

# Provaris Energy

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Pioneering CO2 Tank Solutions  
to Capitalize on a Rapidly  
Expanding Global Market

May 2025

[www.provaris.energy](http://www.provaris.energy)

ASX:PV1

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# Executive Summary

## Global Challenge

- > Global CO2 emissions from energy combustion and industrial processes reached record highs in 2024
- > Swing by energy majors to produce more fossil fuels will boost investment in Carbon Capture and Storage (CCS) to cut CO2 emissions
- > Existing infrastructure for liquid CO2 (LCO2) capture is mature, however limited in capacity based on existing industry needs

## Industry Hurdles

- > Primary CO2 transportation methods over longer distances are pipelines and shipping.
- > Shipping of LCO2 limited to 7,500 cbm vessels, with new orders for 22,000 cbm vessels, and demand for +30,000 cbm capacity
- > Cost efficiencies requires larger "bulk scale" storage and vessels to meet growing CO2 marine transportation requirements.

## Provaris Partnership with Yinson

- > Yinson is a global operator of energy infrastructures assets with strong financial position
- > Leveraging Provaris' proprietary storage and marine transportation design and construction methodology
- > Design of new bulk-scale LCO2 tank and integrated shipping solutions
- > Fully funded development program with key milestones in 2025/26; includes fee income to Provaris
- > Yinson bring access to immediate market opportunity through its joint development of the 10 Mtpa Havstjerne CCS, Norway

## Benefits

- > Lower capital and operating costs per cbm of LCO2 storage
- > Global pipeline of CCS projects advancing to FEED and FID will need low-cost cost storage and transport solutions
- > Offers Provaris growth in License Fee for tanks required in floating storage, shipping, and land-based storage solutions

# Global CCS industry valued at USD 8 billion (2024), forecast +20% CAGR<sup>1</sup>

Global CO<sub>2</sub> emissions from energy combustion and industrial processes reached record highs in 2024

> Total **CO<sub>2</sub> emissions** from energy rose by 0.8% in 2024, reaching a **record high 37.8 Gt CO<sub>2</sub>**, primarily from natural gas and coal.

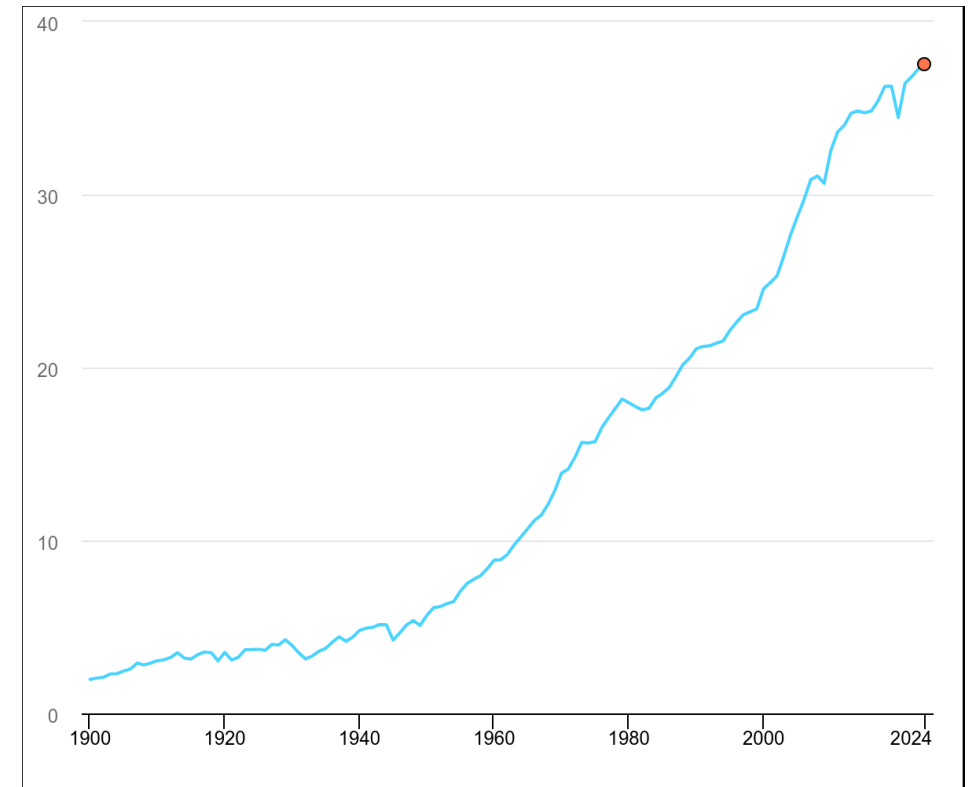
> Advanced economies are adopting low-emission energy sources, though the Energy Transition is progressing more slowly.

> In 2025, global energy companies will boost investment in Carbon Capture and Storage (CCS) to cut CO<sub>2</sub> emissions, supported by established carbon markets and net-zero targets.

> Carbon Policy is being implemented in industries, with the EU's Carbon Border Adjustment Mechanism (CBAM) payments starting in 2026.

> CO<sub>2</sub> is seen as a low-value waste product (cost to industry), necessitating investment in efficiency and scalability.

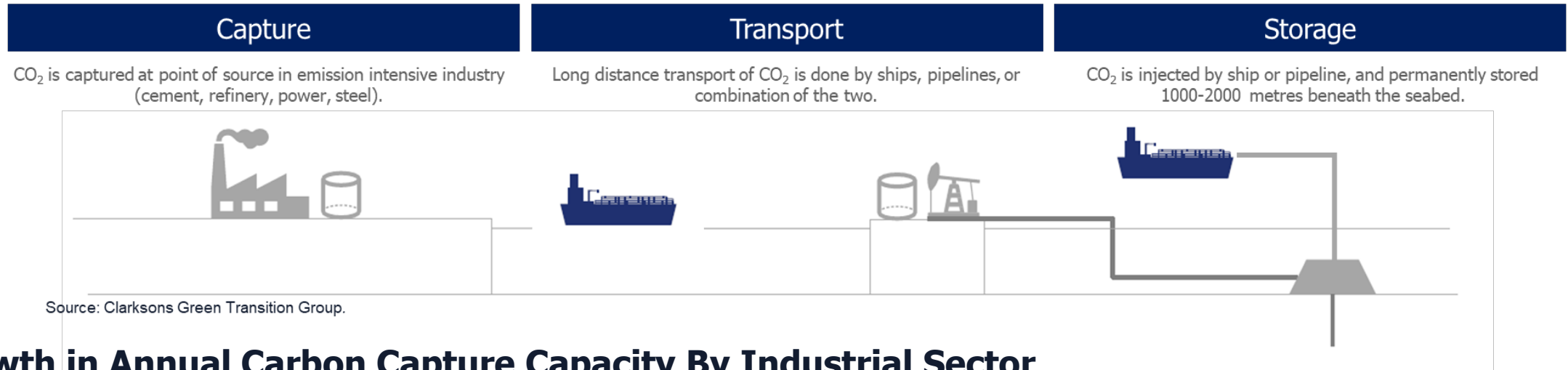
**Global CO<sub>2</sub> emissions from energy combustion and industrial processes and their annual change, 1900-2023 (IEA, GigaTonnes CO<sub>2</sub>)**



IEA (2025), Global CO<sub>2</sub> emissions from energy combustion and industrial processes and their annual change, 1900-2023, IEA, Paris <https://www.iea.org/data-and-statistics/charts/global-co2-emissions-from-energy-combustion-and-industrial-processes-and-their-annual-change-1900-2023>, Licence: CC BY 4.0

# Carbon Capture and Storage (CCS) value chain well established

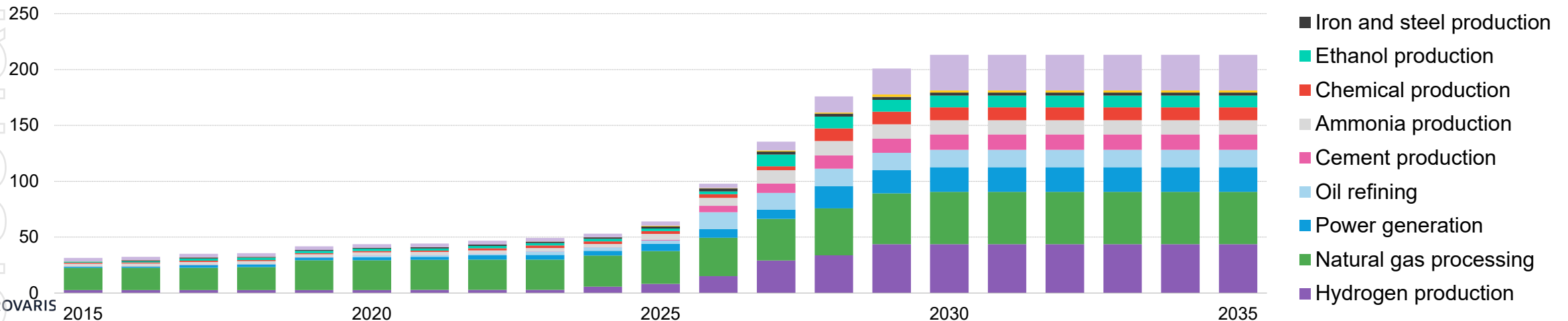
Infrastructure for CO<sub>2</sub> liquefaction, storage, and transport established for hard-to-abate industries.



## Growth in Annual Carbon Capture Capacity By Industrial Sector

Source: BloombergNEF 2025. Note: DAC is direct air capture.

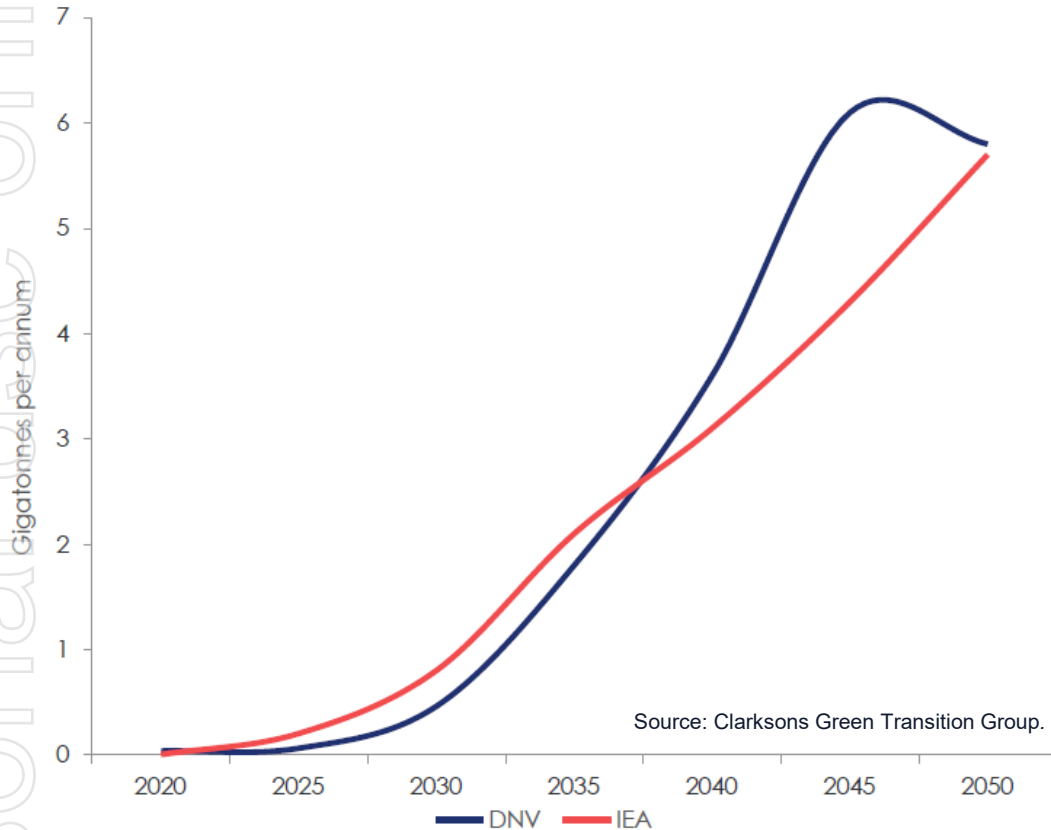
Million metric tons of CO<sub>2</sub>



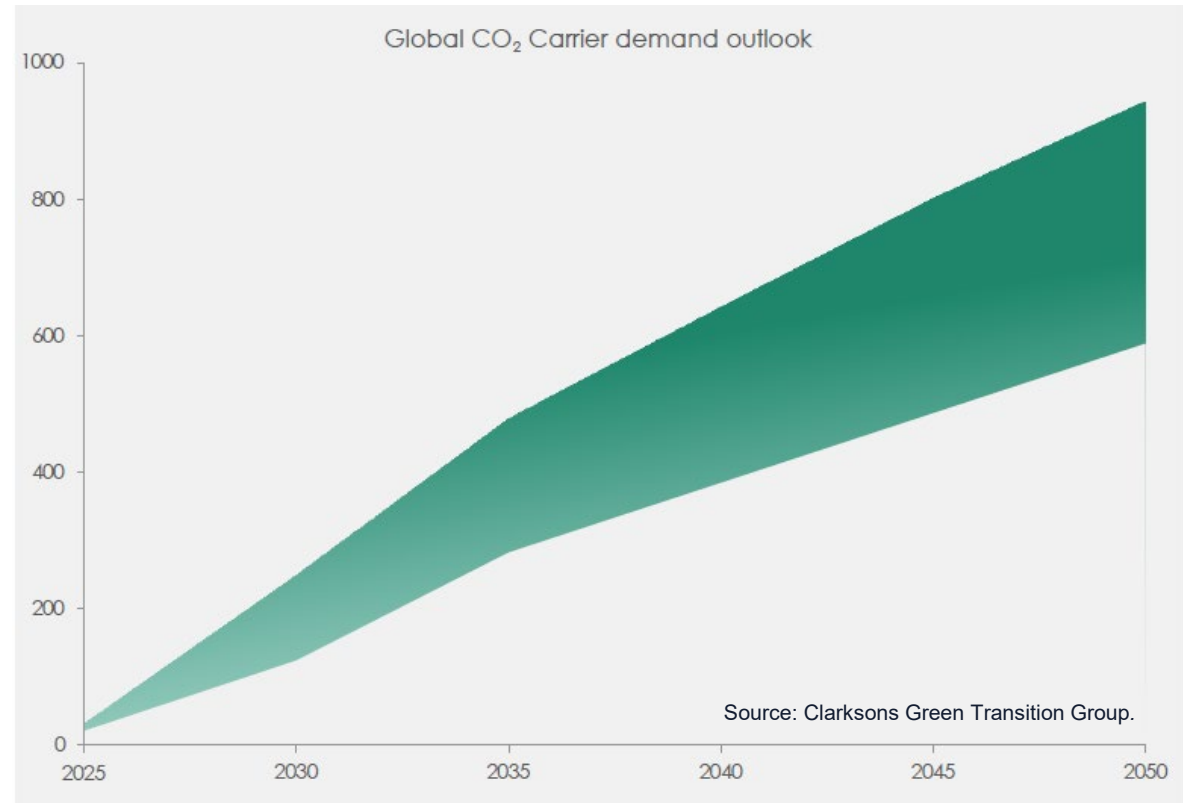
# Global CCS outlook and driving demand for large scale LCO2 carriers

Opportunity for Provaris to secure key role early in a new growth shipping sector

## Rapid growth in CCS capacity post 2030



## Translating to Demand for LCO2 Carriers



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*"In our view, scaling up global CCS capacity will require a fleet of specialized tankers with the ability to collect CO2 from capture sites operated by many different industrial segments."*

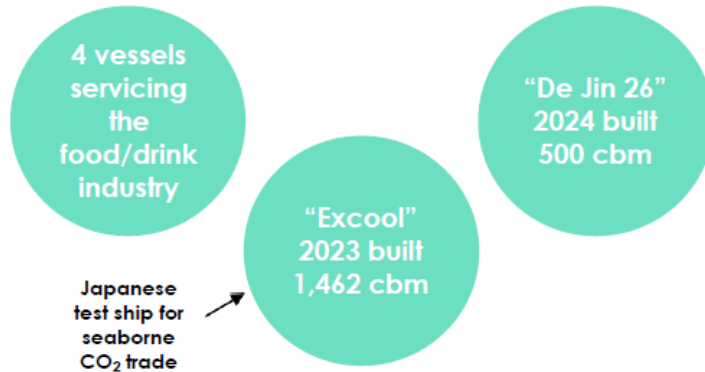
# CCS projects driving demand for newbuild injection units and carriers

Storage and containment design typically based on existing Type C tank design limited in storage capacity

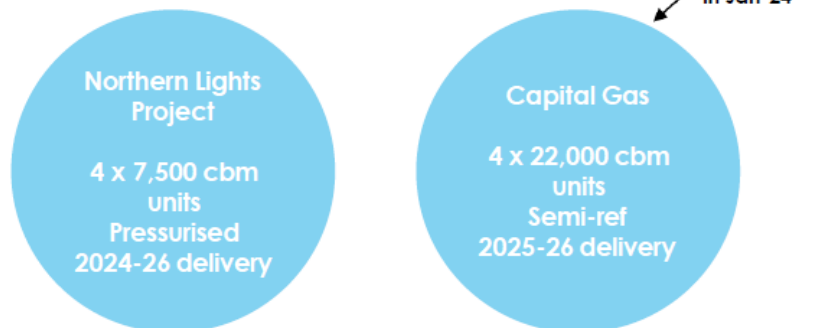
## Order Potential – CO<sub>2</sub> Carriers

6 units in the fleet and 8 on the orderbook at present; several new projects in various stages of development

### Current CO<sub>2</sub> Carrier Fleet



### Current CO<sub>2</sub> Carrier Orderbook



### Significant Newbuild Order Potential, Selected CO<sub>2</sub> Projects

Selected CO <sub>2</sub> Projects	Project Type	Status	Country	CO <sub>2</sub> Injection Capacity	FID Year/ Expected FID Year	Expected Start-Up Year	Vessel Size Assumption	Implied Vessel Requirement*
Northern Lights CO <sub>2</sub> Storage	Offshore CO <sub>2</sub> Injection	Install & Com'n	Norway	1.5 mtpa	2020	2024	7,500 cbm	6 <sup>^</sup>
Coda Terminal CCS	Onshore CO <sub>2</sub> Injection	Pre-FEED	Iceland	0.5-3 mtpa	2022	2026+	24,000 cbm	5
Greensand CCS (Nini West)	Offshore CO <sub>2</sub> Injection	Pre-FEED	Denmark	1.5-8 mtpa	2023	2025	22,000 cbm	12
Borg CO <sub>2</sub>	Offshore CO <sub>2</sub> Injection	Pre-FEED	Norway	0.6 mtpa	2023	2026+	5,000 cbm	3
Luna CCS	Offshore CO <sub>2</sub> Injection	Appraisal	Norway	5 mtpa		2028+	7,500 cbm	23

Source: Clarksons Research. \*Assumes 95% utilisation of project, speed of 15 knots and standard assumptions around e.g. port time. Not reported vessel requirements. ^4 units already on order.

# Provaris and Yinson innovating bulk-scale LCO2 storage

Offers Provaris growth in License Fee for floating storage, shipping, and land-based storage solutions

## Leveraging Provaris IP to fast-track CO2 tank design

- > **Yinson Production - Global energy infrastructure leader** (FPSOs, CCS, Renewables). 2024: Operating 9 FSPOs; USD 1.6 B revenue; ~USD 1 billion private placement
- > **Fully funded Joint Development Agreement** to deliver bulk liquid CO2 tank for floating, onshore, and ship-based storage applications
- > **Solving industry bottleneck** = LCO2 tank capacity limited to ~7,500 cbm
- > **Targeting major gains in storage volume and reduced costs**
- > **~USD 500,000 investment by Yinson**, includes technical and management fees to Provaris
- > **Tank designs and IP to be jointly owned**
- > Global opportunity to license tank designs to maritime and storage applications from 2026

## Yinson commit to full-scale development of CCS in Norway

- > Acquisition of Stella Maris CCS, includes development of **10 Mtpa Havstjerne CCS** Reservoir, Norway's continental shelf
- > JV partner is Harbour Energy PLC
- > **Access to immediate market opportunity** for commercializing new tank design across vessels for storage, transport and injection



# Why the need for new tank designs?

The bigger the tanks, the bigger the SAVINGS in associated capital equipment & operating costs

- > CO2 must be stored at pressure with Type C tank the solution, or other alternative designs.
- > Class and IGC regulations already in place to accelerate design and approvals.
- > Market is offering large **LCO2 tanks at 5,000 to 7,500 cbm capacity (60 to 70 mm plates)**. Beyond that ... steel thickness becomes unmanageable!

**Provaris investment to date in novel layered tank designs and automated tank fabrication enables:**

- Accelerated development timelines through knowledge of novel designs and Class approvals;
- Storage capacity at multiples of existing designs;
- Lower tank construction costs; and
- Ownership of IP maximizing design and licensing revenues.

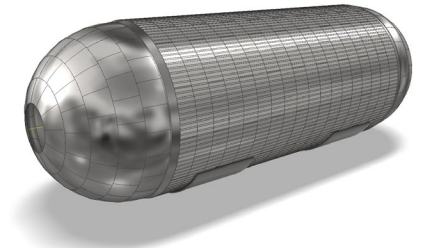


Illustration: LCO2 Type C tank concept at low (10 barg) pressure and -40 to -55 deg C

# 2025 Development Program

Fully funded by Yinson under Joint Development Agreement

## Phase 1: Concept Design Complete

- > Accelerated concept design leverages Provaris' development of novel tank designs.
- > Basis of Design for large-scale LCO2 tank.
- > USD 200,000 technology fee received.
- > **COMPLETED MARCH 2025.**

## Phase 2: Pre-FEED (In Progress)

- > Detailed design for LCO2 tank & fabrication
- > Integration with Floating Storage Injection Unit (FSIU)
- > Define Onshore/Barge storage alternatives.
- > Ongoing fee income to Provaris for management, design and QA services.
- > **June-2025 milestone:** Class-level approval LCO2 tank design and integration with FSIU.

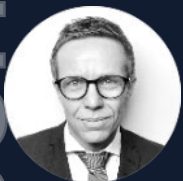
## Phase 3: FEED

- > *Planning underway for scope and key terms*
- > *Target commencement in August 2025*
- > *Integrated development plan with upstream CCS and downstream injection projects...*

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