



EXPERIENCE **MATTERS**

**2016**

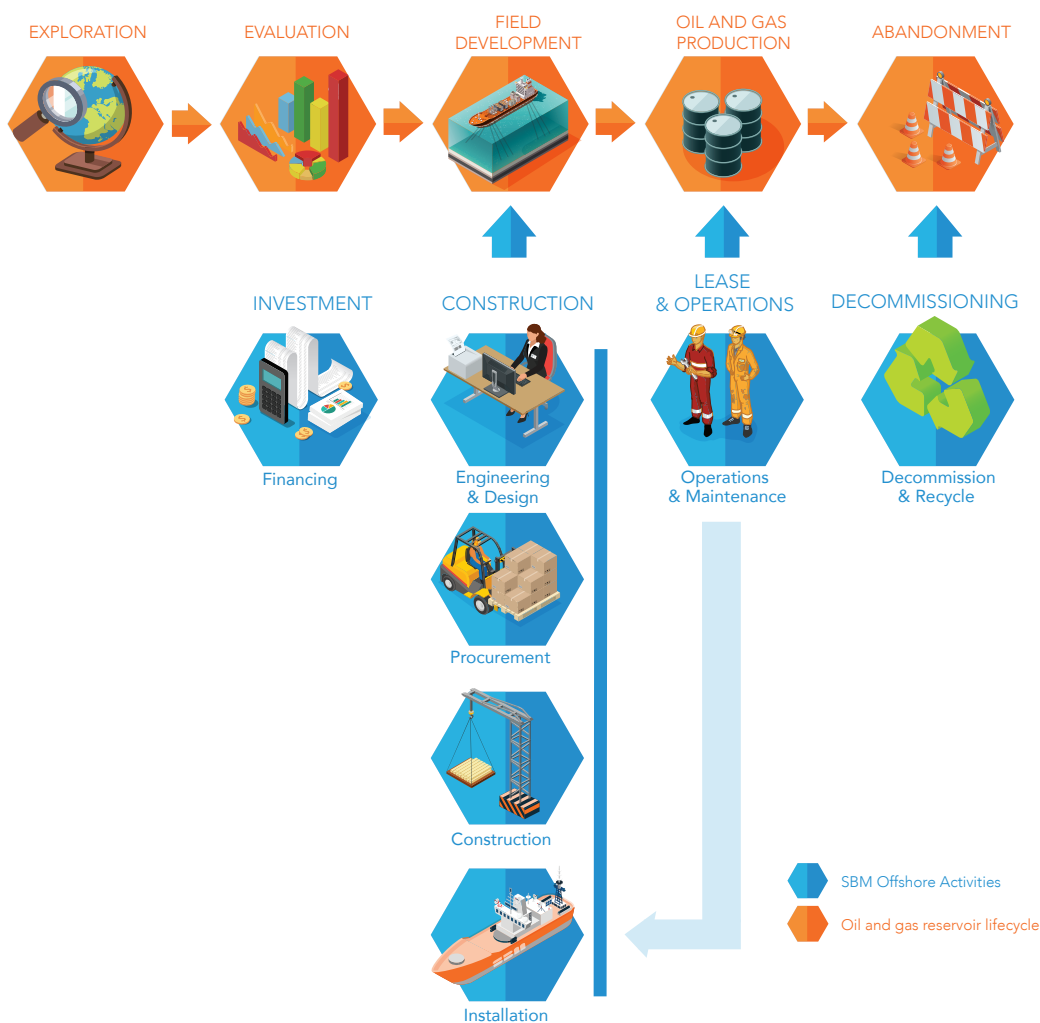
ANNUAL REPORT

## 1.6 POSITION WITHIN THE VALUE CHAIN

SBM Offshore is mostly active in the offshore oil and gas industry and provides a broad range of products and services to its clients with the goal to produce oil and gas from underwater reservoirs containing hydrocarbons. The illustration outlines the life cycle phases of the industry at large and SBM Offshore activities within this cycle.

The Company's clients usually control the complete value chain from the initial exploration phase to the physical distribution of hydrocarbon-based products. SBM Offshore's added value in their value chain primarily relates to field development activities. The Company is to a much lesser extent involved in the transportation of crude oil – its CALM Buoys transfer crude oil from VLCC carriers to and from storage on shore.

### OFFSHORE OIL AND GAS RESERVOIR LIFECYCLE PHASES



# 1 AT A GLANCE

More recently the Company has setup a new Product Line in Renewable energy, but the contribution of this Product Line to the turnover is not material and is not part of the value chain described below.

## FIELD DEVELOPMENT

The first phase of an offshore oil and gas field development consists of exploration under the seabed by seismic mapping to identify a prospect. To confirm hydrocarbon presence in a prospect, exploration wells are drilled to the reservoir.

The second phase consists of an evaluation of the reservoir to assess the amount of hydrocarbon and its composition. Through a combination of drilling of appraisal wells and simulation of the well fluid behaviour, the field development plan is optimized.

In the third phase, the field development plan is finalized and SBM Offshore's clients can specify the amount of production wells, the subsea equipment and the production requirements of the platform to produce from the reservoir. In this phase, SBM Offshore is contracted to engineer, procure, construct, commission and install the production facility or to perform FEED studies prior to advancing to the EPCI stage.

The fourth phase is the longest and consists of the production of oil and gas over the life span of the reservoir. In this phase, SBM Offshore is usually contracted to provide a production facility under a lease and operate contract, which represents the Company's core business model.

In the fifth and last phase, as production has declined substantially, the field will be abandoned. The production facility will be decommissioned and scrapped. SBM Offshore is active in this field and the FPSOs in SBM Offshore ownership are green recycled in line with the Hong Kong Convention.

SBM Offshore does not own any oil or gas reserves. As a consequence, SBM Offshore's profitability depends on the quality of its services and not on production volume, nor the sales price of oil and gas.

## SBM OFFSHORE'S VALUE CHAIN

SBM Offshore's Value Chain is reflected in the life cycle circle of the full service of producing oil and gas offshore for its clients. There are different elements related to this service that require different skill sets and have a different value proposition.

### EPCI for FPSO or FPU

SBM Offshore constructs and supplies FPSOs or other floating production facilities for lease and operate activities as well as direct sales to clients. When sold to a third party a sales margin is generated and ownership is transferred to the client. In the case of a lease contract, the facility is sold to a facility specific Joint Venture company, in which SBM Offshore holds a stake, to charter and operate the FPSO or FPU for the client. For both cases, the construction activities create value through manufacturing and are described below.

### Engineering and Design

SBM Offshore has the in-house capability for conceptual studies, basic design and detailed design. This expertise is required to engineer the facilities to meet the specific requirements of the field development. SBM Offshore invests in product and technology development to maintain the required technology innovation and expertise to meet the client's requirements and increase its competitive advantage.

### Procurement and Project Management

SBM Offshore's supply chain represents a substantial part of the total costs to construct an FPSO. Controlling the supply of bulk, equipment and services, in a cost-effective and timely manner,



to support the construction phase is essential to delivering the facility on schedule and on budget.

### **Construction**

SBM Offshore outsources most construction activities to refurbish and convert the hull into an FPSO and to fabricate and integrate the process modules. To meet local content requirements, the Company has invested in two Joint Venture yards to undertake these two main activities. Following mechanical completion, the FPSO is then commissioned by SBM Offshore before moving offshore for installation and start-up of production operations.

### **Installation**

Installation of the floating facilities is done with specialized installation vessels and requires specific engineering expertise and project management skills. SBM Offshore shares ownership of two installation vessels that provide the hardware and expertise to install its FPSOs offshore among other offshore construction works for third parties. Access to these vessels allows SBM Offshore to control the risks associated to cost fluctuations over a period of several years from contract award. These vessels also work for third parties to optimize return on investment.

### **Offshore Operations**

The offshore facilities under SBM Offshore ownership are mostly operated by the Company as well. This activity creates value for clients as the uptime performance of the facility directly impacts the amount of hydrocarbons produced. In most contracts, SBM Offshore is compensated for providing the production facilities against a fixed dayrate complemented with an operating fee. Income is independent of oil price fluctuations. Most contracts include a bonus/penalty reward related to uptime performance of the different systems as well as penalties related to GHG emission levels.

The facility processes the well fluids into stabilized crude oil for temporary storage on board, which is then transferred to a shuttle tanker to export it from the field. During this phase, oil and gas enhanced recovery systems are used to maintain production levels. To do this, secondary recovery systems for gas injection, water injection and gas lift systems are installed on the production facility. SBM Offshore's Generation 3 FPSO design for deep water includes CO<sub>2</sub> removal from gas stream and reinjection into the well offshore.

Operating and maintaining offshore oil and gas production facilities requires proven operational expertise and management systems, which SBM Offshore has developed over a cumulative 300 contract years of operations.

### **Decommissioning**

At the end of the lifecycle – either due to the duration of the contract coming to an end or depletion of the client's field – the facilities are decommissioned and recycled. As the leased FPSOs are under SBM Offshore's ownership, the Company applies the Hong Kong Convention rules to green recycle its FPSOs. This is a relatively new field of expertise for SBM Offshore with the first two FPSOs decommissioned and recycled in this sustainable manner in 2015 and a third FPSO in 2016.

## **FINANCING AND LEASE OF THE FACILITY**

As part of the lease and operate contract, SBM Offshore supplies the FPSO against a fixed bareboat charter rate over the lease period. To construct the FPSO substantial investment is required. The projects are financed partially with equity, complemented with debt financing and/or bonds.

To spread risk and reduce pressure on the balance sheet, facilities are mostly co-owned with joint venture partners. These are financial partners and

## 1 AT A GLANCE

are usually not involved in the day-to-day operation of the FPSO nor do they take construction risks for the initial supply of the FPSO.

SBM Offshore sources loan financing from institutional banks and has also accessed the USPP market.

### VARIATIONS IN THE VALUE CHAIN

Some of SBM Offshore's Product Lines operate in a slightly different value chain. Although the majority of the Company's contracts are based on the lease and operate business model, it also supplies FPSOs and specific FPSO equipment, such as Turret Mooring Systems, on a turnkey supply basis. The Company sells directly to oil companies, but also to other FPSO providers, if appropriate.

Part of the operating activities are devoted to the modification of existing floating offshore installations, to enable the Company's clients to extend the production life of the facility, to tie-in smaller fields nearby or to upgrade with new technology.

The Company also provides Floating Production Units (FPUs) and has one facility in operation, the Thunder Hawk DeepDraft™ Semi-submersible, under a production handling agreement, which is not SBM Offshore's standard business model as revenue is production volume dependant. The Company is paid for the service of producing oil and gas against a certain fee per barrel or equivalent in gas produced on Thunder Hawk.