

2022  
ANNUAL  
REPORT



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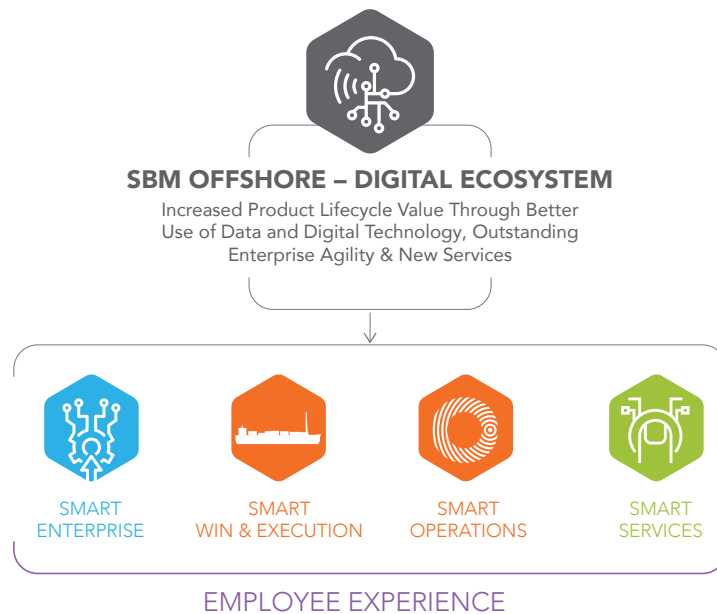
**Smart Services:** the New Energy and Services Product Line has a portfolio of services maximizing reliability, integrity and performances of offshore assets. Those services, such as Ex-integrity services, are tested on the SBM Offshore fleet to demonstrate their value before being commercialized. The 2022 main achievements under this pillar are:

- Deployment of intelligent agents (artificial intelligence) on third-party assets.

- Providing client access to the IDEA digital platform, which delivers design and historical data of CALM systems, sharing O&M best practices through live operational data.

SBM Offshore has also consolidated the transformational digital development functions and innovation activities into a **Digital Factory**, encompassing competencies such as data science and digital solutions development.

## DIGITAL TRANSFORMATION AT SBM OFFSHORE



### FUTURE

New technologies are rapidly evolving. SBM Offshore will benefit from these new technologies and will develop the skills and capacity necessary to adopt them.

### 2.1.9 INNOVATION

#### MANAGEMENT APPROACH

The key objective of innovation at SBM Offshore is to bring valuable new solutions to market that support SBM Offshore's energy transition strategy. All parts of the organization are encouraged to contribute to innovations in their field of expertise, from ideation to final implementation.

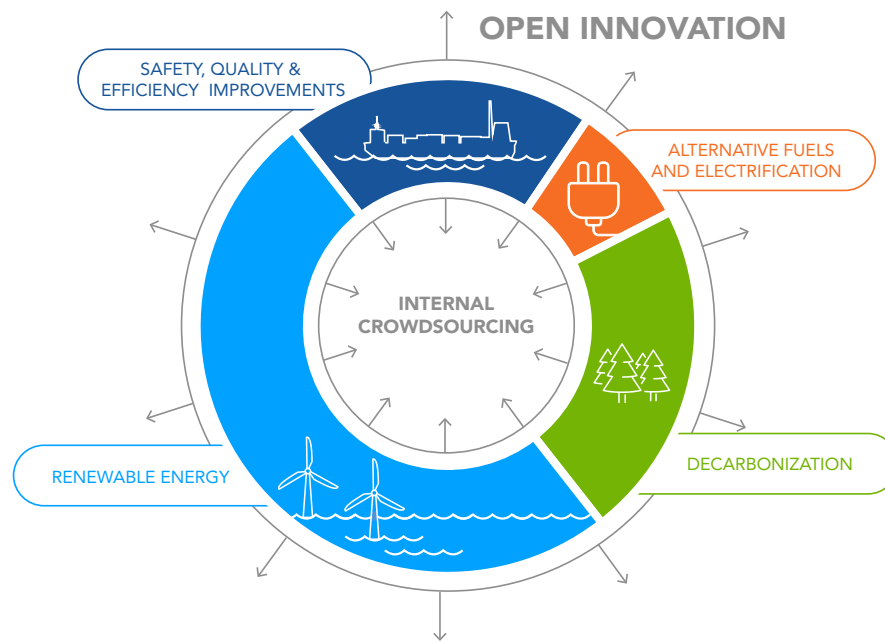
The development of new technologies is managed by the Group Technology Department. All innovation programs are aligned with the long-term strategies of the Product Lines and with key programs such as emissionZERO®, Fast4Ward® and Float4Wind®. Development roadmaps are kept up-to-date with technical and market developments through regular reviews.

SBM Offshore brings new technology to market through a structured stage-gate process to ensure that the technology is validated before being deployed. This Technology Readiness Level (TRL) process is based on American Petroleum Institute standards (API RP17N) and includes prototype testing and full FEED level definition of new systems as part of the qualification requirements.

SBM Offshore manages its IP portfolio by registering patents and trademarks, as well as through securing trade secrets and know-how. To ensure IP integrity, SBM Offshore manages the classification of documents and non-disclosure agreements with partners to restrict access to technology-sensitive documents. Freedom-to-operate checks are conducted to respect third-party rights.

As a result of this management approach, innovation is stimulated while risks associated with new technology deployment are mitigated (see section 1.4.2).

## 2 PERFORMANCE REVIEW AND IMPACT



### 2022 PERFORMANCE

In 2022, SBM Offshore accelerated its development efforts towards emerging technologies associated with decarbonization and renewable energies, allocating 59% of the Group Technology R&D budget to EU Taxonomy eligible<sup>15</sup> activities.

Following the pilot in 2021, a global ideation platform has been successfully rolled-out across SBM Offshore. A structured approach to innovation management has been implemented, based on crowdsourcing and peer review. Through this platform, more than 1,500 employees have been engaged in early-stage innovation. SBM Offshore also continued to work with open-innovation platforms and clients to identify promising new technologies and potential collaborative partnerships.

SBM Offshore filed 48 new patent applications to strengthen its existing portfolio of 130 patent families; in particular in the areas of renewables and electrification. Over the course of 2022, the TRL of 23 technology development projects has been increased, 10 of which reached TRL 4. This level demonstrates that reliability, function and performance criteria are met in the intended operating condition and the technology can be deployed.

Some of the main development projects undertaken in 2022 include:

- As part of the renewable technology development roadmap, SBM Offshore launched its second-generation floating offshore wind technology (Float4Wind®), achieving lower costs in mass production. Additional

component improvements have been further developed in 2022.

- SBM Offshore's emissionZERO® program phase 2 has progressed, demonstrating the potential for further carbon intensity reduction based on near-market ready technologies. As part of the program, one of the technologies qualified to TRL 4 is the combined cycle gas turbine for offshore power generation.
- As part of the emissionZERO® program, a partnership was established in 2022 to develop a topside module to capture carbon emitted from gas turbine exhausts.
- A co-development agreement with a client has been extended to continue the TRL 4 phase of the development of an ultradeep seawater intake riser. The technology brings colder water from greater depths to the FPSO. This cold water allows energy efficiency improvements, resulting in lower emissions.
- Following the small-scale test campaign on the generator rings of the S3® Wave Energy Converter, a program has begun to qualify some of the components at pilot scale prior to pilot assembly. Works for the required pilot scale test tank have been started at SBM Offshore's R&D Laboratory in France.
- SBM Offshore ramped up research in FPSO electrification in 2022, with the qualification of different topside electrical equipment, in addition to technologies related to high-voltage electrical swivels and subsea connectors.
- Hydrogen and ammonia market studies have been completed, resulting in an updated technology development roadmap which is focusing on terminal solutions (TRL 4 achieved in 2022) and offshore blue ammonia production (TRL 2 achieved in 2022).

<sup>15</sup> Based on 2021 eligibility KPI definitions explained in section 5.1.5.

- A five-year program has been kicked off to further develop robotics for deployment on FPSO units in operation. The key drivers for this program are to reduce high-risk human activities and to improve the efficiency of inspection and maintenance activities.
- A collaboration with a start-up created from SBM Offshore's 2020 hackathon has led to a successful pilot deployment of an artificial intelligence-based corrosion detection application.

## FUTURE

SBM Offshore will continue to focus its technology development activities on the energy transition by allocating at least 70% of its development budgets to decarbonization and renewables.

Part of these investments will be geared towards developing and qualifying technologies that significantly reduce the carbon intensity of offshore oil and gas production, supporting the emissionZERO® program. These also include early studies in the field of offshore hydrogen and ammonia production. In addition, continued investments in robotics will contribute to improved safety and efficiency in SBM Offshore's operating fleet.

At least 50% of the R&D investment will be allocated to EU Taxonomy eligible activities. SBM Offshore will keep exploring alternative offshore renewable technologies while continuing to invest in its Float4Wind® and Wave Energy Converter programs.

### 2.1.10 ENERGY TRANSITION

#### MANAGEMENT APPROACH

Key elements that enable SBM Offshore's success in the energy transition area are:

- Product development for floating offshore wind, wave and other new energies.
- Technology development supporting these product developments (see more detail in section 2.1.9).
- The emissionZERO® program explained in section 2.1.7.

SBM Offshore is committed to a strategy and action plan that is compatible with the transition to net-zero by no later than 2050, as explained in section 2.2 and section 1.4.3.

Product development for new products to support the energy transition is addressed through SBM Offshore's New Energies and Services business unit, in collaboration with the Technology Department. An important step in this process is the development of prototypes and pilot projects, which can also be undertaken as co-development projects with partners and/or customers. SBM Offshore monitors its commercial pipeline to allow SBM Offshore to

achieve its envisioned growth goals, in line with its 2030 ambition.

With this management approach to energy transition, SBM Offshore is addressing the significant risks of oil price dependency, portfolio risks and climate change, described in section 1.4.2.

SBM Offshore reports in line with the EU taxonomy regulation and leverages the framework to set targets for and report on the energy transition. Disclosures are found in section 5.1.2.

#### 2022 PERFORMANCE

SBM Offshore has made the following achievements in 2022:

- The construction of the Provence Grand Large floating foundations reached a major milestone with the successful installation of the transition pieces linking the floater to the turbine mast.
- The newly established Renewables Project Development organization aimed to take an early and broad strategic position in the Floating Offshore Wind value chain. SBM Offshore has partnered to pursue opportunities globally. Currently there are 2 x 100MW Llÿr, 60MW Cademo and 400MW North Channel Wind projects in the pipeline, with further development opportunities under investigation.
- Launched Float4Wind®, the second generation of SBM Offshore's Offshore Wind Floater technology, it has a reduced seabed footprint, an optimized annual energy production combined with a simpler design addressing the challenges of industrialization. Crucially, the technology is scalable to larger capacity turbines and is suitable for deeper water and harsher sea conditions.
- An MoU signed with ExxonMobil Guyana granting exclusivity for SBM Offshore's seventh Fast4Ward® Multi-Purpose Floater (MPF) Hull for use on a future cost and CO<sub>2</sub>e-intensity-competitive FPSO project.
- Manufacturing of the WEC S3® prototype is under way in SBM Offshore's Carros laboratory.
- The seawater intake riser program, to cool FPSO systems and reduce energy use, is under way with a client.
- SBM Offshore has invested 59% of the total 2022 Group Technology R&D budget in EU Taxonomy eligible<sup>16</sup> renewable energy technology and product development. This includes further development of the next generation of Tension-Leg Platform (TLP) floater design, Wave Energy Converter products as well as studies in energy storage, desalination and hydrogen and ammonia for offshore applications.
- SBM Offshore continues to work on projects that address emissions reduction along the lifecycle of its

<sup>16</sup> Based on 2022 eligibility KPI definitions explained in section 5.1.5.