Imodco
Part of the SBM Offshore® Group

Short Footprint Buoy Mooring

Jetty-Less Solutions

YOUR CHALLENGES

TODAY'S ENERGY LANDSCAPE IS SHIFTING FAST.

New supply routes and new molecules, such as LNG, ammonia and other liquid energy carriers, are increasing the need for near-demand storage in busy ports and coastal locations, often on accelerated timelines.

However, **ports are rarely "empty"**: space is constrained, traffic is continuous, and adding new marine infrastructure can be slow and expensive.

Traditional jetty-based developments can face long delivery schedules, especially when they involve breakwaters, because they may require extensive environmental impact studies and a time-consuming permitting process.

As a result, many projects need a solution that can add storage capacity quickly, with less civil work, while limiting the impact on existing port activities and vessel traffic and doing so in a way that remains operationally practical for floating storage based on existing carriers.

This is what the SFBM allows:

A cost effective jetty-less architecture for energy supply, either FSO or FSRU.

Identified challenges

- **Ports are congested**: new capacity must fit within existing traffic flows.
- Jetty/breakwater infrastructures **can extend schedule due to studies and permitting** and are typically **CAPEX-intensive.**
- Projects **need near-demand storage** that is fast to implement and cost-effective.

THE SFBM SOLUTION

THE SHORT FOOTPRINT BUOY MOORING (SFBM) IS A STATION-KEEPING SYSTEM FOR SHALLOW WATERS DESIGNED FOR FLOATING STORAGE APPLICATIONS (FSO/FSRU).

Its purpose is to enable a cost-effective, jetty-less permanent mooring architecture for energy supply in protected areas previously considered unsuitable or congested. With its small and short footprint, SFBM provides a safe and cost-effective solution for an FSO/FSRU. Where required, a midship tower structure can be added in very shallow water for fluid and/or power transfer.

Functional Capabilities of the SFBM

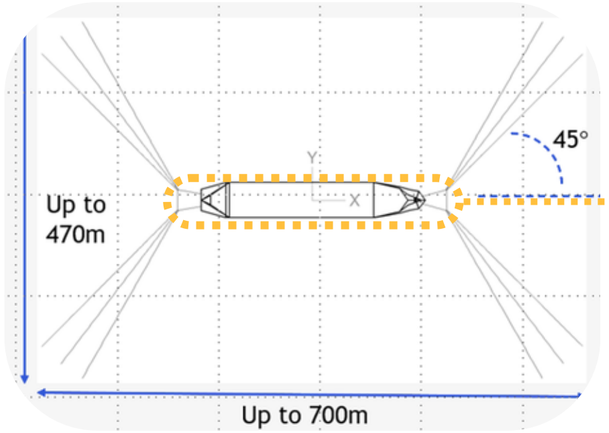
- Allows side-by-side offloading operations to refill the FSO/FSRU
- Enables FSO/FSRU disconnection and reconnection in few hours (if needed)
- Minimize modifications on FSO/FSRU donor vessel
- No dry docking required: only standard mooring equipment are integrated on main deck
- Connection using existing vessel winches
- Enable easy change out of FSO/FSRU donor vessel
- Can be designed as permanent mooring system

HARBOR WITH A BREAKWATER, ALLOWING FSO/FSRU TO BE MOORED

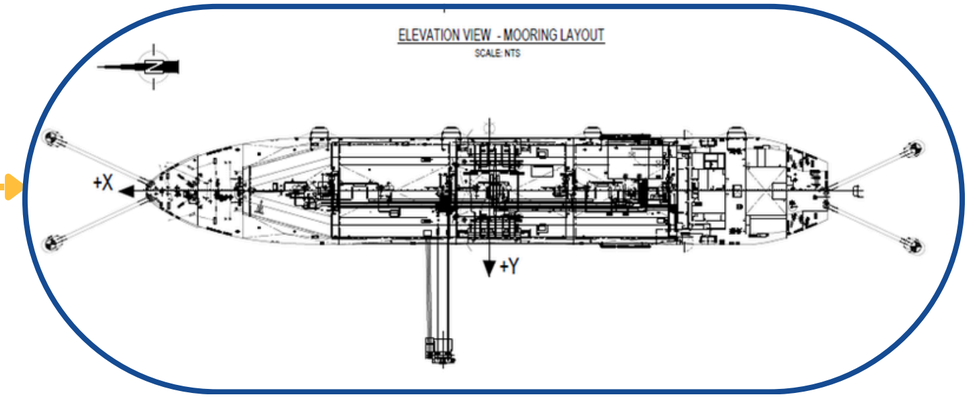
FSO/FSRU MODEL

SFBM FOR PROTECTED AND SPACE-LIMITED AREAS

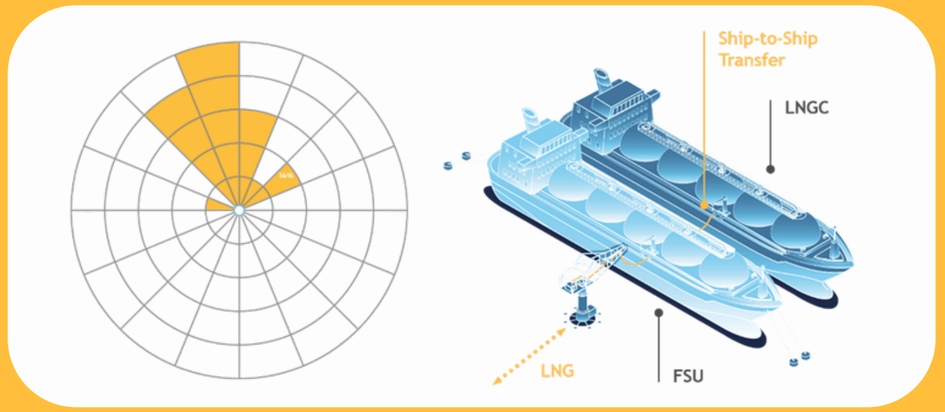
FROM TRADITIONAL MOORING LINES TO NEW STANDARDS



Traditional scenario with mooring lines
Potential clash with passing vessels



New scenario with **SFBM** Patent Pending
No more clash with passing vessels as short mooring lines



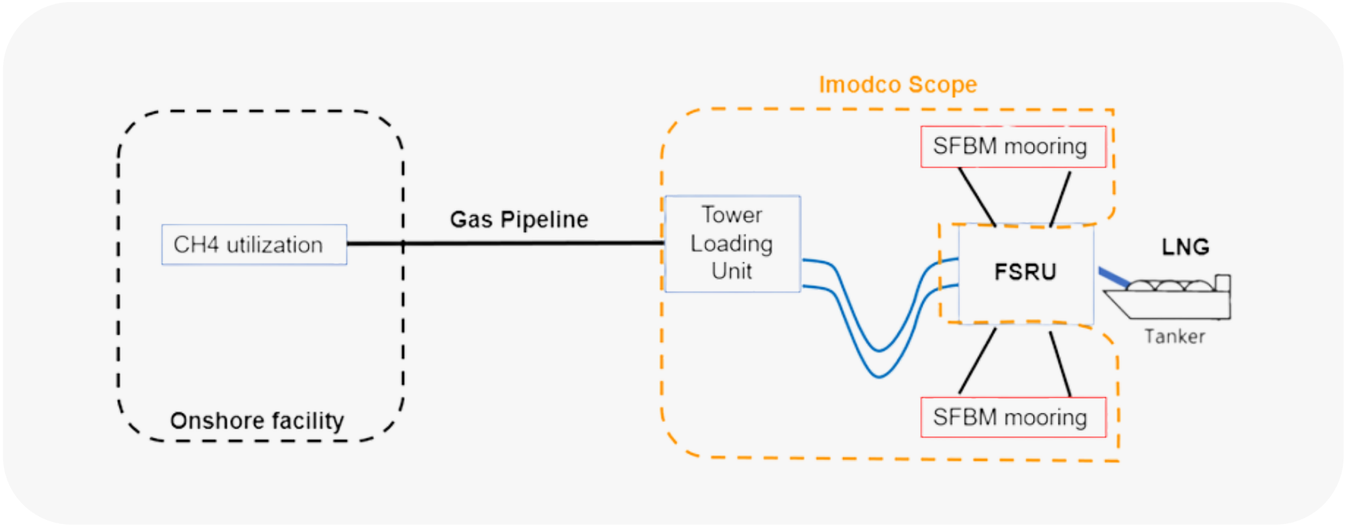
Directional Environment: Short-Footprint Advantage

Directional environment refers to site conditions where wind, waves and current predominantly come from one main direction. In these settings, SFBM can be positioned to use protected areas efficiently while keeping the mooring footprint short for space-limited ports.

WHAT WE DELIVER

IMODCO PROVIDES THE KEY OFFSHORE BUILDING BLOCKS THAT MAKE THE CONCEPT WORK:

SFBM mooring to keep the FSRU on station, a Tower Loading Unit to interface with the pipeline, and the offshore transfer interface between them. Our scope is designed to support fast, port-friendly deployment by focusing on the offshore terminal package.



SCOPE OF WORK OF IMODCO

Approval in Principle

IMODCO / SBM Offshore

FSRU Mooring System for Short Footprint Buoy Mooring (SFBM)

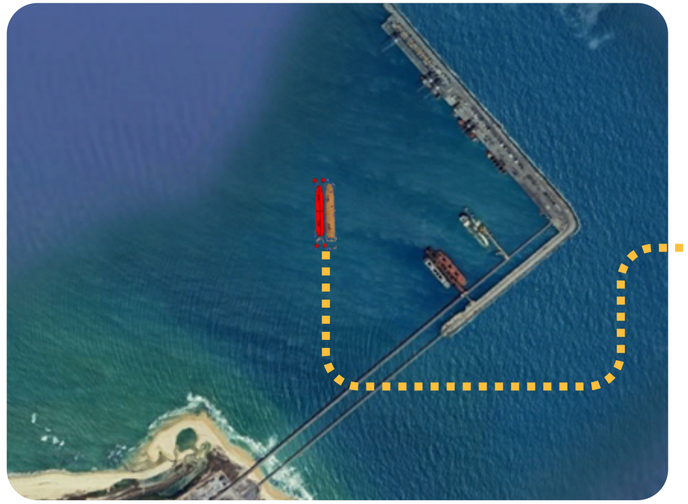
P23-387
November 20th, 2023

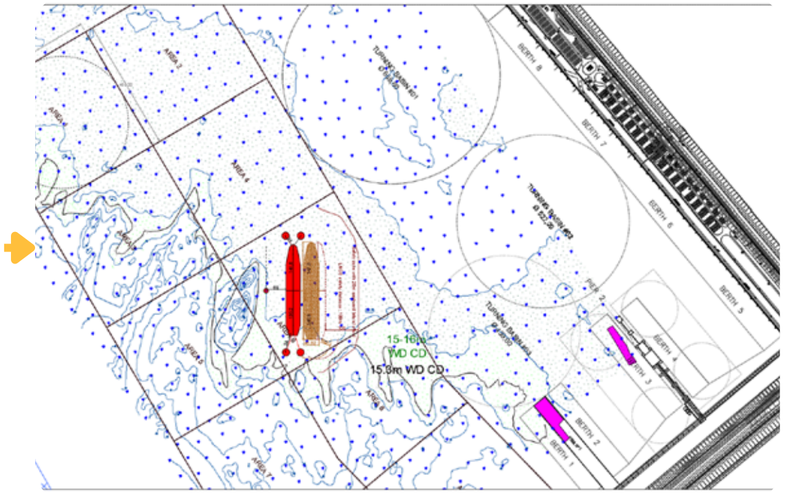
The SFBM concept has received an Approval in Principle from Bureau Veritas

BENEFITS COMPARED TO TRADITIONAL JETTY:

SFBM ENABLES ADDING CAPACITY WITHOUT GETTING IN THE WAY OF DAY-TO-DAY PORT ACTIVITIES, WHILE IMPROVING COST AND SCHEDULE OUTCOMES.

- Enables New Energy supply to remote or congested areas
- No impact on existing port activities
- Minimizes civil work
- Reduced CAPEX
- Reduced time-to-market (permitting, project execution)
- Reduces maritime traffic constraints
- Reduces environmental footprint





Harbor overview and technical layout illustrate how SFBM enables an FSO to be positioned in a sheltered port area with a short footprint, helping preserve traffic flows while reducing civil works, CAPEX and time-to-market.

FOR MORE INFORMATION, GET IN TOUCH WITH US!

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