SBM OFFSHORE

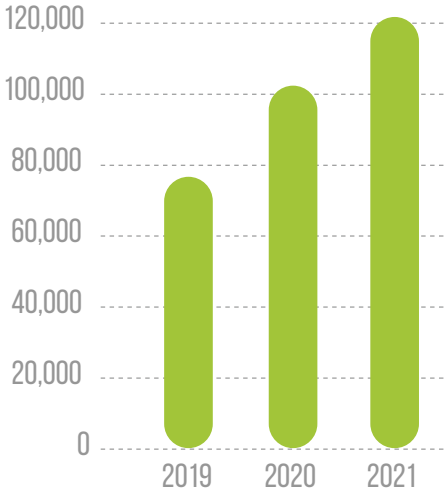
ENERGY. COMMITTED.

ANNUAL REPORT 2021

- Optimize assets operations and utilize data science and artificial intelligence for predictive maintenance. This has led to operating cost savings in the FPSOs that SBM Offshore services on behalf of its clients.
- Optimize project execution through end-to-end process platforms (Integra), or visualization and planning of work fronts at the construction yards. This includes 3D Construction and Work Fronts Management or 'Robotic Process Automation' (RPA) technologies that allow the automation of repetitive tasks.
- Create new opportunities and diversify SBM Offshore's revenues by delivering high-value digital services to customers through Smart Services, a New Energy & Services Product Line.
- 18% increase in the cumulative number of operational signals, compared with 2020, to above 120k. This includes key process indicators such as pressure, temperature, etc. – stored and leveraged for remote monitoring of rotating equipment and process systems, troubleshooting and machine learning (see below graph).

DIGITAL TRANSFORMATION AT SBM OFFSHORE

NUMBER OF DATA SIGNALS
(CUMULATIVE – '000)



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.

Digitalization requires adopting an end-to-end approach and assessing value throughout the product lifecycle, with further roll out of the ERP system contributing. It also requires building foundational capabilities that support the entire structure. Hence, SBM Offshore will reinforce its organization with the creation of a central Data Office, responsible for the definition and governance of the Data Model. SBM Offshore will rationalize its digital applications landscape and develop a data platform enabling access and integration of data generated from multiple digital applications. This data platform will become the enabler of the Lifecycle Digital Twin and of the customer portal for new digital services.

2.1.9 INNOVATION

MANAGEMENT APPROACH

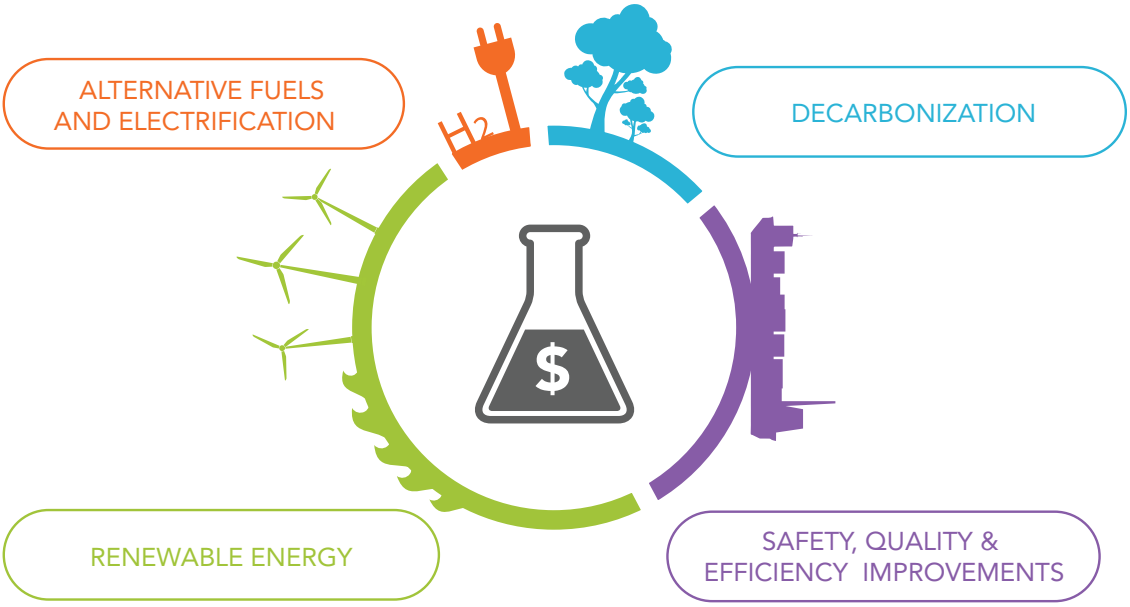
The key objective of innovation at SBM Offshore is to bring valuable solutions to market that are in line with SBM Offshore's strategy, in particular those related to the energy transition. All parts of the organization are

encouraged to contribute to innovations in their field of expertise, from ideation to final implementation.

The development of new technology is managed by the Group Technology Department, which ensures that all innovation programs are aligned with the long-term strategies of the Product Lines and with key programs such as emissionZERO® and Fast4Ward®. 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 properly validated before being offered for sale or introduced into projects. 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 and ensures restricted access to technology-sensitive documents. Freedom-to-operate checks are conducted to ensure respect for third-party rights. Through this approach, risks associated with technological developments are mitigated (see section 1.4.2).



2021 PERFORMANCE

In 2021, SBM Offshore continued to increasingly diversify its development efforts in emerging technologies associated with gas, power and renewable energies, allocating 60% of the Group Technology R&D budget to non-carbon technology. Some of the main development projects undertaken in 2021 include:

- SBM Offshore's unique Floating Offshore Wind TLP concept has been adopted by the PGL floating wind farm development project and is progressing through the EPC phase. In parallel, the next generation of this TLP Floating Offshore Wind foundation, achieving lower cost in mass production, is under development.
- The innovative S3® Wave Energy Converter (WEC) project at SBM Offshore's R&D Laboratory has made significant advances. Site work and components qualification are under way to deliver the prototype. The project schedule for completion has been extended, owing to the COVID-19 pandemic.
- SBM Offshore's emissionZERO® program is on track to deliver the phase 1 emissionZERO® FPSO concept. As part of this roadmap, the design of a topside module to capture CO_2 emitted from gas turbine exhaust has been further developed and is expected to be available by 2023.
- In close collaboration with the newly established gas product line, new technologies and concepts have been developed related to blue and green ammonia and hydrogen.
- The first Virtual Reality training for offshore personnel has been delivered and rolled out in the fleet, featuring SBM Offshore's own accumulated operational experience.
- The Large Diameter High Pressure swivel test bench has been completed in the R&D laboratory. The test bench has been designed and commissioned by SBM Offshore and enables the qualification of new swivel and seal designs.

- Following the Ocean Code Hackathon last year, work has begun in collaboration with a newly created start-up company to produce an artificial intelligence-based system to detect corrosion in FPSO topsides.
- Progress was made to diversify and democratize innovation sourcing within SBM Offshore. Main achievements were the hosting of the first Technology Conference open to the entire SBM Offshore community, and the deployment of a crowd-sourced collaborative innovation management platform.
- SBM Offshore has begun working with external open-innovation platforms to identify promising new technologies under development and potential partnerships with start-up companies, universities, and technology institutes.

Out of the 44 technology development projects that aim to increase Technology Readiness Levels (TRL), 35 have been completed successfully, 3 have been delayed for completion in 2022 and 6 have been cancelled and replaced by more promising non-carbon technology developments.The Company filed 31 new patent applications to strengthen its existing portfolio of 142 patent families; in particular in the area of renewables and digital applications. Over the course of 2021, eleven innovation projects reached TRL 4.This level demonstrates that reliability, function and performance criteria are met in the intended operating condition and the solution can be integrated into a complete system.

FUTURE

SBM Offshore will continue to focus its technology development activities on the energy transition by allocating more than half of its technology development budgets to EU Taxonomy Eligible technology[7]. This will ensure sustainability of innovations, attractiveness to investors and contribute to a responsible energy transition required to mitigate climate change impact. In addition, SBM Offshore will invest in topside technologies to deliver the ambitions of SBM Offshore's emissionZERO® FPSO program and developments in alternative energy storage and generation. SBM Offshore will also continue to invest in research and development for its innovative S3® Wave Energy Converter and Floating Offshore Wind solutions.

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 and Wave Energy.
- 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 commits 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.

Product development for energy transition is addressed through SBM Offshore's New Energies & 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 done as co-development projects with partners and/or clients. 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 for 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 complies 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.

2021 PERFORMANCE

SBM Offshore has made significant achievements in 2021:

- The newly established New Energies and Services entity is accelerating in building up the organization, expertise and culture for the Renewables, Gas, Terminals and Digital Service markets.
- SBM Offshore has further articulated a clear ambition to have >2GW Floating Offshore Wind installed or under construction by 2030. This ambition statement provides a directly measurable target.
- The project execution of EDF Renouvelables Provence Grand Large 25.2MW Floating Offshore Wind is in full swing with detailed engineering, structure fabrication and assembly activities ongoing.
- SBM Offshore moved forward as a co-developer in the offshore wind industry with the newly established joint venture, Floventis Energy Limited. The first development project Llŷr in the UK, comprising 2 offshore sites each up to 100MW, has received the Crown Estate's intention to grant lease subject to a Habitats Regulations Assessment.
- Manufacturing for the WEC S3® prototype is in progress in SBM Offshore Carros-based laboratory.
- Seawater intake riser program is underway with Shell in Brazil to cool FSPO systems and reduce energy use.
- SBM Offshore has invested in renewable energy technology and products development, with 60% of the total 2021 Group Technology R&D budget applied to non-carbon[8] technologies. This includes further development of next generation of

[7] Based on 2021 eligibility KPI definitions explained in section 5.1.5.

[8] Non-carbon technologies have the potential to replace fossil based technologies with non CO2 emitting alternatives or to capture/reuse CO2