



CO₂ Carriers

Safe and efficient cargo handling systems for liquid CO₂ transportation



Liquid CO₂ Transportation

Milestone projects; ground-breaking research; safe and efficient cargo handling systems

DECADES OF EXPERIENCE IN A NEW MARKET – LIQUID CO₂

CUTTING EDGE

→ TGE Marine is involved in numerous ground-breaking studies and research projects for LCO₂ logistics worldwide.

MORE THAN 30

→ NDAs and agreements signed with major players in the cryogenic gas carrier business.

COOPERATION WITH

→ Shipyards across Europe, Asia and South America for all major gas shipping companies.

HOLDING MAJORITY

→ Of market share for purpose-built LCO₂ carriers for carbon capture and storage projects.

OVER THE LAST 43 YEARS

→ TGE Marine has developed safe and efficient cargo handling systems for cryogenic gases. State-of-the-art safety systems and sophisticated process controls are our core business.

We offer low pressure (8barg, -55°C) to medium pressure (19barg, -35°C) solutions, depending on your value chain. Even reliquefaction is possible.

Due to decades of experience with cryogenic gases, all TGE Marine LCO₂ cargo handling systems are equipped with highly sophisticated process control and safety systems, to prevent dry ice formation and operate the system safely and efficiently.

Medium pressure LCO₂ Carrier

- Type C Tanks
- Pdesign 19barg
- Tdesign -35°C
- uncooled

- combinations with e.g. LPG

- Pdesign > pressure build-up during voyage

Low pressure LCO₂ Carrier Without Reliquefaction

- Type C Tanks
- Pdesign 8barg
- Tdesign -55°C
- uncooled

- combinations with e.g. LPG/Ethylene

- Pdesign > pressure build-up during voyage

Low pressure LCO₂ Carrier With Reliquefaction

- Type C Tanks
- Pdesign 8barg
- Tdesign -55°C
- cooled
- higher Filling limit possible
- combinations with e.g. LPG/Ethylene

- Increased operational flexibility

- 'unlimited voyage', due to cargo conditioning



Depending on your LCO₂ business case and trade, TGE Marine will have a solution available!



Technical **solutions** for all steps of offshore CO₂ transport chain **are available**.



On-Shore CO₂ Liquefaction, Storage and Shipping **exists and is proven**.



Combination of CO₂ with cargoes like **LPG and Ethylene**, reduces the **risk** for early-movers.



CO₂ **Shipping** is a viable option for CO₂ logistics (large quantities).



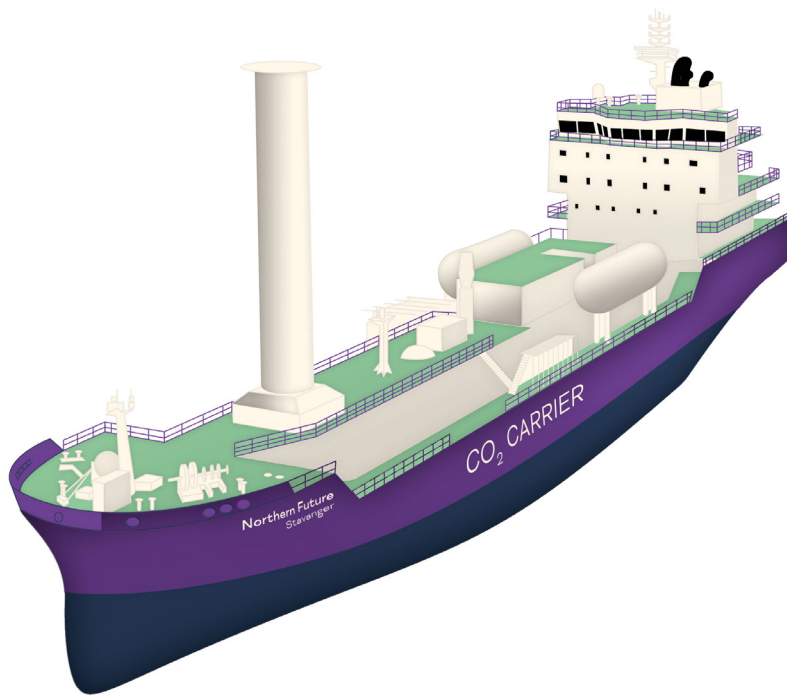
On-board **carbon reliquefaction and storage** solutions are available.



CO₂ Transport with **existing fleet** is **very limited**.



CCS important role on the CO₂ way to **net-zero and beyond**.



7,500 cbm CO₂ Gas Carrier

- **Owner** Northern Lights (Shell/Total/Equinor)
- **Yard** DSIC Dalian Shipbuilding Industry, China
- **Classification** DNV
- **Completion** 2024 (under construction)
- **Scope** Cargo handling system (excluding tanks) including engineering and procurement of the system
- **Highlight** First-of-their-kind CO₂ carriers: facilitating the first European full-scale CCS value chain



LCO₂ Carrier study (Dan–Unity) with AiP by Class ABS

Carbon capture & storage Conceptual development of LP LCO₂ Carriers

- **Owner** GreenSand Project in Denmark
- **Scope** Carbon capture & storage
- **12,500 cbm**
- **22,000 cbm**
- **50,000 cbm**



Headquarters

TGE Marine Gas Engineering GmbH

Mildred-Scheel-Str. 1
53175 Bonn
Germany

Phone +49 228 50218-0
Service Hotline +49 228 50218-247

Mail	info@tge-marine.com
Sales	sales@tge-marine.com
Purchase	procurement@tge-marine.com
After Sales	aftersales@tge-marine.com
Service	serviceline@tge-marine.com

www.tge-marine.com
www.linkedin.com/company/tge-marine

Branch office

TGE Marine Gas Engineering Technology (Shanghai) Co. Ltd.

Crystal Tower
11th floor, Room 01-1
No. 68 Yuyuan Road
200040 Jing'an District, Shanghai
P.R. China

Phone +86 21 6886-2091
Mail shanghai@tge-marine.com

