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Maritime Law
Maritime Decarbonization

By Stefanos N. Roulakis and Vanessa C. DiDomenico*

As the international shipping industry prepares to reduce emissions, there are many recent developments that present both obstacles and opportunities that must be explored while preparing to set sail on the challenge.

IMO TIMELINE AND INTRODUCTION TO INITIAL STRATEGY

Shipping is already the most carbon-friendly form of transportation. Despite carrying approximately 90 percent of the world's goods, shipping only accounts for about 2.9 percent of global greenhouse gas emissions. While the maritime industry and its regulatory body, the International Maritime Organization ("IMO"), rightly are trying to reduce this number, the outsized role of shipping in the world economy and its relative impact on global emissions should be the starting point of any analysis.

A key aspect in the debate on how to decarbonize centers is on the difference in gross output as opposed to efficiency. The IMO's strategy contains targets for both types of metrics. The current goal seeks to cut overall greenhouse gas ("GHG") emissions by at least half by 2050 (using 2008 as a baseline). On the efficiency side, the shipping industry seeks to reduce GHG emissions per transport work by 40 percent in 2030 and 70 percent by 2050.

Attaining such targets will require innovation in operations and approaches. Shipping companies are working to reduce emissions and increase shipboard efficiency, and the IMO is coordinating measuring these approaches.

This will be done in two ways.

First, the technical aspects and design of vessels will be regulated by the new Energy Efficiency Existing Ships Index ("EEXI") for existing ships. EEXI regulations exist for an "Attained EEXI" to be calculated for each ship, and a "Required EEXI" for specified ship types.

Second, the operational aspect will be done by way of the new Carbon Intensity Indicators ("CII") index, which categorizes every ship in categories A to E in terms of its operational efficiency based upon the vessel's Data Collection Service ("DCS") information. Aspects of a vessel's CII will need to

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be documented under the existing framework of the Ship Energy Efficiency Management Plan ("SEEMP"). On or before January 1, 2023, ships of 5,000 GT and above will need to revise their SEEMP.

EXPLANATION OF THE IMO'S INITIAL STRATEGY SHORT-TERM, MEDIUM-TERM AND LONG-TERM GOALS FROM MEPC 76

The IMO's recent Marine Environment Protection Committee meeting ("MEPC 76") developed various short-term (2018–2023), medium-term (2023–2030), and long-term (2030–2050) measures. MEPC 76 approved a three-phase work plan aimed at supporting the Initial IMO Strategy on Reduction of GHG from Ships and its program of follow-up actions:

- Phase I—Collation and initial consideration of proposals for measures (Time period: Spring 2021 to Spring 2022);
- Phase II—Assessment and selection of measures to further develop (Time period: Spring 2022 to Spring 2023); and
- Phase III—Development of measures to be finalized with agreed target dates (Timeline: Target date(s) to be agreed in conjunction with the IMO Strategy on reduction of GHG emissions from ships).

The MEPC 76 meeting also included the adoption of amendments to MARPOL Annex VI. The amendments to MARPOL Annex VI (adopted in a consolidated revised Annex VI) are expected to enter into force on November 1, 2022, with the requirements for EEXI and CII certification coming into effect from January 1, 2023. This means that the first annual reporting will be completed in 2023, with the first rating given in 2024. A review clause requires the IMO to review the effectiveness of the implementation of the CII and EEXI requirements, by January 1, 2026, at the latest, and, if necessary, develop and adopt further amendments.

LATEST UPDATES FROM MEPC 77 AND COP26

The IMO MEPC 77 meeting was held November 22–26, 2021, in the wake of the COP26 event. Several proposals were advanced, including a two-dollar-per-ton bunker fee to pay for low-carbon propulsion research and an increase in the IMO's decarbonization strategy of reducing emissions by 100 percent, instead of 50 percent, by 2050. However, neither proposal was adopted. MEPC 77 did address the need for correction factors for certain ship types and operation profiles to be developed as well as the plan for previously developed SEEMP guidelines to be adopted at MEPC 78 in 2022.

Member states pledged to continue discussing decarbonization efforts in 2022 and 2023.

CURRENT DECARBONIZATION EFFORTS AND POTENTIAL CHALLENGES

There are many different decarbonization efforts that can be deployed. Technological measures include using alternatives (such as hydrogen, methanol, biofuel, LNG/LPG, batteries and ammonia) as well as utilizing hull coating and hull cleaning or air lubrication technologies to reduce drag and increased emissions.

Additionally, operational measures, such as speed management, route planning, and voyage optimization, can be used to maximize safety and fuel efficiency. Market-based measures, such as the use of economic or policy mechanisms like taxes, incentives, and green shipping credits, can also be used.

Management measures to assist with decision support, such as the use of optimal network design, fleet deployment, berth allocation, scheduling optimization, and vessel routing, also can be used to assist in reducing emissions by reducing fast-steaming practices that may result in idle time at anchorage due to port conditions.

The current projections from these efforts will not result in meeting the current targets set by the IMO and shipping community. As such, more research and development is needed to explore options to reduce GHG, such as alternative fuels, revolutionary changes in sailing patterns, or other yet unknown options.

CONCLUSION

The IMO is targeting a 40 percent reduction in CO2 emissions by 2030 and a 50 percent cut in greenhouse gas emissions by 2050. Meeting these goals will require significant deviations from the current norm in shipping. One particular tension is that as more and more goods are shipped, gross GHG output increases despite efficiency gains.

Research and development is needed to advance options to meet these targets. With the current delta between projected outcomes and targets, the industry and IMO must consider the costs of meeting these targets and how gains in efficiency aid overall reduction.

The path forward to decarbonization is starting to take shape, but the journey will require an all-hands-on-deck approach from all stakeholders.