



# SAIPEM FLOATERS

MORE THAN 20 YEARS ACHIEVEMENTS



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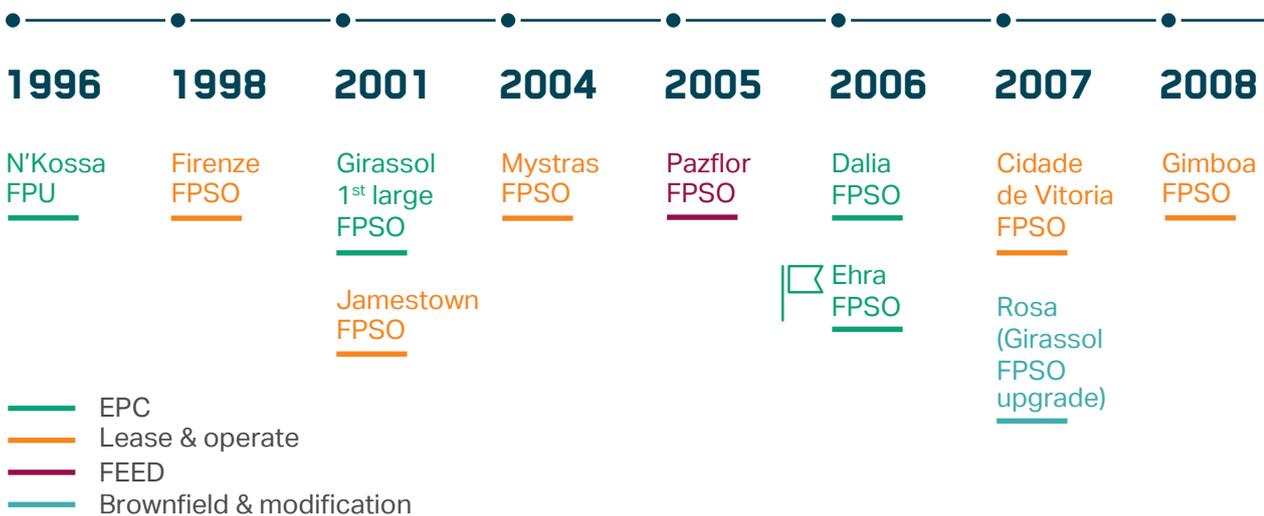
As a leading contractor for the oil&gas industry since the 1970s, Saipem has naturally supported the journey of oil&gas companies towards the use of floating facilities in order to exploit new deepwater fields.

Floating production development started in the early 90s and since then, Saipem has successfully delivered or studied for its clients more than 25 projects for all kinds of units.

Saipem has also operated, maintained and upgraded several of these units, granting Saipem a unique wealth of experiences.



## FLOATERS MILESTONES



## SAIPEM FLOATERS TODAY

Thanks to the development of competitive technical solutions, its engineering workforce, its relationships with shipyards, its own fabrication infrastructures and its presence in strategic markets, in addition to its unique EPIC experience and track record, today Saipem is an extremely reliable general contractor, providing floating solutions worldwide.

### PRODUCT LINES - FLOATING PRODUCTION SYSTEMS (FPS)



FPSO/FPU



FLNG



Courtesy of OLT Offshore LNG Toscana

FSRU



GBS/OTHER FPS

2010

Clov  
FPSO

2011

Petrobras  
FLNG

Shtokman /  
Arctic Gas  
FPU

2012

Aquila  
FPSO

2013

Livorno  
FSRU

2014

Masela  
FLNG

2015

Coral  
FLNG

2016

Jangkrik  
FPU

Golfinho  
(Cidade  
de Vitoria FPSO  
upgrade)

GirRi  
(Girassol FPSO  
upgrade)

2018

Kaombo  
2 FPSOs

## RANGE OF SERVICES



Saipem offers a wide range of services with the aim of supporting its clients across the whole value chain:

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Saipem is developing R&amp;D program in order to make innovative technology available for floaters development, namely in field product offloading, process efficiency, mooring and operations in harsh conditions</li> </ul> | <ul style="list-style-type: none"> <li>• Saipem is well-versed in the development of FEED studies, taking into consideration its vast experience in construction, installation, constraints and cost optimization, thus supporting its clients towards FID and preparation of the construction phase</li> </ul> |
| <ul style="list-style-type: none"> <li>• With its extensive knowledge of the global oil&amp;gas industry, Saipem is often consulted by clients for conceptual development and overall field architecture</li> </ul>  | <ul style="list-style-type: none"> <li>• As a reliable EPC contractor for the oil&amp;gas industry, Saipem is ready to undertake floaters projects, on a design and built contract basis, delivering its clients' floating units on time and on budget</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Thanks to its engineering know-how, Saipem is able to support the technical aspects of their projects through Basic and Pre-FEED studies</li> </ul>   | <ul style="list-style-type: none"> <li>• Saipem operates and maintains its own FPSOs and can also provide the same services to its clients</li> </ul>   |

## SKILLS

HULL TECHNOLOGIES AND MARINE DESIGN	PROCESS, SAFETY AND TOPSIDES DESIGN	UNDERSTANDING INTERFACES CONSTRUCTABILITY AND INTEGRATION ISSUES	MANAGEMENT OF COMMISSIONING, START-UP & OPERATIONS
<p>Saipem is the owner of several marine technologies. It has maintained in-house marine design and naval architecture know-how.</p> <p>These competences are used:</p> <ul style="list-style-type: none"> <li>• at FEED stage by our clients to functionally define their hull needs</li> <li>• during the EPC phase to supervise the operations undertaken by shipyards.</li> </ul>	<p>With an Engineering hub in Milan and an international engineering network, Saipem is able to design efficient processes which suit operators' needs.</p> <p>With its long-standing offshore experience, Saipem is able to understand the peculiarities of process design fitted on floating production units, such as modularization and the importance of safety aspects.</p>	<p>Saipem is able to manage fabrication and integration in its own yards, such as Karimun Indonesia, or carry out these works in third-party yards. Its offshore and construction experience grants Saipem a valuable understanding of construction aspects and constraints.</p>	<p>Saipem operates its own FPSO fleet. This business is providing us with a unique wealth of experiences which is also put to good use when designing floating facilities for our clients and for the commissioning and start-up of these units.</p> <p>Furthermore, Saipem offers Operation &amp; Maintenance services for units owned by its clients.</p>





## FLAGSHIP AND ONGOING PROJECTS

### ERHA PROJECT

Exxon Mobil Nigeria awarded Saipem a very large FPSO for its deep offshore Ehra field in 1,200m of water. The unit is able to produce 210,000 bpd of oil and 540,000 mscfd of gas together with significant water and gas re-injection capacities. The unit is able to store 2,200,000 barrels of oil. The fabrication of the 18 modules for a total topside weight of 31,000 tons was designed by Saipem and fabricated in the Singapore area. Integration and onshore commissioning was undertaken in Singapore and Saipem managed the project until the offshore commissioning phase.



### JANGKRIK PROJECT

Jangkrik is a Gas FPU able to process 450mmscfd of raw gas with the function of separating condensate and dewpointing prior to gas compression and export. The 16,000-ton topsides were fabricated, integrated and commissioned in Saipem Karimun yard in Indonesia. Saipem applied an innovative construction method consisting in an integrated topside module (ITM) which was slid on the hull in one single piece. This method helped save time by reducing integration & commissioning activities and was the key differentiator in securing this project after the design competition on behalf of ENI Indonesia.



### FLNG DEVELOPMENT

Saipem is pursuing FLNG development and has performed several comprehensive FEEDs for major oil&gas companies, from medium-sized to very large FLNG projects, typically ranging from 2.5 to 6+ MTPA. Saipem acquired experience in FLNG design and its in-depth knowledge of construction and commissioning was used to develop a Generic FLNG design with the objective of reducing CAPEX while ensuring safety and meeting clients' requirements. Saipem is active in this market regarding the development of new solutions, namely for the valorization of small stranded gas fields and associated gas for remote fields.



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## KAOMBO PROJECT

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Total E&P Angola Block 32 awarded Saipem the EPCIC works for two replica FPSOs converted from existing VLCC sister ships. These units will be able to produce 125,000 barrels of oil per day and store 1,700,000 barrels. The 2 blocks of 18,000 tons of topsides were fabricated mainly in Saipem Karimun yard in Indonesia and some of them in Angola. The VLCCs were sent for drydocking and conversion in Singapore. The topsides modules were shipped to Singapore for

integration onto converted hulls.

Saipem is responsible for the overall project including FPSO mooring and hook-up between 1,400 to 1,900 metres of water above Kaombo fields and until the start-up of these units.

Saipem will carry out the operation & maintenance of these 2 units for an initial period of 7 years plus, at Total E&P Angola Block 32 option, two extensions of respectively 5 years and 3 years.





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