

GREEN AMMONIA FPSO

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**YINSON PRODUCTION'S LOW-CARBON ENERGY INITIATIVES:
SHAPING A MORE SUSTAINABLE FUTURE**

Introduction

The lack of safe, carbon-free and bulk transportable energy carriers has become the main bottleneck in the global shift towards green and renewable energy. Although the ever-improving capacity and economics of battery storage address some aspects of the challenge, the technology remains unsuitable for large-scale transportation of energy from areas where wind and solar energy are plentiful.

A liquefied form of energy storage is the preferred solution for long-distance bulk transport. The primary focus is on processes that can produce high energy density liquid fuels from renewables in a cost-effective and sustainable manner.

Amongst liquid energy carriers, Ammonia has emerged as a compelling candidate as the future renewable energy source fuel. Ammonia has about 1.5 times the energy density of liquid hydrogen and about 2.5 times that of compressed hydrogen at 350 bar and 15°C, creating potential as a carbon-free energy carrier.

Our Solution – Power to Ammonia

Yinson's Green Ammonia Floating, Production, Storage, Offloading ("FPSO"), also known as the Power to Ammonia ("P2A") FPSO, is inspired by the Power-to-X concept. The P2A FPSO is a floating, production and processing solution that produces green ammonia from 100% renewable sources. The produced liquefied ammonia will be stored onboard, allowing periodic offloading to shuttle gas carriers for transportation, enabling the 'Ammonia Value Chain'.

With nearly 3 decades of experience in the design, construction and operations of industry-leading offshore production assets, together with the synergies from our green technologies and renewables divisions, Yinson is strongly positioned to innovate and deliver the P2A FPSO.

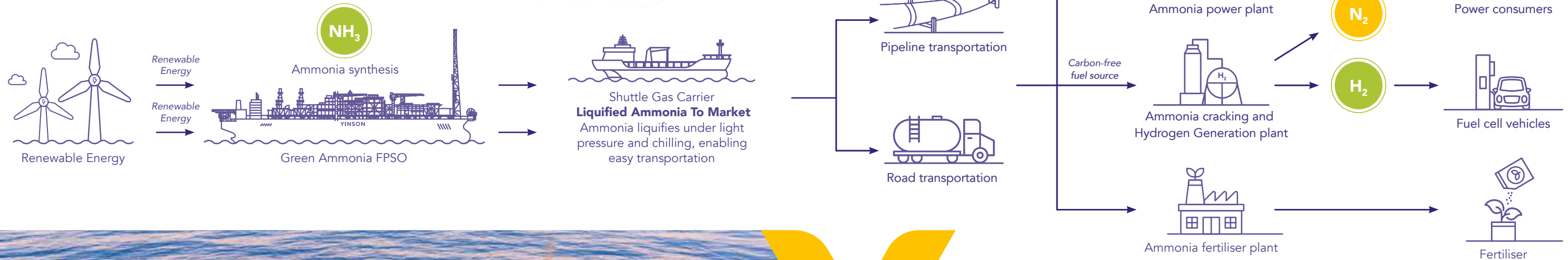
Key Features

A viable option for the production, storage and largescale transportation of solar and wind energy to market from wind and solar energy-rich regions.

Scalable technology, as floating assets can easily be redeployed to seize new opportunities as they develop in other areas.

Flexibility in operational configuration. The P2A FPSO can be configured to operate independently as a stand-alone facility (i.e., without a grid connection) or grid-connected (i.e., integrated with the electricity distribution network).

Illustration of distribution and utilisation of Green Ammonia



Green Ammonia FPSO Concept



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.

VESSEL GENERAL INFORMATION

Flag State : Project-specific
 Built : Project-specific VLGC Candidate Vessel
 Hull : Double Hull
 Classification : Field-specific

MAIN DIMENSIONS (TYPICAL)

L.O.A. : 230 m
 Breadth : 32 m
 Depth Moulded : 23 m
 Design Draught : 11 m
 Scant. Draught : 12 m
 Deadweight : 53 000 MT

POWER SYSTEMS

Topside Minimum Turndown : 10% within 1 hour
 Topside Power Max. Rating : 230 MWe @ up to 132 kV AC
 Minimum Power Requirement : 20 MWe
 Essential Power Rating : 5.5 MWe

CARGO/OFFLOADING SYSTEM

Liquid Ammonia Storage Capacity : 84 000 m³
 Liquid Ammonia Storage : -33°C @ atm.condition
 Liquid Ammonia Offloading System : Field-specific
 Liquid Ammonia Offloading Capacity : 2 500 tonnes/hour

PRODUCTION FACILITY CAPACITIES

Ammonia : 450 tonnes/day
 Hydrogen : 3 320 kg/hour
 Nitrogen : 18 600 kg/hour
 De-ionised H₂O : 30 400 kg/hour

MOORING SYSTEM

Field-specific: For sheltered water, jetty solution applies. For open sea, Yoke, Turret, and Spread Mooring options are currently under study.

CURRENT STATUS

Conceptual phase.

For further enquiry on the Green Ammonia FPSO Concept, please email green.ammonia@yinson.com