construct and operate GHG emission solution units in a sea and inland vessel of CalMac; performance test the GHG emission reduction solution capable with a flue gas flow rate; execute at least 3 complete assessments of the demonstrations and simulated demos with software platform.

The overall aim of Deliverable D1.1 is to produce an introductory assessment and provide the background information, engineering and preparation strategy and plan for retrofitting onboard a Calmac vessel. Initially, it presents the regulatory framework for shipping emissions under which carbon capture technologies fall in. Information for the current state-of-the-art projects on carbon capture technologies are provided while considering both developed and ongoing projects. The report outlines the qualification processes of new technologies followed by 6 major Classification Societies, with special attention given to onboard carbon capture and storage guidelines and requirements. The case vessel with its specification and arrangements is discussed as well as providing the potential for installation of the technologies onboard. 10 different scenarios including the onboard application of 5 individual technologies and 5 combinations of technologies are described as well. The WP1 internal workshop also took place providing useful insights supporting the way forward for onboard implementation.

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