

INVESTOR-GRADE CASE STUDY

REFERENCE APPLICATION | SHORT-SEA AND REGIONAL FERRY OPERATIONS

RoRo Ferry Retrofit

Significant NOx reduction and improved fuel efficiency through EGR + FSO


**CET
MARINE**

RORO FERRY RETROFIT

Significant NOx reduction and improved fuel efficiency


VESSEL PROFILE

 Main Engines	4 × Sulzer 8L ZA40S
 Engine Output	4 × 5.7 MW
 Propulsion	Diesel Mechanical
 Application	Short Sea & Regional Operations



RESULTS ACHIEVED


78%
 NOx REDUCTION
 IMO Tier 0+ → IMO Tier II


11%
 FUEL SAVINGS
 With Fuel Saving Option (FSO)


11%
 CO2 REDUCTION


IMPROVED COMPLIANCE
 With current emission regulations


THE CHALLENGE

-  Reduce NOx emissions and environmental impact
-  Maintain operational reliability and performance
-  Minimize installation time and vessel downtime
-  Avoid high CAPEX and complexity of alternatives


THE CET MARINE SOLUTION

EGR + FUEL SAVING OPTION (FSO)

Our Exhaust Gas Recirculation (EGR) system recirculates a controlled portion of treated exhaust gas back into the combustion process, lowering combustion temperature and reducing NOx formation.


 Extract
 →
 
 Cool & Clean
 →
 
 Recirculate
 →
 
 Lower Temp. Less NOx


ADDITIONAL BENEFITS

-  **Improved Fuel Efficiency**
Approx. 11% fuel savings with FSO
-  **Lower Operating Costs**
Reduced fuel consumption and emissions
-  **Cleaner Operations**
Reduced environmental impact in ports and coastal areas
-  **Engine Reliability Maintained**
Proven solution with minimal operational impact


WHY IT MATTERS
 EGR provides a practical and cost-effective pathway to lower emissions while protecting operational reliability and minimizing downtime.


LET'S DISCUSS YOUR VESSELS
 Contact us for a fleet assessment and customized proposal.

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Approx. 78%

NOX REDUCTION

Approx. 11%

FUEL SAVING

Approx. 11%

CO2 REDUCTION

Tier 0+ -> Tier II

COMPLIANCE

Executive Summary

A concise, decision-ready case study for vessel owners evaluating practical retrofit options for existing diesel-mechanical propulsion assets.

CASE IN SHORT

A RoRo ferry equipped with four Sulzer 8L ZA40S main engines applied CET Marine EGR technology with the Fuel Saving Option to reduce NOx emissions, improve fuel efficiency, and support reliable daily operation.

Key outcomes

METRIC	RESULT
Engine type	Sulzer 8L ZA40S
Power output	4 x 5.7 MW
Compliance improvement	IMO Tier 0+ -> IMO Tier II
NOx reduction	Approx. 78%
Fuel saving with FSO	Approx. 11%
CO2 reduction	Approx. 11%

The Operational Challenge

- Reduce NOx emissions and improve environmental performance.
- Maintain operational flexibility and reliable ferry service.
- Limit space requirements, consumable handling, and installation downtime.
- Control total retrofit cost and long-term operating cost.

The CET Marine Solution

CET Marine installed an Exhaust Gas Recirculation system on one of the vessel's Sulzer main engines. The system returns a controlled share of treated exhaust gas to the combustion process, lowering peak combustion temperature and reducing NOx formation.

The retrofit also included the Fuel Saving Option, which supports more efficient combustion and helps reduce fuel consumption.

How the retrofit works



Results and Business Impact

ENVIRONMENTAL PERFORMANCE	OPERATIONAL PERFORMANCE	COMMERCIAL RELEVANCE
• Approx. 78% NOx reduction • Improved compliance with current emissions requirements • Reduced environmental impact in coastal and port areas	• Maintained engine reliability and performance • Fuel efficiency improved through FSO • Lower operating cost through reduced fuel consumption	• Practical route for ferry operators • Reduced complexity compared with many alternatives • Supports short-sea fleet modernization

Why this matters

For ferry operators and short-sea shipping companies, EGR provides a practical path to lower emissions while avoiding much of the complexity, consumable demand, and downtime associated with many alternative compliance technologies.

DISCUSS SIMILAR FERRY APPLICATIONS

Request a technical assessment to confirm engine applicability, retrofit scope, expected installation window, class pathway, and project-specific economics for similar RoRo or short-sea vessels.

Qualification: Performance, compliance outcome, installation scope, downtime, and economics are project-specific and depend on vessel design, engine configuration, operating profile, class/flag requirements, shipyard location, and final engineering review.