YINSON Production

LIQUID CO_2 FLOATING STORAGE INJECTION UNIT

YINSON PRODUCTION'S LOW-CARBON INITIATIVES

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Introduction

Yinson Production's Carbon Capture and Storage (CCS) strategy is a key pillar of our climate target, which is to become a net-zero emissions energy business by year 2050. We aim to be at the forefront of efforts that support an inclusive energy transition to a low-carbon economy.

CCS is a combination of several technologies that capture and store CO_2 deep underground, preventing its release into the atmosphere. CCS is especially important for heavy industries, such as those that produce steel, cement, or chemicals, or power stations that use hydrocarbons to generate electricity, where there are currently no scalable low-carbon alternatives. The CCS opportunity requires advanced infrastructure facilities, which are largely related to two primary sectors.

1. Shore-based, with an onshore receiving terminal and an offshore export pipeline connecting to the subsurface storage, supplemented with liquid CO_2 (LCO_2) transportation.
2. Offshore based, using a Floating Storage Injection Unit (FSIU), supplemented with LCO_2 transportation.

The deployment of an offshore liquid CO_2 Floating Storage and Injection Unit (FSIU) has been one of our primary focus, and we are currently collaborating on several design concepts to make this a reality. Once deployed, FSIU will receive regular transfers of LCO_2 from shuttle LCO_2 carrier ships and store it before continuously injecting it into depleted offshore oil and gas wells or saline aquifers.

About Yinson Production

Yinson Production is one of the world's leading Floating, Production, Storage and Offloading (FPSO) contractors, with a strong commitment to sustainability and the environment. Yinson's Climate Goals are to be carbon neutral by 2030 and net zero by 2050.

We are committed to pioneering the development of new innovative solutions that can pave the way for the decarbonisation of the energy sector, resulting in a cleaner and more sustainable future for all.

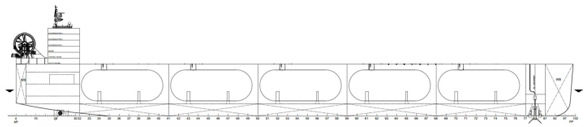
Primary Functions

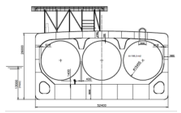
- **Continuously inject CO_2** into a subsea reservoir.
- **Provide buffer storage** for liquid CO_2.
- Receive/ offtake liquid CO_2 parcels from LCO_2 carriers in offshore conditions.
- **Remain permanently moored** at the designated offshore location throughout the design service life.

Business Model

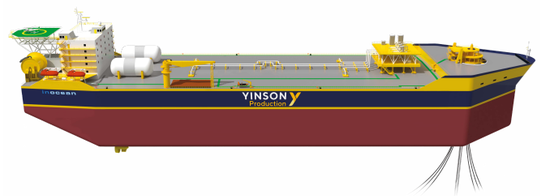
- **Lease & Operate (L&O)** is our preferred business model. We are open to discussing alternate models, including **Hybrid L&O** (with pre-payment of charter rates).
- Our **target area** for unit operation: **North Sea, Malaysia, Australia.**
- Target delivery: within 36 months.

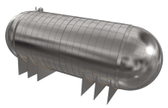
Design Concept - 1





Design Concept - 2





"We recognize the importance of carbon capture and storage in achieving global emission targets, and we're committed to playing a key role in this space. We're excited to explore the potential of adapting our innovative floater solution and reliable operational services to meet the needs of the growing carbon capture market." - **Lars Gunnar Vogt, Yinson Production's Chief Technical Officer**

Key Data

Size	100k Class	
System design type	Low Pressure LCO_2	
Total Cargo Capacity	100 000 m^3	
Cargo Tank Type	IMO Type-C	
Cargo Tank Shape, Orientation, material	Horizontal cylindrical tanks; high tensile steel[a]; IGC code with special considerations	
Cargo Tank Design Condition	10.2 barg; (minus)-55C	
Cargo Tank Operational Condition	Pressure range: 5.2 to 9.7 barg Temperature range: (minus)-55 to -40 C	
Re-Liquefaction system	Yes[b]	
Cargo vaporization system	Yes[c]	
LCO_2 Loading system	Yes[d]	
HP CO_2 unloading/ Injection system	Yes[e]	
CO_2 Fiscal Metering	Yes	
Main Power Generator	3 x 4 MWe each, LNG / Ammonia Fuel Ready	
Permanent Mooring system	Yes	
POB	35	
Classification	DNV, ABS, or equal	
Design	Concept - 1	Concept - 2
LOA / Breath / Depth (m)	281 x 52.4 x 26	262.3 x 60 x 32
Draught (m)	13	18.4
No. of Cargo Tanks	3x5, 15.455m Dia x 41m Length, 50mm thick	2x2, 23m Dia x 69m Length
Present Status	Concept design completed	Concept design completed

[a] The manufacturer is currently conducting material testing and approval process.
[b] Based on max displacement of vapor during a loading (only) operation + 25%.
[c] Based on max displacement of vapor during max LCO_2 injection (only) operation + 25%.
[d] Based on transfer from 60 km^3 LP LCO_2 shuttle tanker within 24 hours (including connection, and disconnection).
[e] The CO_2 Injection capacity is as follows. Rated: 5 MTPA (511 m^3/h); Max: 6.6 MTPA (675 m^3/h); Min: 1.5 MTPA (146 m^3/h).