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 CO₂ removal and re-injection
**Key Facts and figures:**

| Contract type: | 20-year Lease and Operate |
| Vessel size: | 308,492 DWT |
| Storage capacity: | 1,600,000 bbls |
| Process capacity: | 150,000 bpd |
| Field: | Lula Central / Alto |
| Water depth: | 2130 / 2120 m |
| Number of wells: | 16 production |
| Number of risers: | 55 |
| Mooring system: | Spread moored (4 x 6 lines) |
| Max. throughput: | 150,000 bbl/d |
| Gas injection: | 212 mmscfd |
| Water injection: | 200,000 bwpd |
| Scope of work: |
| • Tanker: Purchase and turnkey conversion |
| • Topsides: Engineering, procurement, construction |
| • Mooring: Engineering, procurement, construction |
| • Installation: Engineering, execution |
| Conversion yard: | CGX, Guangzhou, China |
| Integration yard: | Brasa, Niteroi, Brazil |

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**Module**

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**Module Details**

- **TS062 / 063 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 / 072 Main Gas Compression**
  - Main gas compressor package A, main gas compressor package B and regeneration gas separator

- **TS074 / 075 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 / 012 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 CO₂ gas Compression**
  - 4-Stage CO₂ compressor package, synthetic oil to water cooler package and fuel gas scrubber package

- **TS078 CO₂ Membranes**
  - CO₂ removal unit and gas-gas exchangers

- **TS079 H₂S Removal**
  - H₂S removal vessels, vacuum unit, nitrogen generation package for H₂S removal vessels and H₂S removal dust filters

- **TS005 Laydown area / Chemical Injection**
  - Lay down area, production chemical injection package, helideck refuelling skid, gas pressure reducing skid, H₂S 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 CO₂ Gas Membranes**

- **TS079 H₂S Removal**

- **TS289 Flare stack**

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Contact Details
marketing-info@sbmoffshore.com

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