Continental
The Future in Motion

Leading the Charge in Renewable Energy

Marine Hoses and transfer systems for LCO_2 and Ammonia

www.continental-industry.com

Leading the Charge in Renewable Energy

Continental has been providing market-leading products and services to the worldwide oil, gas and marine industry for well over 60 years.

In our pursuit of a sustainable future, renewable energy solutions play a pivotal role. At the forefront of these innovations are our LCO_2 (Liquid Carbon Dioxide) supporting Carbon Capture and Storage (CCS) and Ammonia hoses – for use in large scale transfer of Ammonia both as a fuel and as a carrier for Hydrogen. Two critical technologies that are significantly contributing to revolutionising the energy landscape and future infrastructure.

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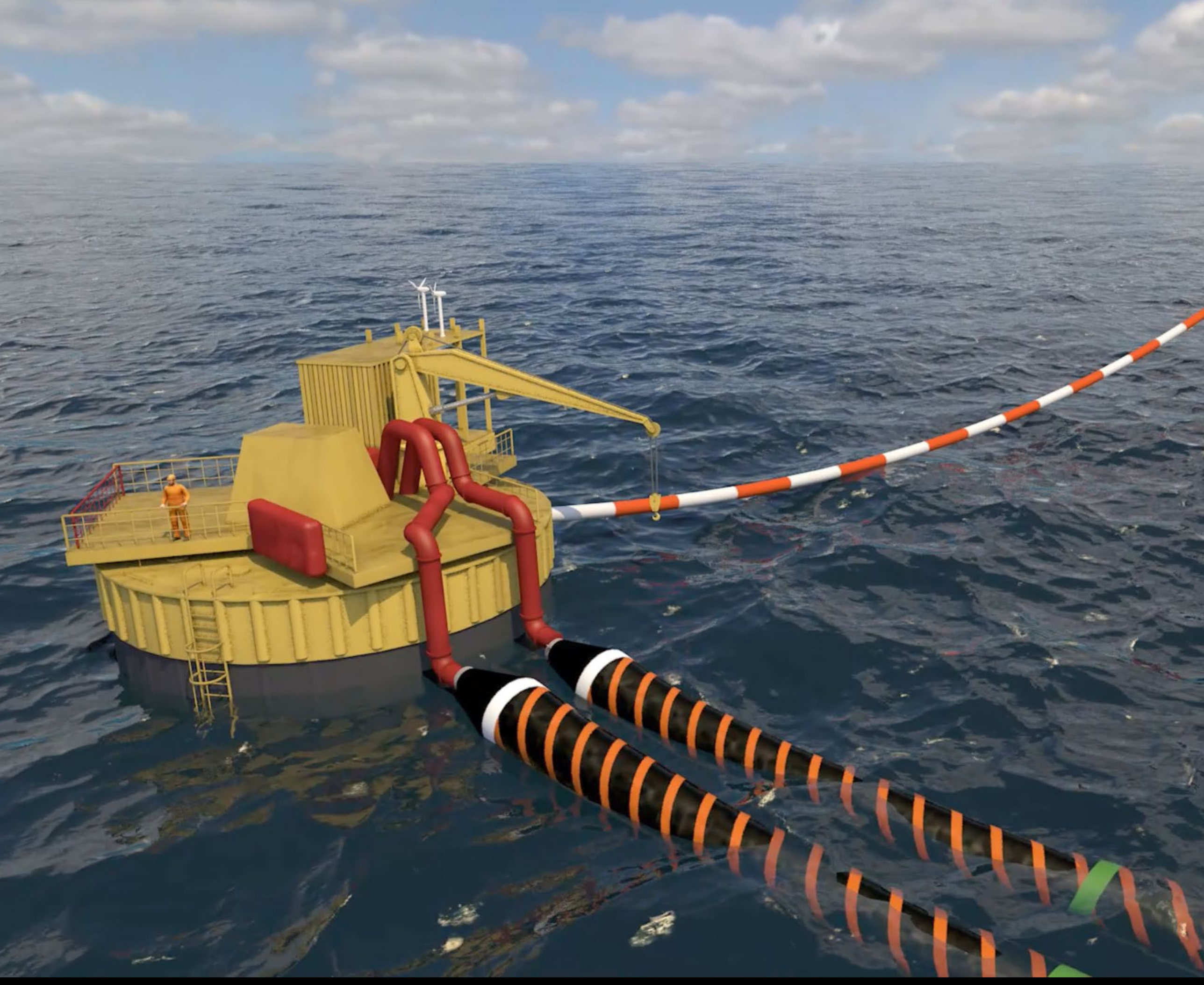
Introduction

In an era marked by climate change, rising inflation, geopolitical tensions, and supply chain disruptions, companies around the world are looking for sustainable economic, environmental, and social solutions.

At Continental, we are at the forefront of this transition, leveraging our material-driven solutions to pave the way for a sustainable future.



Ammonia Hoses / Carbon Capture Hoses

With decades of experience across various industrial applications, including the oil, gas, and marine industries, our expertise in materials now enables us to develop products that meet evolving demands. Trusted Technology: Our high-pressure and marine hose technology, is now being adapted for Marine Hoses and transfer systems for LCO_2 and Ammonia. By leveraging our global resources, we continuously innovate to provide cutting-edge technology for the renewable energy industry and we are committed to developing new solutions for the impending energy transition.

Carbon Capture & Storage Overview

Innovative CO_2 Capture and Offshore Storage

The CO_2 capture and offshore storage process is necessary to mitigate and reduce emissions of CO_2 into the Earth's atmosphere by capturing carbon dioxide emissions at source from large industrial CO_2 emitters.

These emissions are transported to the shore via pipelines and liquified before being transferred to specialised LCO_2 tankers, and transferred safely before being stored securely in offshore subsea wells or aquifers.

Offshore CO_2 Transfer and Injection

CO_2 Capture and Onshore transfer

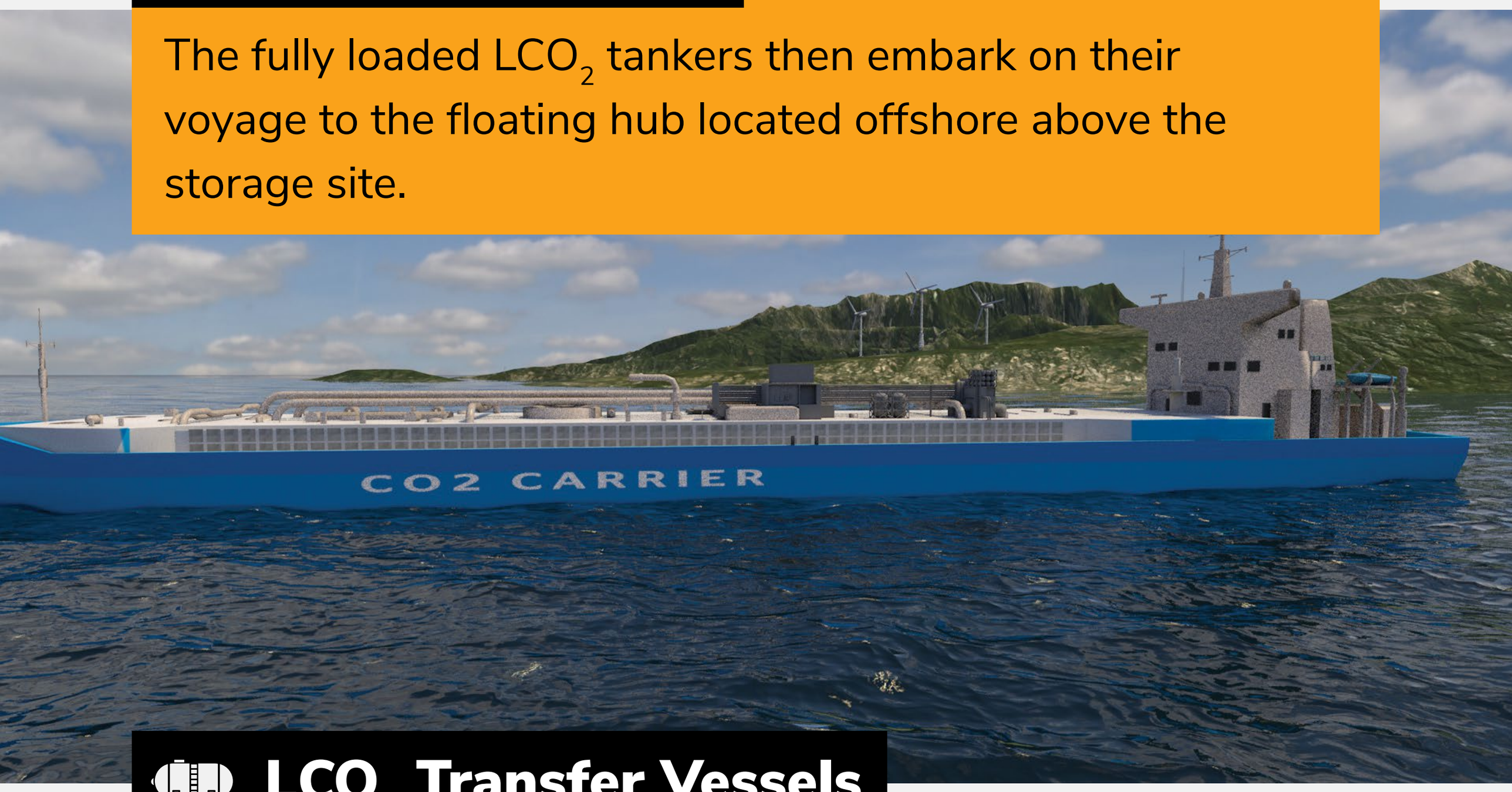
Not all CO_2 emitting facilities can convert to clean fuel in the time frame required to meet targets for Net Zero. Many facilities such as cement and powerplants will be equipped with CO_2 capturing technology - capturing the CO_2 before it is emitted into the atmosphere. The target - to securely and safely store the CO_2 in offshore underground wells and aquifers. For ease of transportation the CO_2 is then liquified, collected and transported to a storage hub on the shore line.

Transfer to Tanker

At the shoreline terminal, the LCO_2 is transferred to specialised cryogenic LCO_2 tankers using LCO_2 transfer hoses. This step ensures the CO_2 is safely and efficiently loaded into the tanker for its journey to the central offshore storage location.

Tanker Voyage

The fully loaded LCO_2 tankers then embark on their voyage to the floating hub located offshore above the storage site.



LCO_2 Transfer Vessels

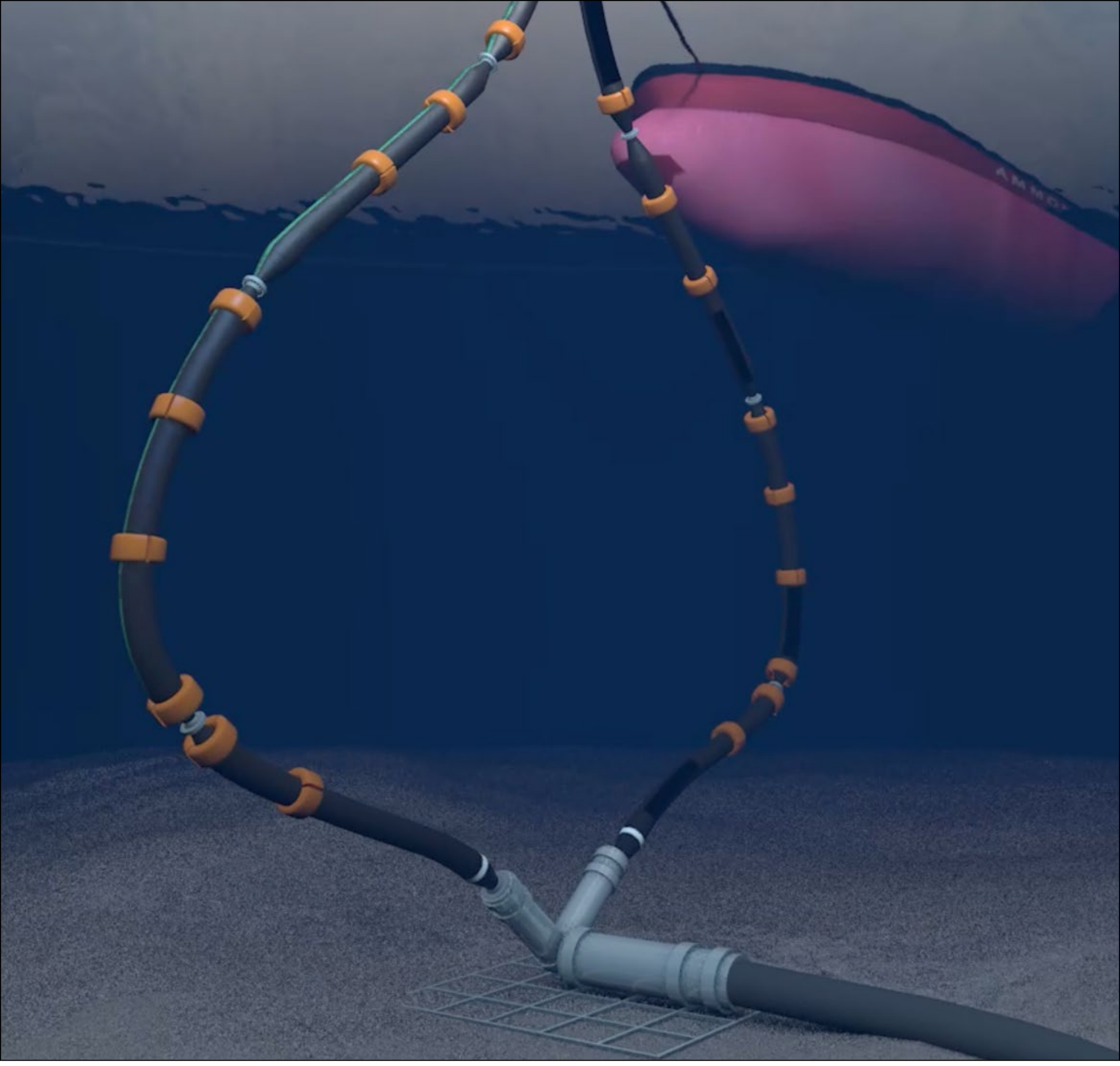
Offloading at Floating Hub

Upon arrival at the floating hub, the tanker connects and offloads its cargo of LCO_2 using a LCO_2 marine hose transfer system. Configuration of the hoses will vary depending upon requirements and local environmental conditions, but could be on a hose reel, calm buoy, catenary, or submarine transfer system to ensure safe, reliable and efficient transfer of the LCO_2. Once the loading is complete, the empty tanker then disconnects and returns to the shore to pick up more CO_2, ensuring continuous flow of capture and storage.

Subsea Storage

The floating hub then pumps the CO_2 subsea down into the storage well or aquifer through high-pressure CO_2 transfer hoses.

This process would then continue for 20-30 years until the storage well is filled and sealed - ensuring a long term solution for CO_2 storage, and helping meet our global Net Zero emissions targets.



Marine Hoses for Liquified Ammonia Overview

Liquefied Ammonia is increasingly being transferred in large quantities via ocean-going vessels, both as a carrier within the hydrogen value chain and as a standalone product or fuel. The transfer of Ammonia in such significant volumes necessitates the use of large bore flexible hoses that can ensure efficient and secure movement within various infrastructure setups, including offshore and ship-to-shore interfaces. These Marine Hoses are essential for maintaining the integrity and safety of Ammonia during the transfer operation.

Marine Hoses for Liquified Ammonia Process

The Marine Hoses for Ammonia Transfer are designed to handle the unique challenges posed by different nearshore and offshore configurations, such as Single Point Mooring (SPM), Conventional Buoy Mooring (CBM), ship-to-shore, and ship-to-ship operations. These hoses provide a scalable solution that meets the substantial transfer needs of green Ammonia, ensuring that the process is both safe and efficient and sustainable.

Specifications and Benefits

Continental’s marine hoses for Ammonia transfer come with several critical specifications and benefits that ensure their suitability for the task.

AMMONIA RESISTANT INNER-LINER COMPOUND

This feature ensures the hose’s durability and reliability by preventing degradation caused by Ammonia exposure.

INNER DIAMETER (ID)

Available in sizes ranging from 6” to 20”, these hoses can accommodate various transfer volumes, providing flexibility for different operational needs.

WORKING PRESSURE

Designed to operate at a working pressure of 25 bar, the hoses can handle the pressures involved in large-scale Ammonia transfer operations.

OPERATING TEMPERATURE

The hoses are functional within a product temperature range of -35°C to +10°C, making them suitable for use in diverse climatic conditions.

ENVIRONMENTAL TEMPERATURE

With an environmental temperature range of -35°C to +52°C, these hoses are adaptable to various external conditions encountered during maritime operations globally.

HOSE TYPES

Continental offers different hose types, including Floating, Reeling, and Subsea, each tailored for specific transfer scenarios.

CERTIFICATION OPTIONS

The hoses can be certified to various standards, including GMPHOM and API 17K, and can be endorsed by classification societies to meet customer requirements.

Our Commitment

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We are committed to providing today’s expertise for tomorrow’s solutions. By leveraging our trusted technology and material-driven solutions, we help create a more sustainable future, addressing the pressing challenges and helping create a more sustainable future for all.

Explore our technologies and join us in our mission to drive the future of energy.

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