GLO Marine

DECARBONISATION ENVIRONMENTAL COMPLIANCE

Decarbonisation Roadmap for CII compliance and vessel lifetime extension

CLIENT CONFIDENTIAL

YEAR 2025

PLATFORM TYPE

Bulk carrier

CLASS

SOW

Decarbonisation strategy development, CII modelling, retrofit scenario evaluation, techno-economic analysis, and implementation roadmap.

9+
YEARS LIFETIME EXTENSION

14
MONTHS ROI

16.5%
FUEL SAVINGS ACHIEVED

CLIENT CONTEXT

CII downgrade risk and lifetime preservation

The 82,000 DWT bulk carrier, built in 2011/2012, was originally optimised for cargo capacity rather than fuel efficiency. Although rated C in 2024, projections showed a downgrade to D starting in 2025 under IMO Carbon Intensity Indicator (CII) regulations. The required corrective improvement was calculated at 20.2% fuel efficiency gain to maintain compliance. Without intervention, the vessel faced:

- Reduced charter attractiveness
- ESG and financing pressure
- SEEMP Part III corrective action requirements
- Potential early commercial phase-out

The owner required a technically sound and financially viable retrofit pathway aligned with 2026 dry dock planning.

THE WORK TO BE DONE

Project phases

Define a technically and financially viable decarbonisation pathway to prevent CII downgrade and extend vessel lifetime beyond 2030. The required scope included:

- Assessing the vessel's current performance baseline (fuel consumption, AER, CII trajectory)
- Determining the efficiency gap required to maintain C-rating
- Identifying all feasible retrofit and operational improvement measures
- Evaluating hydrodynamic, propulsion, digital optimisation and alternative support technologies
- Quantifying fuel savings potential per measure
- Comparing CAPEX, OPEX, ROI and compliance impact
- Assessing operational constraints (cargo impact, installation window, dry dock timing)
- Selecting a technically realistic and financially justified strategy
- Aligning the final roadmap with the scheduled 2026 dry docking

The objective was not just to reduce emissions, but to balance:

- Regulatory compliance
- Investment exposure
- Operational risk
- Asset value preservation

THE CHALLENGE

Closing a 20.2% efficiency gap

The vessel required significant efficiency improvement while:

- Avoiding high-risk or immature technologies
- Maintaining cargo capacity
- Limiting upfront CAPEX exposure
- Achieving short payback period
- Securing CII compliance through 2030+

The retrofit solution needed to be technically achievable during scheduled docking and economically justified.

Steps

01. Technical Diagnosis & CII Projection

GLO Marine conducted a full technical review of operational data for 2023–2024, including fuel consumption, distance sailed, and AER calculations.

CII trajectory modelling confirmed a downgrade to “D” starting in 2025 without corrective action.

An efficiency improvement target of approximately 20% was established to secure compliance.

02. Scenario modelling and evaluation

Four retrofit scenarios were developed and benchmarked, assessing fuel savings potential, CAPEX, OPEX, ROI, and long-term CII impact. Following comparative evaluation, the Low-CAPEX Scenario 1 was selected as the optimal balance between compliance security and financial performance.

The selected retrofit package included:

- Erma First Energy Saving Devices (FlexCap, FlexFin, FlexRing)
- Sonihull ultrasonic antifouling system
- Operational trim optimisation measures

03. Economic and performance results

Final projected results:

- 16.5% fuel savings
- CAPEX approx. $816,000
- 14-month ROI
- CII “C” maintained until 2030
- Estimated 42,000+ tons CO_2 reduction over evaluation period
- No cargo capacity reduction

04. Implementation roadmap

The retrofit was structured around the 2026 scheduled dry docking.

Integration complexity was minimised to reduce downtime.

A corrective action framework was prepared in line with SEEMP Part III requirements.

The final roadmap ensured compliance stability while preserving commercial flexibility.

The outcomes

Final results

- CII “C” rating secured through 2030
- 16.5% fuel savings achieved
- CAPEX: approximately $816,000
- 14-month ROI
- Approximately 9-year lifetime extension
- Reduced exposure under FuelEU Maritime and EU ETS
- No impact on cargo capacity or operations

GLO Marine delivered a structured, data-driven decarbonisation roadmap that balanced compliance, investment, and long-term asset value.

Through targeted retrofit selection and rigorous techno-economic validation, the vessel secured regulatory stability with controlled capital expenditure and measurable financial return.

GLO Marine

Your vessel upgrade partner

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