

# Stella Maris CCS



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# Who we are

*Altera vision: Leading the industry to a sustainable future*

- Decades of experience in shipping and offshore operations
- Industry leader and pioneer in harsh weather FPSOs
- Market segment developer of Dynamically Positioned Shuttle Tankers
- By 2026: Allocate the majority of new capital to new business ventures aligned to the energy transition, including CCS
- By 2030: Generate the majority of cashflow from such new ventures

**~2300**  
Total workforce

**9**  
Offices

**38**  
Vessels

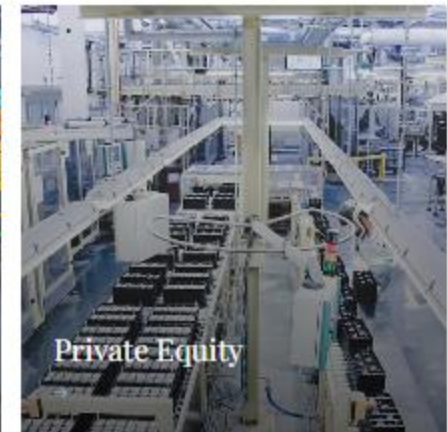
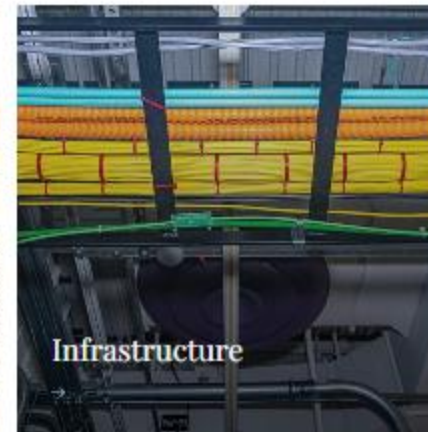
**5**  
Countries  
of Operation



# Strong and Committed Sponsors

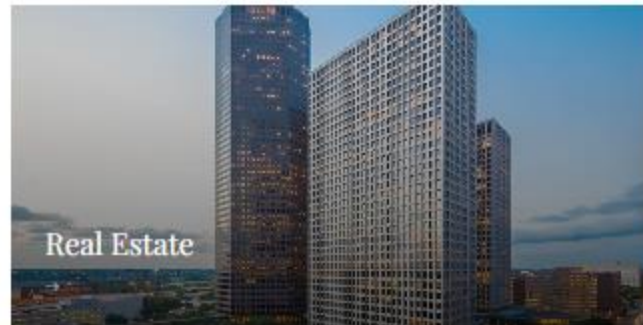
## BROOKFIELD Corporation

- One of the world's largest alternative asset managers
- Long-term, value investors
- Owner-operator mentality
- Focused on Real Assets (Property, Infrastructure, Renewables & Private Equity)
- Commitment to reach net-zero emissions by 2050 or sooner across all assets under management



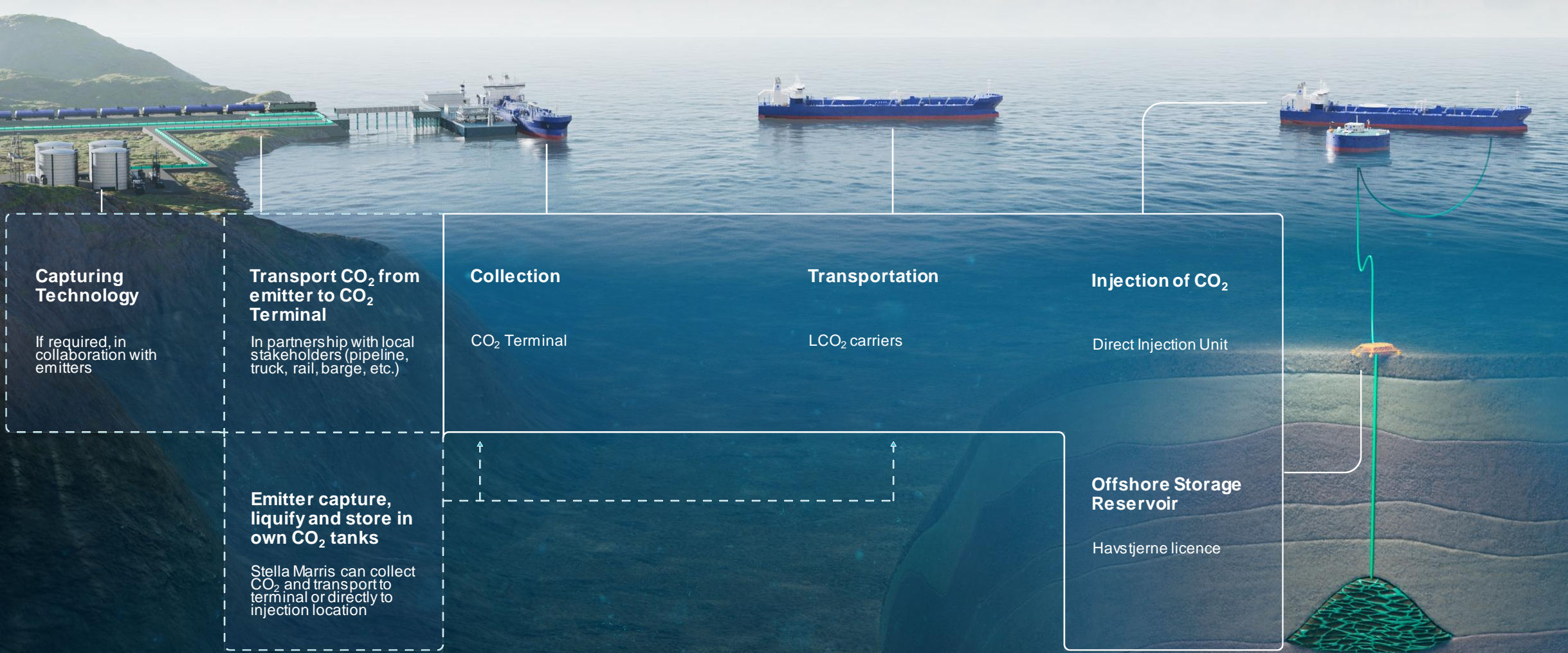
## Private Equity Strategy

- Real assets expertise
- Invest on a value basis
- Operations-oriented approach
- Global scale
- Significant access to capital



# Stella Maris – from terminal to storage

A single Stella Maris project will have the capacity to store 10 Mt CO<sub>2</sub>/year



# The Stella Maris CCS project

To get CCS costs down, large-scale flexible solutions are required



- One-stop-shop from collection to storage
- Large scale – bringing cost down
- Flexible maritime solution
- Scalable worldwide – design one – build many
- Shared CO<sub>2</sub> infrastructure – also for smaller emitters
- Solution deployed for large scale emitters, clusters and/or nation states in 2027

# CO<sub>2</sub> Terminal (CO<sub>2</sub>T)

Collection, Processing and Export

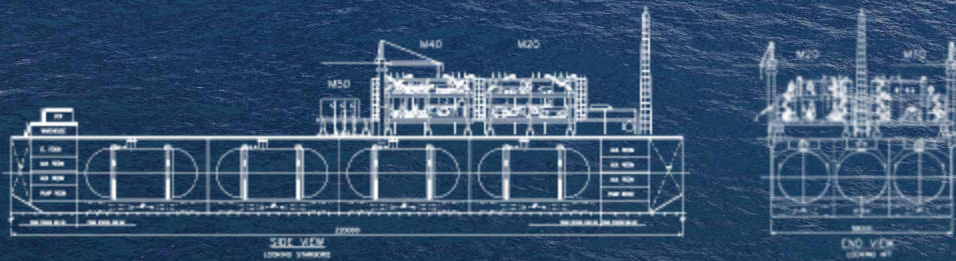
## Principal dimensions (80k cbm design):

Length o.a.	220m
Breath (M)	58m
Depth (M)	24.5m
Design Draft	13m

50–80k cbm storage

Annual capacity up to 7 mt/unit

Designed for shore power



Designed to receive and process:



High- & low-pressure gas from pipelines



Medium & low-pressure liquid from road, ships or barges



Various qualities with different levels of impurity

# LCO<sub>2</sub> Carriers

Transport and DP offloading

## Key Innovations:

- Dynamically positioned LCO<sub>2</sub> carrier
- Low pressure CO<sub>2</sub> tanks
- Equipment for offshore offloading of CO<sub>2</sub>
- Power Source for injection unit



New, state of the art LCO<sub>2</sub> carrier design

50,000 cbm - low pressure tanks

CO<sub>2</sub> stored and transported as liquid at 6,5 barg & -47°C

Zero emission capable

Battery hybrid installation

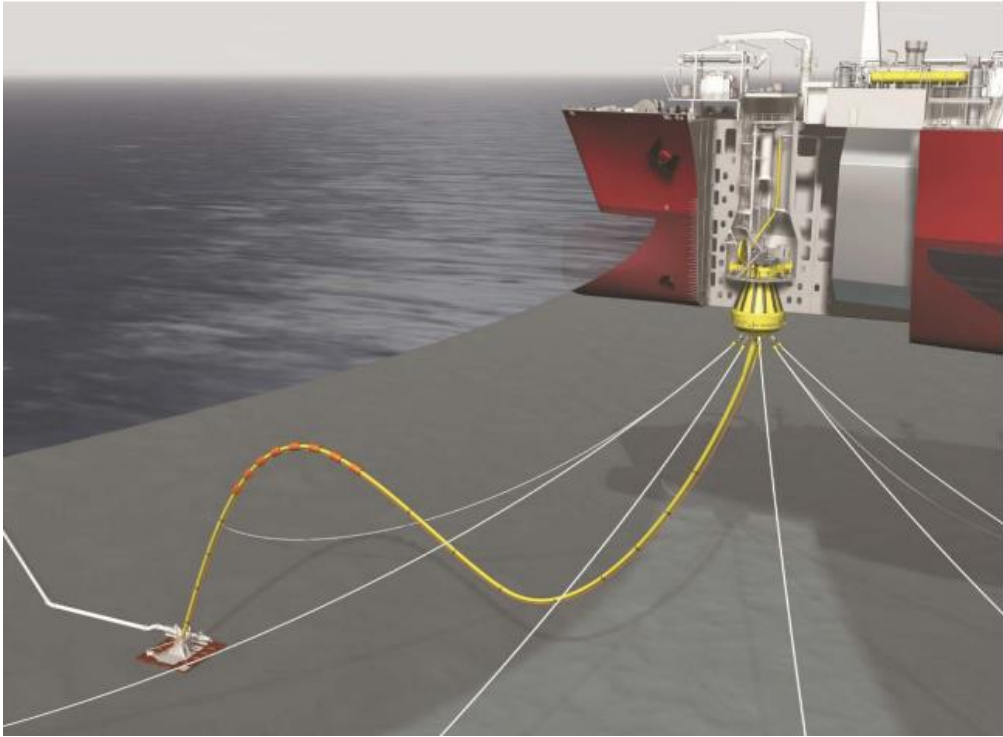
LNG/Biogas/NH<sub>3</sub> as fuel

## Principal dimensions:

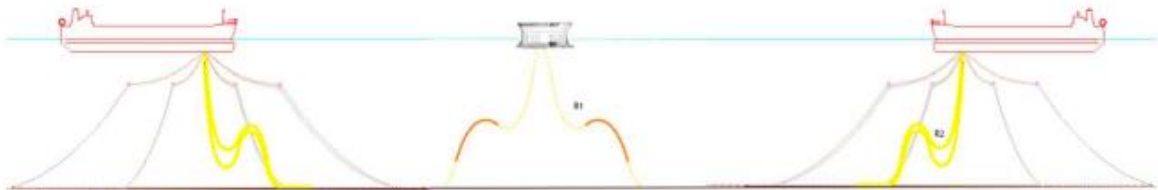
Length o.a.	238m
Breath (M)	38m
Depth (M)	22m
Design Draft	13m



# Offshore offloading



- Continuous injection is ensured by always having one carrier at site
- 2<sup>nd</sup> carrier connects and takes over before the 1<sup>st</sup> one leaves
- A Submerged Turret Loading (STL) system is used with two independent STL buoys
- Electrical power cable in addition to the CO<sub>2</sub> offloading hose



# Direct Injection Unit (DIU)



*Offshore Injection and Storage*

## Alternatives

Injection facilities on an existing offshore installation or on new fixed offshore structure

Direct injection from LCO<sub>2</sub> carrier

## Principal dimensions:

Hull diameter	50m
Bilge Box diameter	62m
Main Deck diameter	50m
Hull depth	22m
Design draft	13m
Draft loaded	14m

Allows continuous injection

Heating and injection modules below deck

Power from LCO<sub>2</sub> carrier (+ battery back-up)

Unmanned and operations from shore

CO<sub>2</sub> heated and injected into reservoir in dense phase (>5°C & 65–160 barg)

## Key Innovations:

Power from LCO<sub>2</sub> Carrier

Normally Unmanned

Equipment for offshore loading of CO<sub>2</sub>

Zero emission capable

Remote operation from shore

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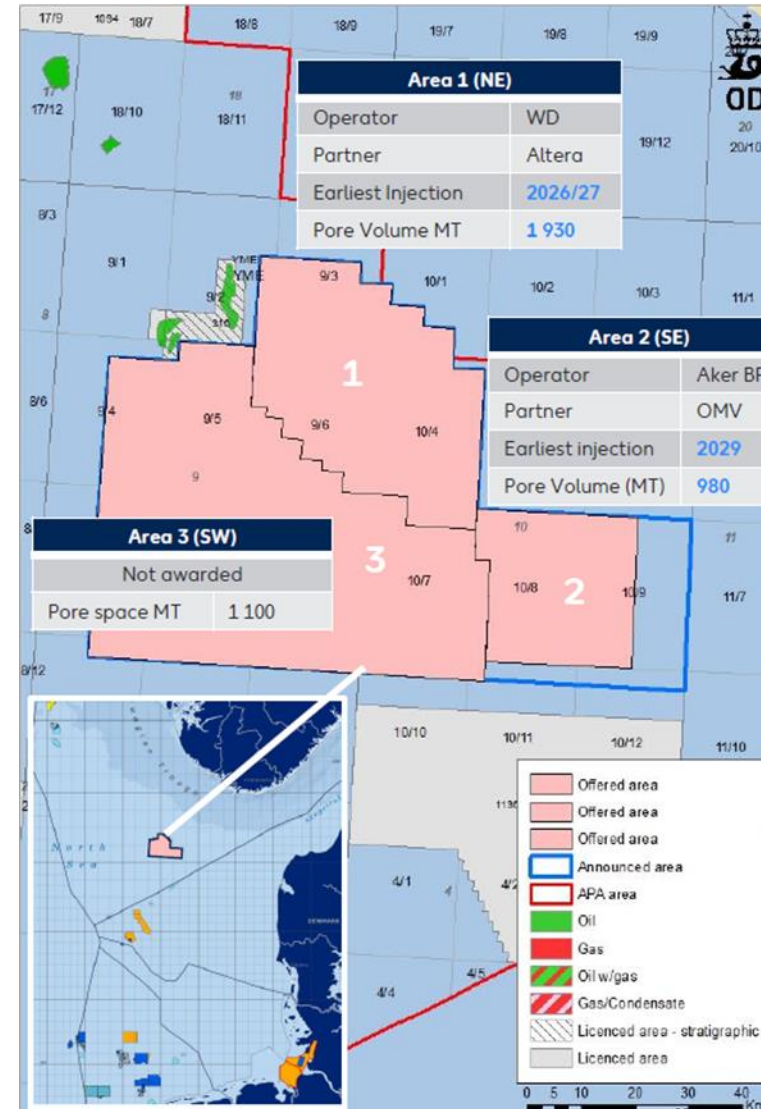
Unmanned and operations from shore

CO<sub>2</sub> heated and injected into reservoir in dense phase (>5°C & 65–160 barg)

# Altera has been awarded a CO<sub>2</sub> exploration licence offshore Norway

The Havstjerne reservoir is planned to be in operation in 2027

- Licence awarded together with our partner Wintershall Dea
  - 40/60% ownership share
  - Wintershall Dea as operator of the licence
- Located south of the North Sea – closer to the European market
- The reservoir is expected to have the capacity of receiving around 7 Mt CO<sub>2</sub>/year and with total capacity of around 200 Mt CO<sub>2</sub>
- Plan for first CO<sub>2</sub> injection in 2027



# Barge concept

*Movable storage*

12,500 cbm or 6,250 cbm design

Can reduce the need of local infrastructure





Thank you



altera















