

**FPSO Cidade de Maricá - FPSO Cidade de Saquarema**  
**FLOATING PRODUCTION STORAGE AND OFFLOADING**



**Brazil**

**Cidade de Maricá - First Oil: 7 February 2016**  
**Cidade de Saquarema - First Oil: mid 2016**

**A symbol of Brazil's successful pre-salt production, Cidade de Maricá (CdM) has joined the increasing ranks of FPSOs contributing to the country's production of oil and gas. The high-capacity vessel achieved first oil in February 2016.**

FPSO Cidade de Maricá is the sister vessel to FPSO Cidade de Saquarema, both carbon-copies of the FPSO Cidade de Ilhabela, the mother ship, which commenced production in November 2014. Both Maricá and Saquarema benefit from the technological expertise and experience that SBM has acquired during the successful completion of FPSO Cidade de Paraty – the first of SBM's four FPSOs for pre-salt vessels offshore Brazil.

All four pre-salt FPSOs are of a design that SBM calls 'Generation 3' (G3), which represents a major step-change in the scale and complexity of FPSO projects to meet the industry's advanced offshore processing needs for pre-salt production projects.

What particularly marks out the G3 design as an FPSO game changer is the increase in production rates and the sophistication of its gas processing and compression technology.

**Field:** Lula oilfield, within BM-S-11 block in the Santos Basin pre-salt area, which is under concession to a consortium comprised of PETROBRAS (65%), BG E&P Brasil Ltda. (25%), and Petrogal Brasil S.A. (10%).

Ownership of the FPSOs is a consortium with SBM Offshore, Mitsubishi Corporation, Nippon Yusen Kabushiki Kaisha and Queiroz Galvão Óleo e Gás. SBM Offshore is the majority partner, with a 56% stake in the consortium.

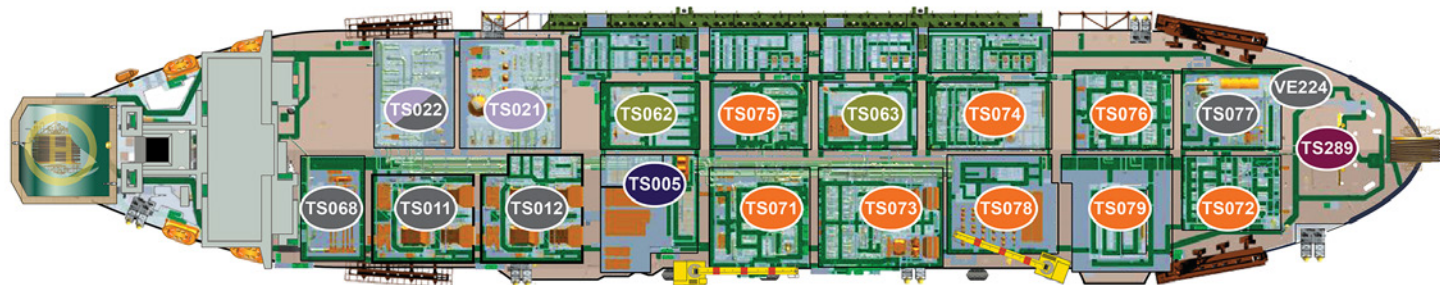
**CdM and CdS at a glance:**

- Highly complex Pre-salt units
- High local content – over 30,000 tons cumulative modules built in Brazilian yards
- Module Integration completed in record time
- Record time from Sailaway to First Oil for Maricá
- Complex gas processing with CO<sub>2</sub> removal and re-injection

## Key Facts and figures:

<b>Contract type:</b>	20-year Lease and Operate
<b>Vessel size:</b>	308,492 DWT
<b>Storage capacity:</b>	1,600,000 bbls
<b>Process capacity:</b>	150,000 bpd
<b>Field:</b>	Lula Central / Alto
<b>Water depth:</b>	2130 / 2120 m
<b>Number of wells:</b>	16 production 5 water alternating gas
<b>Number of risers:</b>	55
<b>Mooring system:</b>	Spread moored (4 x 6 lines)

<b>Max. throughput:</b>	150,000 bbl/d
<b>Gas injection:</b>	212 mmscfd
<b>Water injection:</b>	200,000 bwpd
<b>Scope of work:</b>	<ul style="list-style-type: none"> <li>• Tanker: Purchase and turnkey conversion</li> <li>• Topsides: Engineering, procurement, construction</li> <li>• Mooring: Engineering, procurement, construction</li> <li>• Installation: Engineering, execution</li> </ul>
<b>Conversion yard:</b>	CGX, Guangzhou, China
<b>Integration yard:</b>	Brasa, Niteroi, Brazil



Oil separation system	Gas compression and treatment systems	Water treatment systems	Utility and power generation	Turret and flare	Crane handling Laydown area
TS062 and 063	TS071, 072, 073, 074, 075, 076, 078 and 079	TS021 and TS022	TS011, 012, 022, 068, 077 and VE224	TS289	TS005

Module	Description	Details
TS062 / 63	Oil Processing	MGO circulation pump, oil metering package, IP flash vessel, IP separator, electrostatic treater package, HP and test separator crude oil heaters and coolers, pre-treater, produced water hydrocyclone, pumps, cooler and flotation vessel, test heater and gas export pig launcher
TS071 / 72	Main Gas Compression	Main gas compressor package A, main gas compressor package B and regeneration gas separator
TS074 / 75	Gas treatment	Gas dehydration package, refrigerant package, well service heater, fuel gas scrubber, fuel gas super heater, fuel gas pre-heater, chemical injection pumps package, vapor recovery unit package, ethanol vessels and asphaltene inhibitor vessel
TS076	Injection Gas Compression	Injection gas compressor package including discharge coolers and suction scrubbers
TS021	Sea Water Treatment (SRP)	Sea water filters, SRP membrane train including HP feed pump and guard filter, de-aeration column, air scour blower, chemical injection pumps, chemical storage tanks, vacuum pump package and air/water separator
TS022	Water Injection / Utilities	Water Injection Pumps, Nitrogen receiver, Instrument Air Vessel, Cooling Medium Package including Coolers, Pumps, Filters and Vessels, Heating Medium Package including Pumps, Filters and Vessels
TS011 / 12	Power Generation	Power generation package - 4 of LM2500+ turbo generators, 3 of the gas turbines fitted with waste heat recovery units complete with liquid fuel oil boosting package and fuel gas scrubber package
TS073	CO <sub>2</sub> gas Compression	4-Stage CO <sub>2</sub> compressor package, synthetic oil to water cooler package and fuel gas scrubber package
TS078	CO <sub>2</sub> Membranes	CO <sub>2</sub> removal unit and gas-gas exchangers
TS079	H <sub>2</sub> S Removal	H <sub>2</sub> S removal vessels, vacuum unit, nitrogen generation package for H <sub>2</sub> S removal vessels and H <sub>2</sub> S removal dust filters
TS005	Laydown area / Chemical Injection	Lay down area, production chemical injection package, helideck refuelling skid, gas pressure reducing skid, H <sub>2</sub> S scavenger pump package and laboratory
TS068	Oil Metering Offloading	Offloading metering Package
TS075	Gas Treatment B	
TS076	Injection gas compression	
TS077	Flare KO Drums	
TS078	CO <sub>2</sub> Gas Membranes	
TS079	H <sub>2</sub> S Removal	
TS289	Flare stack	

