



KR GEARS

<https://gears.krs.co.kr>

GREENHOUSE GAS **E**MISSION, **A**UTHENTIC
REPORTING **S**YSTEM

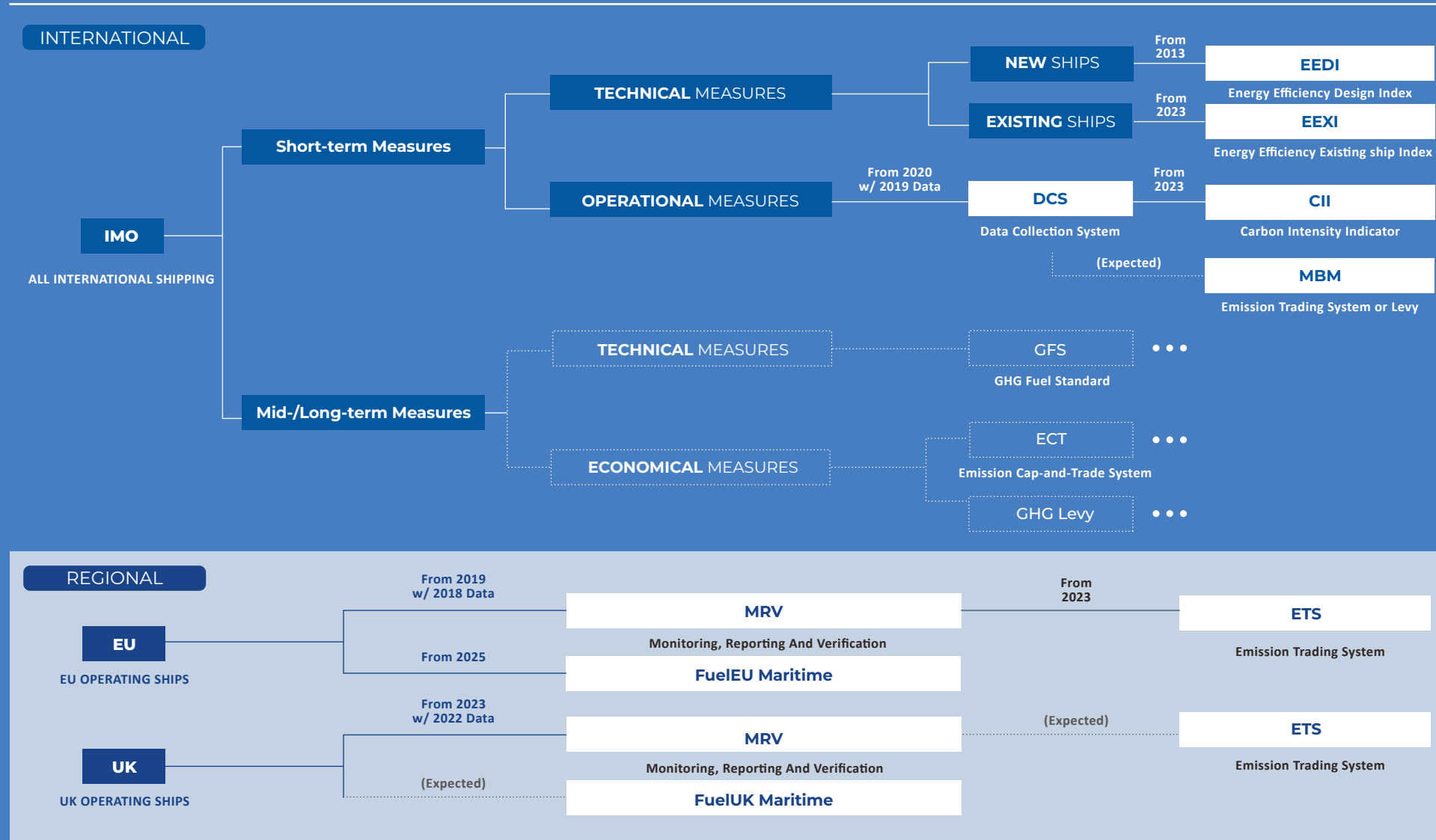


The transition to decarbonization is already underway, driven by technological advancements, policy initiatives, and market forces. It requires bold leadership and innovation to transform our economy and our society for the better.

KR-GEARs provide a one-stop solution for our clients to not only support the implementation of various GHG regulations but also **provide insights to ensure sustainability.**

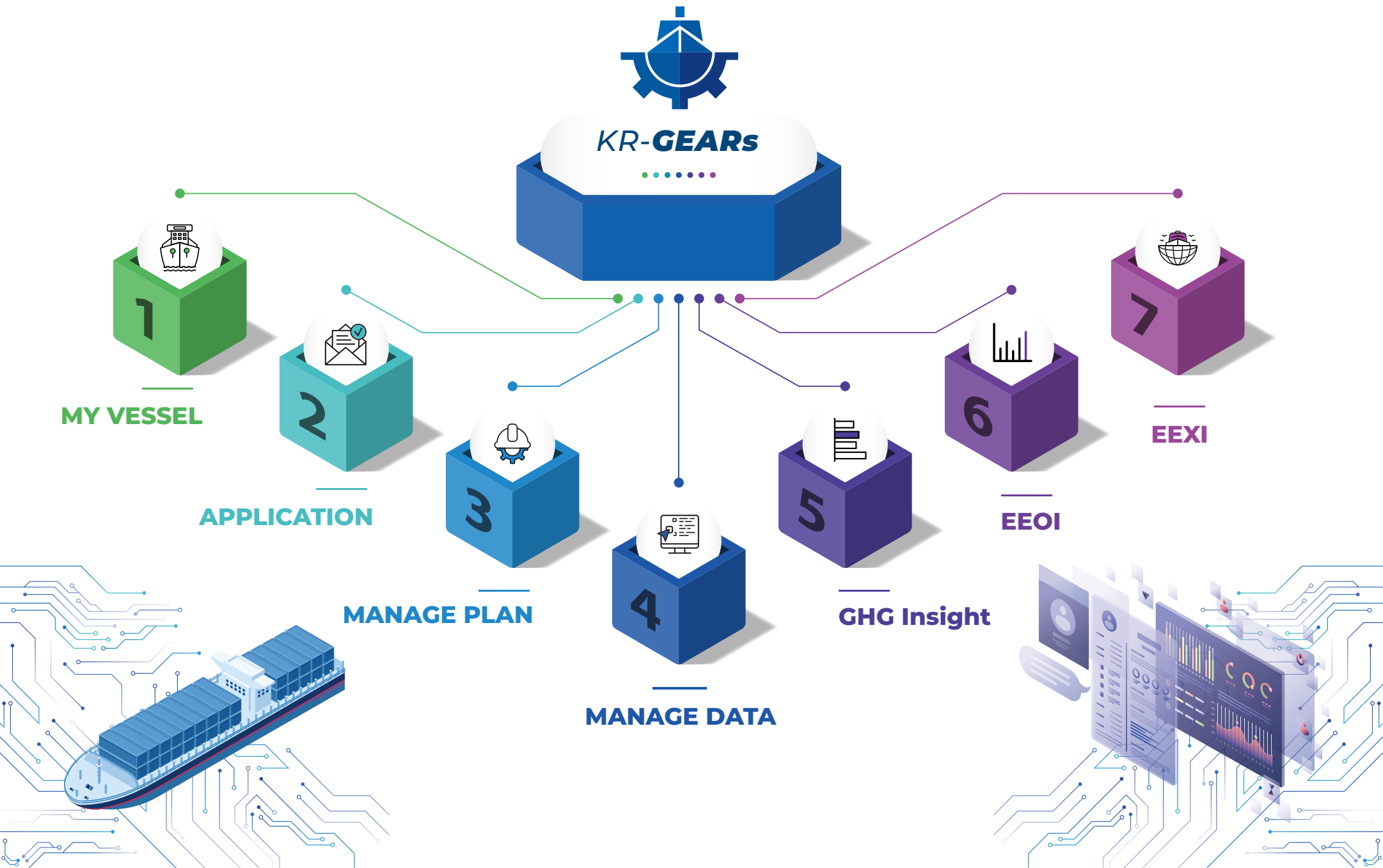


STATUS OF GHG REGULATIONS

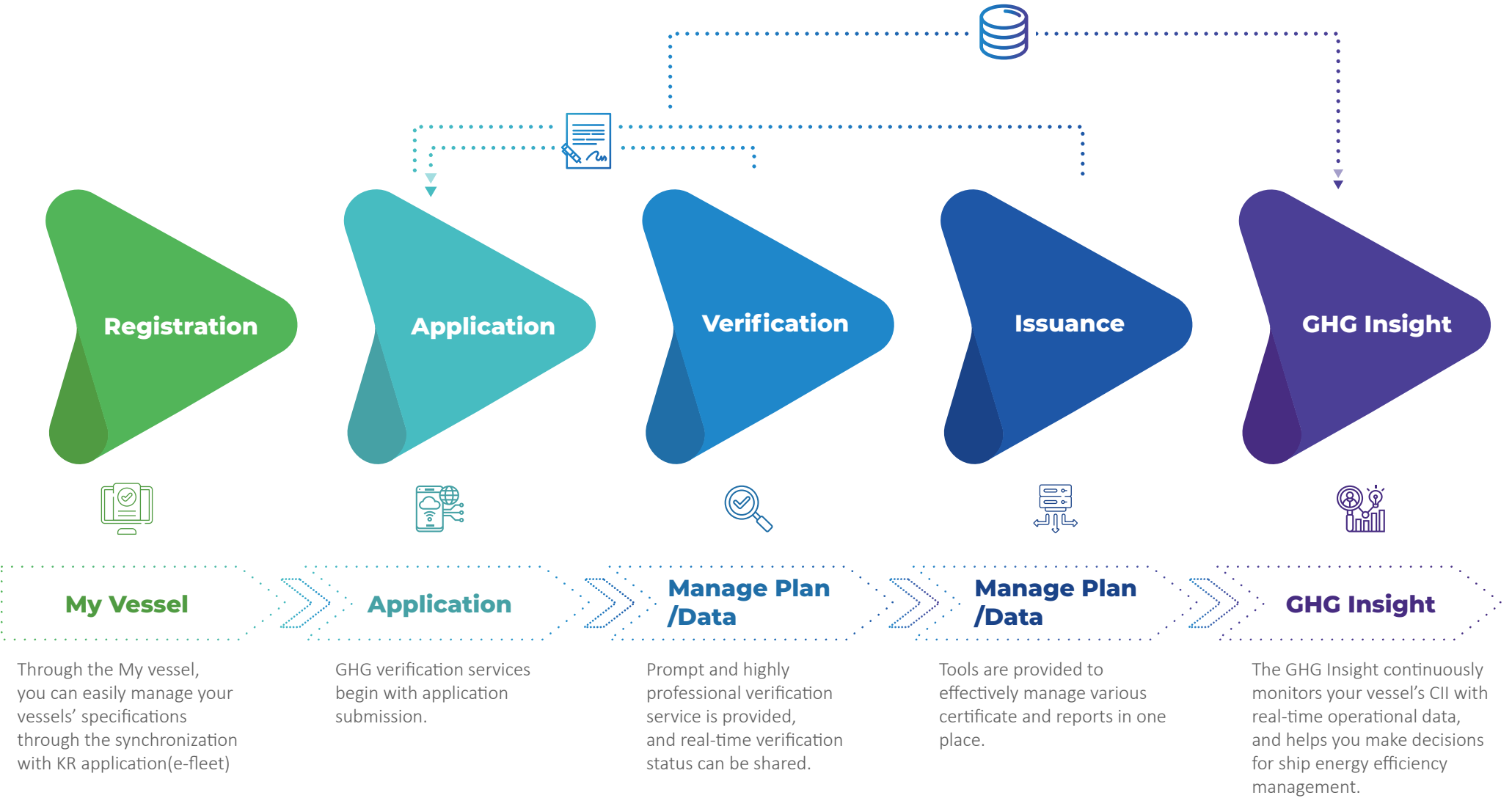




MAP OF KR-GEARs

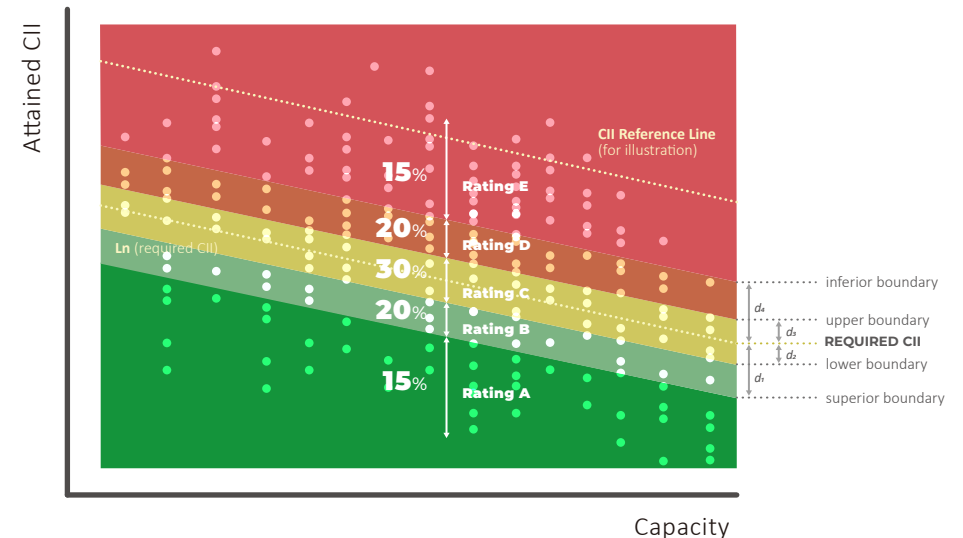


VERIFICATION FLOW



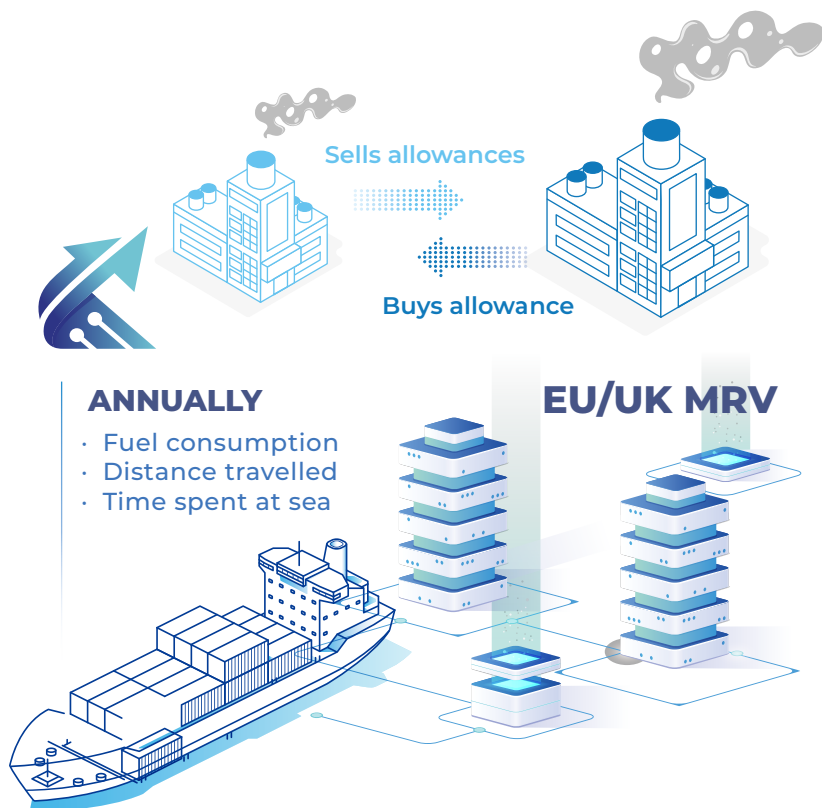
02 IMO CARBON INTENSITY INDICATORS

- Development of SEEMP Part III
- Calculation of Attained/Required CII based on verified DCS data
- Calculation of CII Rating based on verified DCS data
- Review of Corrective action Plan



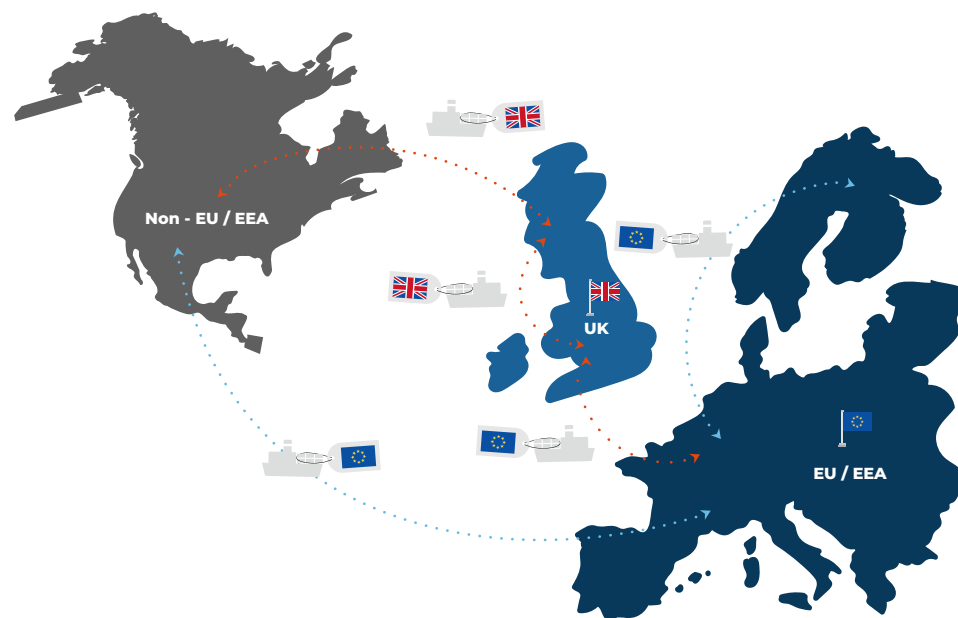
03 EU **EU MRV** EU MONITORING, REPORTING & VERIFICATION OF CO₂ EMISSIONS

- Development of Monitoring Plan
- Data report (Fuel consumption / CO₂ / time at sea / distance + α)
- Automatic calculation of voyage /annual data



04 UK **MRV** MONITORING, REPORTING & VERIFICATION OF CO₂ EMISSIONS

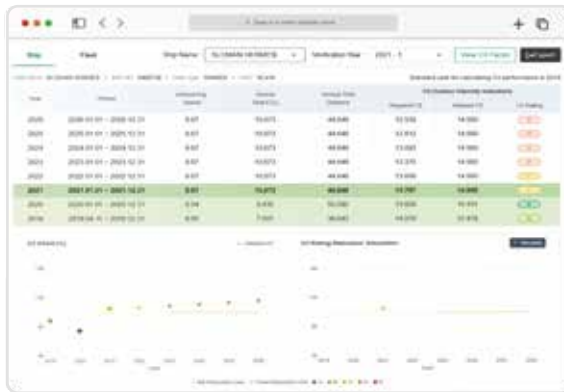
- Development of Monitoring Plan
- Data report (Fuel consumption / CO₂ / time at sea / distance + α)
- Automatic calculation of voyage /annual data



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GHG Insight

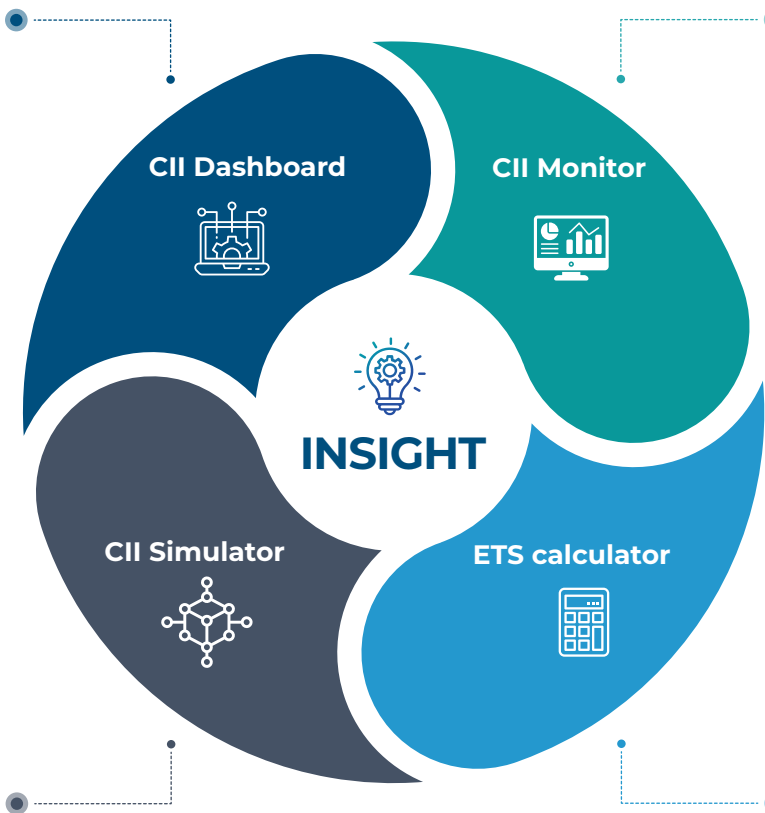
- CII Dashboard
- CII Simulator
- CII Monitor
- ETS calculator



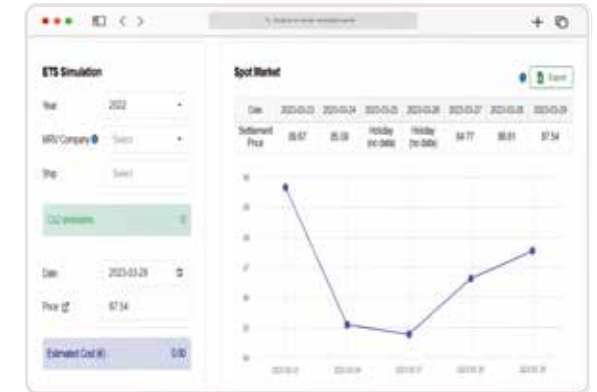
CII Dashboard



CII Simulator



CII Monitor



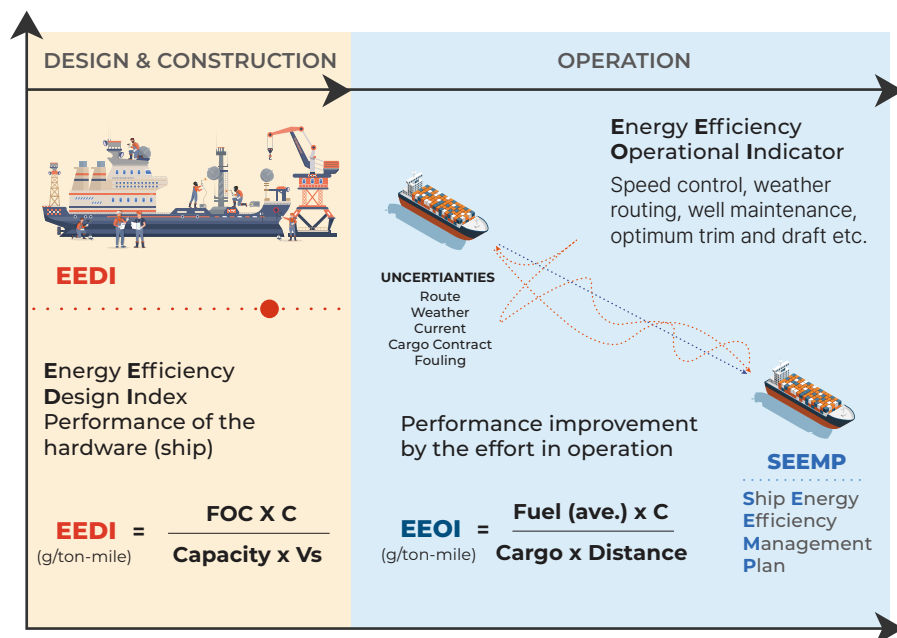
ETS calculator

06 EEOI ENERGY EFFICIENCY OPERATIONAL INDICATOR

- Automatic calculation with database
- Visualization EEOI / CO₂ / Fuel Consumption / Transport
- Supporting EEOI verification service with MRV and DCS data
- Additional points on Environmental Ship Index of IAPH
- One of trial CII's (EEPI, cbDIST, clDIST or EEOI)
- Benefit from Panamanian flag authority, 'Eco-Ship discount'

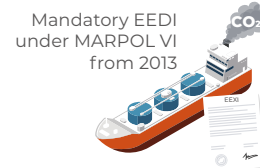
07 EEXI ENERGY EFFICIENCY EXISTING SHIP INDEX

- Calculation of Attained/Required EEXI
- Creation of EEXI Technical File
- Creating of Onboard Management Manual
- Submission of EEXI Technical File & OMM to KR-EDAS



Source : IMO presentation on Technical Measures

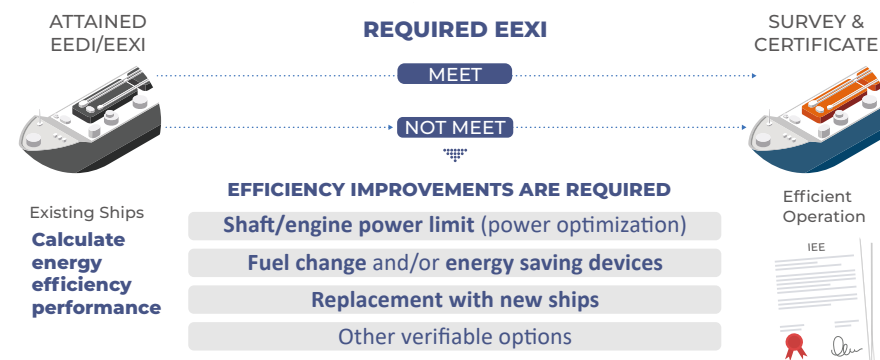
NEW SHIPS



EXISTING SHIPS



EEXI FRAMEWORK



KR will provide timely updates on the technical information and verification services for EU ETS and FuelEU Maritime.

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EU EMISSION TRADING SYSTEM

Including the maritime sector in the EU ETS is part of the EU's broader commitment to reducing GHG emissions. By putting a price on emissions, the EU hopes to encourage shipping companies to invest in cleaner, more efficient technologies and practices, ultimately reducing the sector's impact on the environment.

Applied ships

Cargo/passenger ships (5000+ GT)

Offshore ships (5000 GT)

Offshore and general cargo ships (400-5000 GT)

● EU MRV ● EU ETS

From 2018	From 2024
From 2025	From 2027
From 2025	To be decided from 2027

GHG Emission

Carbon dioxide (CO₂)

Methane CH₄ and (N₂O)

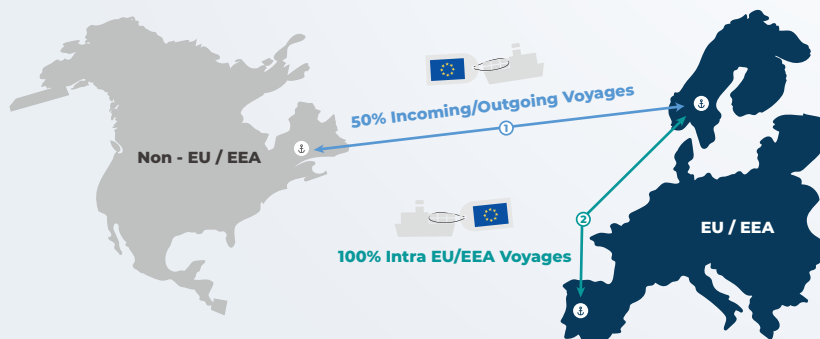
From 2018	From 2024
From 2024	From 2026

Surrender Allowances

% of emissions included in ETS scope

2024	2025	From 2026
40%	70%	100%

Scope of voyage



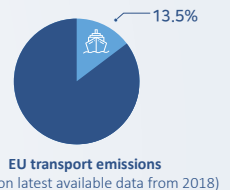
09

FuelEU MARITIME REGULATION ON THE USE OF RENEWABLE AND LOW-CARBON FUELS IN MARITIME TRANSPORT

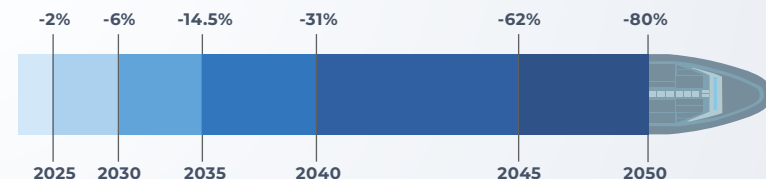
The main objective of the FuelEU Maritime is to increase the demands for and consistent use of renewable and low-carbon fuels and reduce the GHG emissions from the maritime sector.



The FuelEU maritime regulation will oblige vessels above 5000 gross tonnes calling at European ports (with exceptions such as fishing ships):



GHG Emission : Carbon dioxide(CO₂), Methane(CH₄), Nitrous Oxide(N₂O) GHG Intensity limit



To connect to onshore power supply for their electrical power needs while moored at the quayside, unless they use another zero-emission technology



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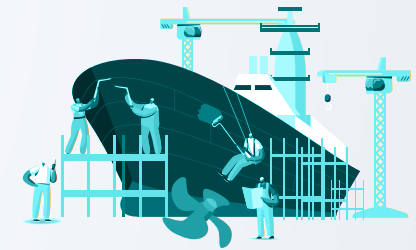
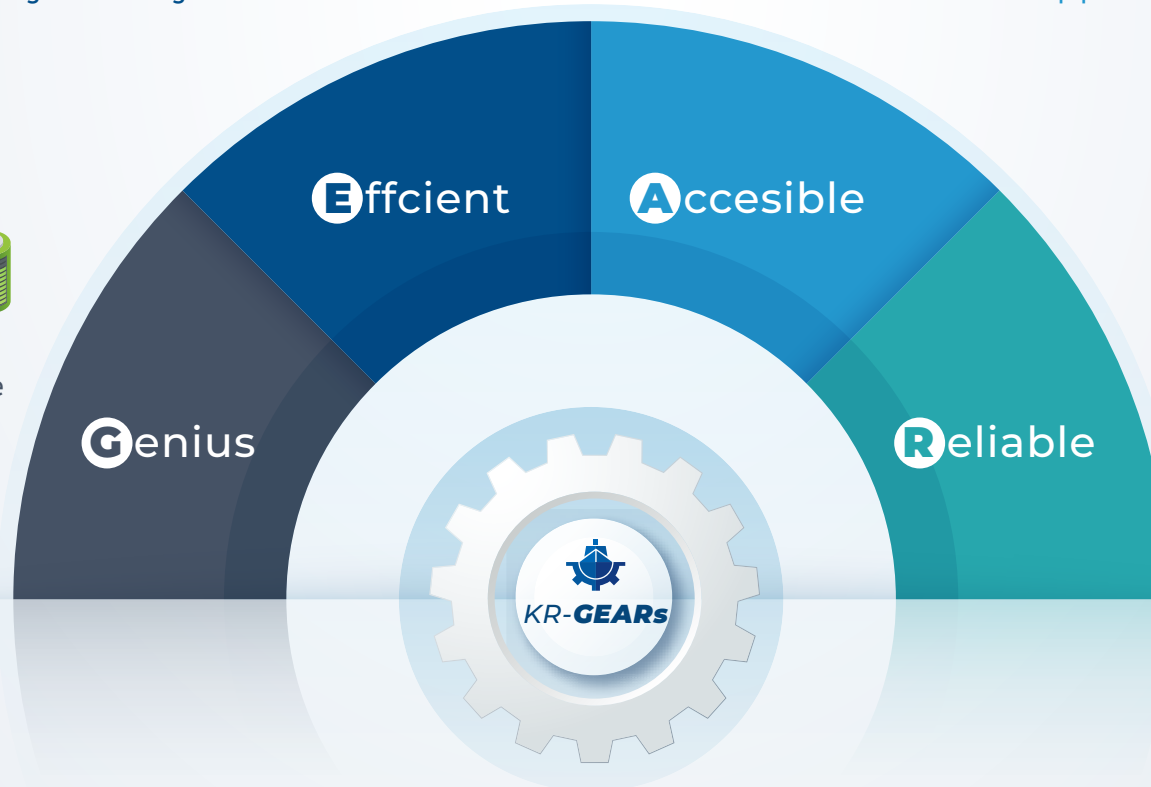
- Management of real-time operational data
- Time/Cost saving for verification service
- Minimizing effort for generation & submission



- Just log-in portal system by the internet
- Linking with KR e-fleet (No additional registration)
- Connection with smart ship platform



- Covering whole steps of service
- Managing plan(MRV&DCS) & data sequentially
- Supporting short-/long-term roadmap with real data



- Surveyors with industry-leading expertise & best practices
- Automatic generation aggregated data for data verification
- Real-time updates of regulations

GREENHOUSE GAS EMISSION, AUTHENTIC
REPORTING SYSTEM

KR GEARs

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