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Maritime Decarbonization: A Regulatory Explainer

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Introduction

“Am I prepared?”

This is the question many charterers and shipowners are asking themselves right now. With GHG regulations entering into force in less than a year NOW is the time to assess your organization’s preparedness for this regulatory shock.

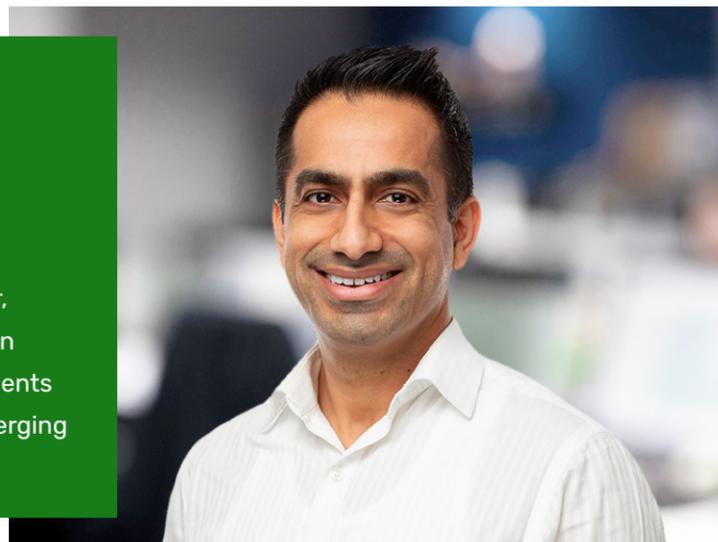
It’s with this in mind that we’ve produced this short technical guide to help you understand the new regulations and how they may impact your operations. As new information becomes available we’ll update our technical advice to reflect the latest from the IMO and other regulators.

About True North Marine

True North Marine is maritime industry consultancy which provides weather routing and performance monitoring services for charterers and shipowners worldwide. A trusted partner since 2013, TNM provides support and expertise beyond weather routing, including post-voyage analysis, emissions monitoring and reporting, and data analysis.

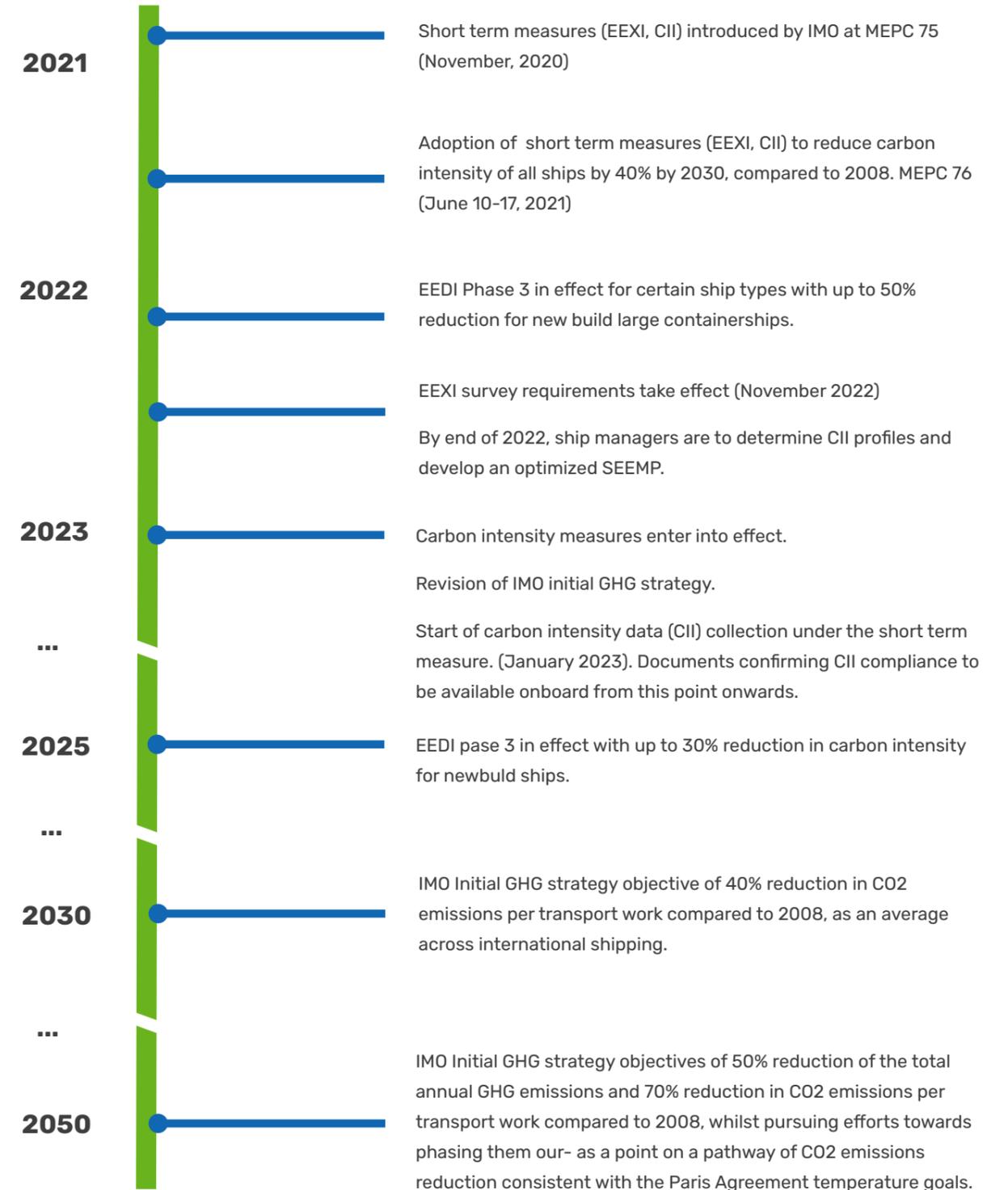
About the author:

Capt. Gurjeet Warya is the VP of Operations and Business Development at TNM. With over 15 years experience as a Master, Gurjeet draws on his expertise in vessel operations to help our clients understand and respond to emerging GHG regulations.

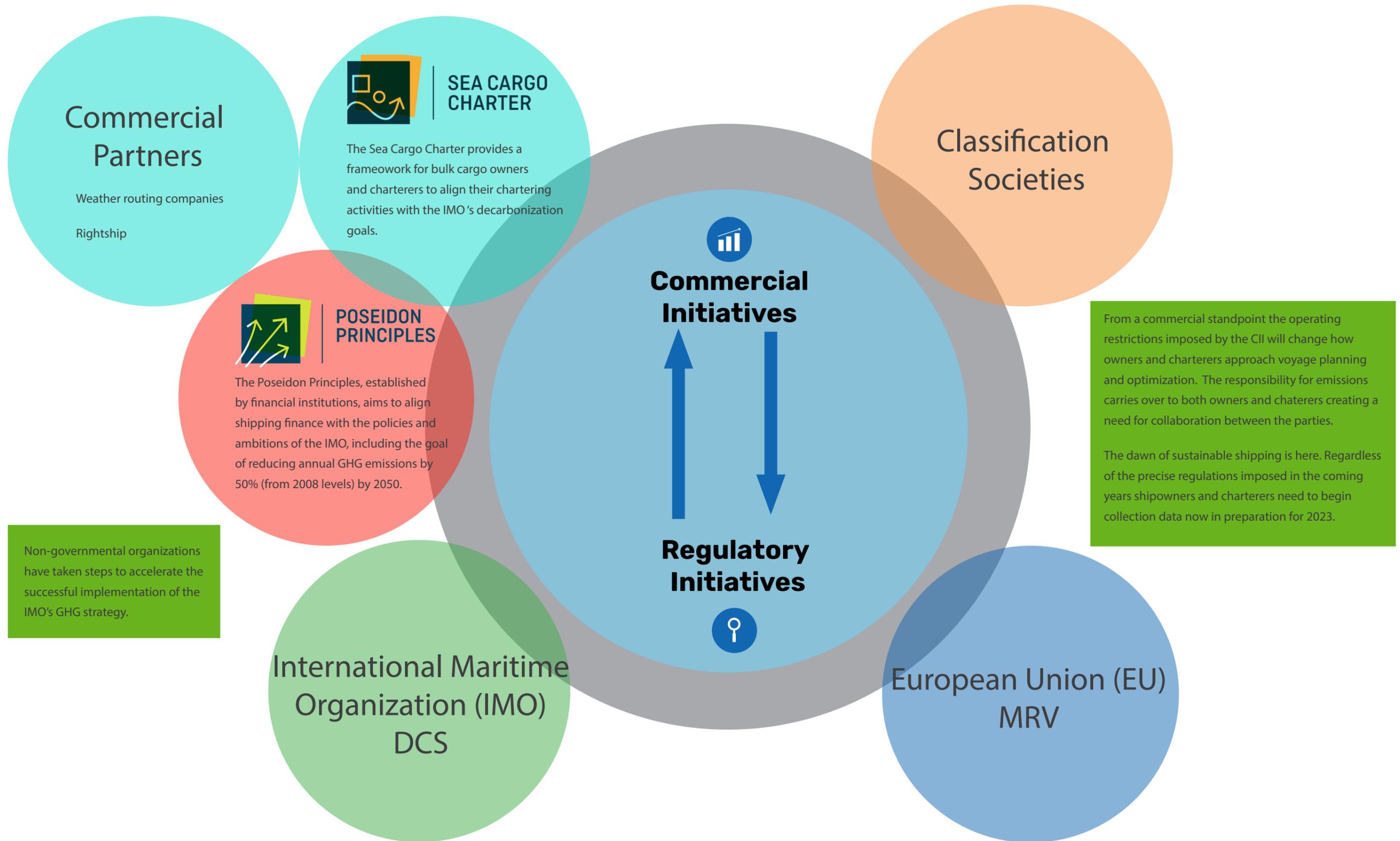


IMO’s Regulatory Timeline

Source: <https://www.imo.org/en/MediaCentre/HotTopics/Pages/Cutting-GHG-emissions.aspx>



Various Enforcement Regimes and Stakeholders



Commercial Partners

Weather routing companies
Rightship



SEA CARGO CHARTER

The Sea Cargo Charter provides a framework for bulk cargo owners and charterers to align their chartering activities with the IMO's decarbonization goals.

Classification Societies



POSEIDON PRINCIPLES

The Poseidon Principles, established by financial institutions, aims to align shipping finance with the policies and ambitions of the IMO, including the goal of reducing annual GHG emissions by 50% (from 2008 levels) by 2050.

Commercial Initiatives

Regulatory Initiatives

From a commercial standpoint the operating restrictions imposed by the CII will change how owners and charterers approach voyage planning and optimization. The responsibility for emissions carries over to both owners and charterers creating a need for collaboration between the parties.

The dawn of sustainable shipping is here. Regardless of the precise regulations imposed in the coming years shipowners and charterers need to begin collection data now in preparation for 2023.

Non-governmental organizations have taken steps to accelerate the successful implementation of the IMO's GHG strategy.

International Maritime Organization (IMO) DCS

European Union (EU) MRV

Understanding the EEXI

Energy Efficiency Existing Ship Index (EEXI)

The EEXI measure was approved at MEPC 75, November of 2020 as an amendment to MARPOL Annex VI. Like the closely related Energy Efficiency Design Index (EEDI), the EEXI is based solely on ship design.

The EEXI is a framework for determining the energy efficiency and CO2 emissions of in-service vessels over 400GT. Adapted from the EEDI for newbuilds, the EEXI requires ship owners to assess and measure their ship's CO2 emissions by design against specific emission reduction factors for each vessel type. Owners can then implement technical measures to adjust their vessel's emissions to the required level.

All vessel >400 GT which are subject to MARPOL Annex VI will be subject to the EEXI survey.

Vessels can undergo a preliminary EEXI assessment, then gain review for preliminary technical files and earn a statement of compliance.

Preparing your Technical File: Key Documents

EEXI Compliance

- NOX technical files for all engines (main / aux)
- Inclining test report
- Trim and Stab booklet
- Sea Trial Report for Speed test.



Methods to Improve / Attain your EEXI

- Engine Power Limitation (EPL)
- Engine Optimization
- Propulsion System Optimization
- Other Energy Efficiency Fittings

Verification of the ship in service's EEXI will take place at the first annual, intermediate or renewal survey for its International Air Pollution Prevention (IAPP) certificate after the entry into force of the amendment.

An EEXI Technical File must be issued for most types of ships *(except for ships which were already built in accordance with EEDI Phase 2 or 3 requirements in the past. The EEXI Technical File includes the calculation of the attained EEXI, which must be below a required EEXI value. This required EEXI value is defined for different ship types, with reduction rates related to the EEDI reference curve. These reduction rates are in the range of EEDI reduction rates related to phase 2 and 3, meaning that the required EEXI is almost in agreement with the requirements for current new builds.

The EEXI Technical file must be submitted for approval and is required to be carried on board afterwards. During the first annual, intermediate, or renewal survey after the effective date of the EEXI requirements (ie. in 2023), verification of the attained EEXI will take place and subsequently, the new IEE certificate is issued.

Process for Shipowners to reach compliance:

Step 1:

Either;
A) You hold an attained EEDI or;
B) If Not then you must complete the EEXI calculations.

Step 2:

Prepare your EEXI technical file.

Step 3:

Surveys and Verification Stage.

Step 4:

Obtain IECC (International Energy Efficiency Certificate)

Understanding The CII

Carbon Intensity Index (CII)

The CII requires in-service ships of over 5000 GT to quantify and report on carbon emissions from ongoing operations.

The CII is an operational measure. It provides ship operators with the factor by which they must reduce carbon emissions annually to comply with regulations and ensure continuous improvement. This means that each year a vessel's CII value must decrease.

The CII is calculated as a ratio of the total mass of CO2 emitted to Total Transport work undertaken in a calendar year.

Rating System

Based on the reported IMO DCS data vessels will be assigned a rating between A and E (with A being best) based on performance.

The ship's performance rating is determined by comparing the ship's Operational Carbon Intensity Performance (Note: TNM can calculate this based on your past voyage data) with Average Performance of other ships of the same type.

Vessels which receive a D rating (basis audits) for three consecutive years must develop and submit for approval a corrective action plan as part of their Ship Energy Efficiency Management Plan (SEEMP).

Process for Ship Operators to reach CII compliance:

Step 1:

Determine your Carbon Intensity Profile

Step 2:

Develop an Optimized SEEMP

Step 3:

Target Ongoing Improvements throughout the year

Step 4:

Calculate CII each year to verify compliance and competitiveness

Winds of Change?

How will these new regulations impact the industry and your operations?

The CII rating has the potential to disrupt the shipping industry in a few ways:

- CII rating will not only dictate a vessel's regulatory compliance but also their market competitiveness.
- Vessels with a higher attained CII will be perceived as more "green" and may command a premium in the chartering market.
- Chartering decisions will have to include consideration of the CII.
- While the CII rating is the owners responsibility, shipowners and charterers may need to work together to meet their respective emissions goals / obligations.
- It is highly likely that the CII will influence money markets and carbon credit trading.

Methods for improving your CII and EEXI to be compliant:

Ship operators may need to target ongoing improvement in order to attain or maintain compliance with either measure. There are many options for improving energy efficiency and limiting carbon emissions:

- Limiting engine loads and sailing on reduced speed.
- Switching to low-carbon fuels.
- Retrofitting vessels with new fuel of energy-efficient technology.
- **Route Optimization.**
- **Speed Optimization.**

True North Marine is proud to be a commercial partner helping charterers and shipowners navigate GHG regulation. If you have any questions about this document or how TNM can assist you with weather routing or GHG regulation please dont hesitate to contact us through our website or by emailing; ops@tnmservices.com

Weather Routing For All Seasons



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