



# TACKLING CLIMATE CHANGE

report based on  
the recommendations  
of the Task Force  
on Climate-Related  
Financial Disclosures





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# INTRODUCTION

As evidence of the growing recognition of the risks represented by climate change, 195 governments signed the Paris Agreement in 2015, committing themselves to strengthening the global response to the threat of climate change by 'holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels'. This commitment represents a step change for all of humanity and a challenge for all actors, including international organisations, governments, individual citizens and corporate organisations.

In June 2017, the **Task Force on Climate-Related Financial Disclosures (TCFD)** published recommendations for effective disclosure of climate-related financial risks. The Task Force was established by the Financial Stability Board (FSB) in December 2015 to develop a set of voluntary, consistent disclosure recommendations for use by companies in providing information to investors, lenders and insurance underwriters about their climate-related financial risks. The 32 industry members of the Task Force, drawn from a wide range of industries and countries, finalised the recommendations after extensive public engagement and consultation.

The TCFD developed four recommendations on climate-related financial disclosures that are applicable to organisations across sectors and jurisdictions.

At European level, the 2030 climate and energy framework, adopted by EU leaders in October 2014, has set three key targets for the year 2030: at least 40% cuts in greenhouse gas emissions (from 1990 levels), at least 27% share for renewable energy and at least 27% improvement in energy efficiency.

In January 2018, High-Level Expert Group (HLEG), established by the European Commission to develop EU strategy on sustainable finance, published its Final Report with 8 key recommendations and in March 2018 the European Commission published an Action Plan on Financing Sustainable Growth with 10 main actions. Both the recommendations and the Action plan are consistent and recalls TCFD's recommendations. Moreover HLEG affirms that 'the EU should endorse the TCFD guidelines and implement these

recommendations at the EU level'<sup>1</sup>.

So far, the Oil & Gas sector has taken significant steps to limit the emissions of greenhouse gases from their own operations. However, the challenge for this sector will be to meet the increasing demand for energy by the global population, which is estimated to exceed 9 billion by 2040, while tackling climate change.

As a leading Oil & Gas contractor, Saipem plays a strategic role in helping and supporting its clients meet the needs of a fast changing world.

Although the link between climate-related indicators and financial impacts is complex, climate-related risks and opportunities undoubtedly affect the future strategy and performance of an international and multi-business Company like Saipem.

In fact climate change not only adversely affects the 'natural and managed ecosystems', but may lead to deleterious effects on 'the operation of socio-economic systems or on human health and welfare'<sup>2</sup>. There are many potential social and cultural impacts (both direct and indirect) of climate change such as pressure on food and nutrition security, water stress increases, intensification of migration flows, human health impacts.

The management constantly analyses and monitors the potential implications of climate change on the company's business and the interest of its stakeholders on the topic, such as any other uncertainties and issues in the medium/long-term, and has integrated this consideration in the Company's strategic plans. This is why starting from the 2017 financial year, the Company decided to follow the recommendations of the TCFD, properly adapted and adjusted to the Company and its market peculiarities, and to draft this document. Saipem is committed to providing effective disclosure to its stakeholders on all the issues that could affect decisions regarding the Company and to demonstrating how it is equipped to run its business in the long-term. The document, in addition to other engagement actions such as participation in the Carbon Disclosure Project (CDP), demonstrates Saipem's transparent approach and provides supplemental climate-related information that is both readily and easily accessible to investors and other users.

(1) 'Financing a sustainable European growth', Final Report 2018 by the High-Level Expert Group on Sustainable Finance.

(2) United Nations Framework Convention on Climate Change (UNFCCC).



# CLIMATE GOVERNANCE

In 2016, Saipem joined the UN Global Compact committing itself to aligning its business strategy, day-to-day operations and organisational culture to this initiative and its principles.

The UN Global Compact is also a call to contribute to achieving the 17 Sustainable Development Goals (SDGs), in other words, societal goals at the heart of the 2030 Agenda for Sustainable Development adopted in 2015 that aim to end extreme poverty, fight inequality and injustice, and protect the planet by 2030. In particular, we mention goal 7 'Affordable and Clean Energy' and goal 13 'Climate Actions'. Saipem's commitment to climate change prevention is reflected in its governance, its principles and policies.



## THE ROLE OF THE BOARD AND ITS COMMITTEES

The Board has been increasingly involved in the internal strategic discussion on climate-related issues and their implications on business strategy and related plans. An annual workshop is organised for Board members and Division Managers to discuss the strategic outlook. During the workshop organised in July 2017, the board discussed the implications of recent international and geo-political events on energy markets.

On October 10, 2017, Saipem's Board of Directors analysed how the main European stakeholders are oriented over the next few years towards embracing such topics as climate change, green energy and electric mobility.

On November 15, 2017, Saipem organised a workshop for the Board of Directors called 'Sustainable Business Vision' that was focused on an analysis of macro trends and business scenarios related to sustainability and in particular climate change (i.e. assessment of climate-related risks and opportunities, progressive integration of climate change-related aspects in a company's strategic plans, the correlation between environmental and economic performance). The workshop also resulted in the definition of a new vision for the sustainable business of the Company.

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**This is our vision: to be a leader in making the future of our markets sustainable.**

The **Sustainability, Scenarios and Corporate Governance Committee** (previously called the Corporate Governance Committee and Scenarios) has the task of assisting the Board of Directors by fulfilling a preparatory, consultative and advisory role in assessments and decision-making processes with regard to the Sustainability, Corporate Governance and the review of scenarios considered in the preparation of the Strategic Plan. The committee, chaired by the President of the Board, addressed the topic of climate change on several occasions in meetings held in 2017.

On July 24, 2017, the Committee gave the Company's Board of Directors a detailed explanation on the prime focus of the aforementioned '*Recommendations of the Task Force on Climate-Related Financial Disclosures - Final Report*', published by the Financial Stability Board. The report identifies the information needed by financial stakeholders to assess the risk-return profile of organisations.

In the meeting held on December 15, 2017, the Committee remarked on the importance of the Recommendations. They have to be taken into account by the Audit and Risk Committee and by all the Company's functions involved in the relevant activities in order to prepare the Company's Annual Report and the Strategic Plan.

The Audit and Risk Committee has been entrusted with the duty to consult and support the Board of Directors' decisions in matters relating to the internal control and risk management system. The results of Enterprise Risk Assessment, which may include climate-related risks, are submitted for review and advice every six months to the Committee.

The Managerial Performance Plan, drawn up on the basis of the Strategic Plan, is approved by the Board of Directors of Saipem on the proposal of the **Compensation and Nomination Committee**, assigning the objectives set out therein to



the CEO of Saipem. Subsequently, the CEO communicates the objectives set out, so that they are shared and implemented throughout the relevant organisational structure.

In 2018, the Board of Directors approved the Company's objectives, including those related to climate change within a comprehensive sustainability MBO with a weight of 15% of the variable executive compensation. The achievement of these objectives is then monitored on a half-year basis.

## THE ROLE OF MANAGEMENT

The Company's commitment to the creation of shared value through sustainability-oriented business management, the achievement of Sustainable Development Goals outlined by the United Nations and the compliance with the Principles of the Global Compact requires the participation of the highest managerial levels in targeting strategies, programmes and actions. In 2007, the Top Management of Sustainability Committee was appointed to provide strategic guidance in all aspects connected with sustainability. It is chaired by the Chief Executive Officer and is composed of the Heads of the Company's Divisions and Corporate Directors. The Sustainability Committee defines the fundamental priorities of Saipem's Sustainability Programme, approves the annual Sustainability Plan, which integrates the results of the risk assessment and materiality analysis, and evaluates the activities conducted and results achieved for all aspects that contribute to sustainable development, including climate change. Moreover, it defines the guidelines of

disclosure, in accordance with relevant legislation, international standards and the expectations of stakeholders, on non-financial annual performance and approves the relevant documentation to be submitted to the Board of Directors. The Sustainability Committee usually meets three times a year.

## CLIMATE-RELATED INCENTIVES

As part of the Company's objectives for 2018, CEO's and Divisions Managers' compensation is linked to the achievement of the following environmental targets:

- Revision of existing Saipem Group Emission Estimation Methodology in order to strengthen the measurement of emissions derived from fuel consumption (Scope 1) and to include emissions derived from purchased electricity (Scope 2) and emission due to business trips (Scope 3). A Third Party will review and validate the new methodology and the functioning of both process and tools, and will issue a Validation Certificate in accordance with UNI EN ISO 14064-3:2012;
- Preparation of the 4-year Strategic Plan for GHG reductions for Corporate and the Divisions.

In addition, Saipem sponsors an internal Innovation Trophy on a yearly basis to trigger innovation and promote knowledge sharing within the Company. Moreover, the Trophy enables engagement and promotes awareness of Saipem employees who are invited to submit innovative solutions. One of the categories is Technology Innovation which aims to enhance Sustainability.

# CLIMATE STRATEGY

**Saipem plans to gradually reduce its dependence on the fossil fuels business by extending the offer to its clients in less climate-impacting fields, investing in renewable technologies, and by developing more sustainable fossil fuels uses and diversifying its activities. Saipem is making significant efforts to improve the efficiency of its assets and operations to reduce GHG emissions.**

Climate-related issues and corresponding risks and opportunities are analysed considering the market and climate-related scenarios. Market scenarios are elaborated based on a series of input and analysis carried out internally and externally in order to catch the main drivers of the

energy industry, as well as the emerging trends on technologies, policies, legislation, socio-political aspects, etc. All the key elements are shared and discussed internally, and constitute one of the elements considered by the Divisions for the elaboration of the Strategic Plan.

## KEY PILLARS OF SAIPEM'S STRATEGY TO REDUCE ITS DEPENDENCY ON FOSSIL FUELS



Diversification based on emerging new green technology opportunities and non energy-related markets



Offering solutions to optimise clients carbon management



Improvements in energy efficiency for Saipem operations

Regarding diversification, the first pillar of Saipem's strategy, the main efforts are devoted to:

- **Strengthening market penetration in already existing low-carbon markets** (i.e. shallow water, offshore wind farm, geothermal, biofuel, concentrated solar power). Actions taken to reach this objective include: scouting activities to identify potential partners for cooperation, increasing commercial efforts and reinforcing the technology portfolio through R&D and innovation. In this respect, in 2017 Saipem successfully installed the first floating wind Farm in the world, the Hywind Scotland Project for Statoil/Equinor that required an innovative solution to lift, handle and install the gigantic, fully assembled, 6 MW wind turbine generators on floating spars anchored to the seabed. Several new solutions in the Offshore Floating Wind segment are currently under development, together with a novel concept for an Offshore Floating Solar Park, developed by Moss Maritime (one of Saipem's subsidiaries providing highly technological engineering services). Saipem is further committed to the wind market through studies on advanced wind farms schemes and applications.
- **Creating access to new renewable and low-carbon markets.** Saipem also explores

and invests in innovation opportunities in emerging technologies such as new marine renewable energies (wave, ocean, tidal, etc.) and the potential use of hydrogen as a clean energy carrier produced by water with renewable energy, through scouting of potential partners active in complementary technology areas.

- **Reinforcing its presence in non-energy related markets** such as infrastructures, and particularly railways (which play an important role in promoting sustainable mobility), and water pipeline systems. In enlarging and diversifying its offer to its clients (typically energy companies), Saipem acts as a solution provider **supporting clients in identifying suitable technology solutions to improve energy efficiency** in their operations. Saipem carried out several initiatives throughout the overall Oil & Gas value chain, since hydrocarbons are likely to keep on covering an important percentage of the energy demand mix in future decades, despite the expected quick growth of Renewables. In the Oil & Gas resources exploitation, new solutions will be needed to make their production more and more sustainable, in particular with reference to the Natural Gas, the cleanest and lowest CO<sub>2</sub>-emitting fossil source.



In this regard, it is worth mentioning some examples of Saipem's Natural Gas focus:

- **Efforts in the LNG (Liquefied Natural Gas) field are ongoing:**

- the Company is working to define a proprietary small scale liquefaction and re-gasification of Natural Gas. This small scale product for LNG shows good promise for becoming a flexible tool to support sustainable mobility in the near future;
- with regard to Floating LNG, the Tandem Offloading floating system has several solutions including the new Liqueflex technology, while the Moss Maritime subsidiary recently achieved pioneering experiences in the market of conversion of LNG Carriers to FLNG (Floating Liquefied Natural Gas) units and FSRU (Floating Storage Regasification Units).

- **Innovation initiatives in Gas Monetisation**, concerning the Snamprogetti™ Urea fertilizer production technology contribute to maintaining the highest level of competitiveness, also by decreasing energy consumption and reducing the environmental impact (Urea Zero Emission) through highly innovative solutions.
- Specific activities have been carried out in relation to real cases and innovative solutions are being designed aimed at **reducing gas flaring** (mostly Natural Gas emissions).

It is worth highlighting that the recently set up new business Division, called XSIGHT, dedicated to high added value engineering services aims also to be an efficiency accelerator for the industry. The Division's mission is to develop strong and trusting relationships with Clients through the delivery of innovative, value led services in the entire energy value chain. Among the objectives of the Division, we signal improvement in commercial efforts and know-how in several renewable businesses such as Concentrated Solar Power (CSP), Biofuel/ Bio Mass, Offshore wind, ocean energy.

Besides exploiting as best as possible all the options offered by Natural Gas, the capability of managing the overall CO<sub>2</sub> value chain becomes fundamental with the final aim of continuing to exploit fossil fuels but definitely reducing their related emissions. Saipem's approach, being the second key pillar of its strategy, is described below.

- **CO<sub>2</sub> Management:** Saipem can master the entire Carbon Capture & Storage (CCS) chain thanks to its solid background in process technology, pipeline fluid transportation over long distances and onshore and offshore drilling. Furthermore, CO<sub>2</sub> re-utilisation options are being intensely pursued as a first step of industrial exploitation for this kind of technology. Notwithstanding

this significant experience, Saipem is continuously scouting emerging technologies and is quickly building a distinctive technology portfolio. Application of some existing conventional or innovative technologies can be successfully exploited in an increased production of valuable chemical products such as Urea or Methanol. The use of waste streams (including CO<sub>2</sub>) as feedstock to generate energy and valuable products in the chemical industry may further contribute to this purpose.

- **Circular economy:** the development of innovative solutions to sustainably treat waste or residual feedstock from the O&G industry (or other industries, in perspective also including plastics recycling), with their consequent valorisation into energy and/or valuable products, will become an important asset; the Company is already scouting technologies and testing innovative approaches in order to be a future leader in the field.
- **Hybrid approaches:** the application of novel approaches based on the adoption of renewable technologies applied to the development of Oil & Gas operations will be fruitful in lowering overall CO<sub>2</sub> emissions: a few innovative solutions are currently under careful scrutiny.

As a third pillar, **Saipem is focused on increasing the efficiency of its operations that will lead to a reduction in its GHG emissions. This has led to the definition of a specific GHG plan as part of the overall Company HSE and Sustainability Objectives, as reported in the 2018 Remuneration Report.** In this respect, Saipem is committed to running its business operations while maximising energy efficiency. As far as reducing its own emissions, Saipem implements a specific assessment to identify energy efficiency solutions, guarantees proper asset (vessel and yards) maintenance and upgrades, develops innovative energy efficiency initiatives applicable mainly to vessels and yards, and periodically monitors energy and emission performance to evaluate the effectiveness of its actions. Among these initiatives, those aimed at reducing vessel consumption in operation include the Ship Energy Efficiency Management Plan, transit route and speed

optimisation practices, power management system optimisation, feasibility studies on vessel hybridisation with energy storage and heat recovery from exhaust gases.

In this respect, it is also worth mentioning that Moss Maritime has developed, a distinctive Hybrid Concept through a green design approach to be applied mostly to new or re-adapted drilling rigs. This approach is currently available to ship owners and shipyards.

Last but not least, **Digital Transformation** opportunities are being assessed and implemented to improve Company working processes, to boost productivity and, as a noticeable side-effect, also reduce the related CO<sub>2</sub> emissions.

Climate change issues have influenced decision-making process in Saipem.

In addition to the promotion and development of the above-mentioned initiatives, some other examples for the reporting year are the following:

- Signature of a Memorandum of Understanding between Snam and Saipem in November 2017 to evaluate cooperation opportunities across the entire gas infrastructure value chain. The two companies will also cooperate to promote green technology solutions improving sustainability in the gas infrastructure sector.
- Revision of Saipem accounting methodology to extending it to Scope 2 and Scope 3 Emissions (business travel by airplane) and revision of Emission Factors for Scope 1.
- Introduction of GHG emission reduction targets into the Corporate and Divisions' Plans.
- Signature of a memorandum of understanding with **California Ethanol & Power** for the construction of a low-carbon plant for the production of ethanol for fuel.

## CLIMATE-RELATED SCENARIOS

In Saipem, the assessment of the long term drivers of the industry is based on the analysis of different climate-related scenarios. The scenarios<sup>3</sup> analysis is applied to the entire Company, covering the macro and energy trends up to 2050 that impact on

(3) Scenarios considered for Saipem strategic evaluation are provided by a leading and specialised company.

the main drivers of Saipem business. These scenarios are updated at least annually and the results are presented to the Board of Directors and to the Top Management. The main assumptions and inputs (for all scenarios) include:

- an increasing population by around 2.2 billion by 2050, with Africa mainly accounting for of the growth;
- despite growth in the world economy, a significant and progressive decline in energy intensity (amount of energy required per unit of wealth produced) by 2050;
- population and GDP growth will drive the increase in energy demand, but energy

efficiencies and structural will transition to less heavy industry will offset much of the primary energy growth;

- a decreasing share of fossil fuels in the global energy mix and an increase in renewable energies.

Scenario analysis is one of the elements considered in the Strategic Plan process and in relevant company investment decisions. As an example, in the reporting year, a sensitivity analysis based on the alternative scenario has been performed for a significant capex investment decision. This analysis has been conducted in addition to the base case evaluation.

**CLIMATE-RELATED SCENARIOS**

SPECIFIC ASSUMPTIONS FOR BASE SCENARIO*	SPECIFIC ASSUMPTIONS FOR ALTERNATIVE SCENARIO**	SPECIFIC ASSUMPTIONS FOR 2C SCENARIO PATHWAY
<ul style="list-style-type: none"> <li>• Fuel pricing differentials narrow, increasing competition.</li> <li>• Gas penetrates heavy transport sector.</li> <li>• Renewables grow in power, increasingly competitive with gas, coal and nuclear.</li> <li>• Primary energy demand at 2050 approximately 19 billion toe.</li> <li>• Primary energy mix at 2050: Oil &amp; Gas at 54% (gas increases market share to 27%); coal at below 20%, renewables rise to 8% and others (including hydro and nuclear) at 19%.</li> </ul>	<ul style="list-style-type: none"> <li>• Generational change and urbanisation pressures alter energy demand dynamics- demand for coal and oil fall.</li> <li>• Breakthrough in electricity storage and solar photovoltaics.</li> <li>• Revolutionary changes in market, technology, and social forces decentralise the global energy supply and demand system.</li> <li>• Renewables grow much faster than in Base Case Scenario and energy supply is abundant.</li> <li>• Primary energy demand at 2050: approximately 16 billion toe.</li> <li>• Primary energy mix at 2050 (rounded figures): Oil &amp; Gas at around 50% (gas increases market share to 30%); coal declines to 12%; renewables rise to 15% and others (including hydro and nuclear) at 23%.</li> </ul>	<ul style="list-style-type: none"> <li>• The 2C scenario is an assessment of the necessary energy mix to limit at 2 °C the temperature increase by 2050.</li> <li>• The pathway toward to 2C requires a significant improvement in energy efficiency and clean technologies, including an intensive use of CCUS (carbon capture use and sequestration).</li> </ul>

(\*) Base scenario also describes short/medium term (up to 5 years) trends of single segments where Saipem operates.

(\*\*) Alternative scenario covers the main trends in the energy industry.

# CLIMATE CHANGE RISKS AND OPPORTUNITIES

Saipem is aware that climate change may have a significant direct and indirect impact on its business operations.

In the framework of Saipem's industry, an important indication in this regard is the World Bank's announcement regarding the end of its financial support for upstream oil and gas within the next two years in response to the growing threat posed by climate change (World Bank Group Announcements at One Planet Summit, December 12, 2017). The global effort to limit climate change is reflected in the gradual change in the world's energy mix that Saipem has been taking into consideration in order to predict and properly adapt to the consequent socio-economic and technological evolution of its reference markets. Other climate change risks for a company arise from changes in climate and especially increase of extreme events that may affect the capacity to carry out its activities.

On the other hand, Saipem can play an active role in these changing scenarios. With its cutting-edge and sustainable solutions, Saipem can help its clients to meet the demands of a lower-carbon future through its portfolio choices and by working to reduce the carbon footprint of its services and solutions.

## IDENTIFICATION, ASSESSMENT AND MANAGEMENT OF CLIMATE-RELATED RISKS

The process of risk identification and assessment is implemented both at company level (i.e. Group and subsidiaries) and at project level. At company level climate-related risks are identified and assessed by integrating them into

Risk Driver	Risk*	Time horizon**	Likelihood
Technology	Difficulties in promptly and effectively expanding a technological portfolio on energy decarbonisation (i.e. solutions for renewable energies, GHG emission reductions and CO <sub>2</sub> management)	Short-term	Moderate
Physical risk	Significant accidents occurring to strategic assets due to the increased severity of extreme weather events such as cyclones and floods	Long-term	Rare
Regulatory	Increasing operational costs due to extended applicability of greenhouse gas emissions legislation (Carbon Tax or Emission Trading Scheme)	Long-term	Unlikely
Reputation	Negative evaluation on sustainable business strategy and sustainability/ESG (Environmental, Social and Governance) performances by financial stakeholders	Short-term	Rare

(\*) All information refers to residual risks and integrate the effect of mitigation measures implemented.

(\*\*) A time horizon minor or equal to 1 year is considered 'Short-Term', between 2 and 4 years is considered 'Medium-Term', longer than 4 years is considered 'Long-Term'.

Note: the classification of Likelihood and Magnitude categories refers to Saipem Enterprise Risk Management classification.

multi-disciplinary company-wide risk processes. The Enterprise Risk Management Model is developed in accordance with the CoSO Framework (internal control system model issued by the Committee of Sponsoring Organizations of the Treadway Commission - 1992).

The Risk Owners are responsible for identifying and assessing risks in their remit. They identify and describe main events that could affect the achievement of business objectives, strategies and measures to address them. Mitigation measures are constantly monitored to evaluate the effectiveness and the impact on the overall risk evaluation.

Risks therefore are assessed in terms of likelihood (5 clusters from rare to more than likely) and impact (5 clusters from negligible to extreme) and on the basis of different impact drivers (Qualitative, Economic, Financial, Image and Reputation, Environment, Health and Safety, Security and Social Impact) for the Group and the main subsidiaries.

Based on the score, risks are placed in the risk matrix matching their likelihood and impact. They are thus classified as Tier 1, Tier 2 and Tier 3 in accordance with their score. Finally, risks assessed in Tier 1 and 2 for the Group are subject to monitoring and analysis on a quarterly basis.

Once risk assessment is completed, the CEO of the Group and the CEO (or equivalent

<b>Magnitude of financial impact</b>	<b>Financial impact</b>	<b>Management method</b>
Significant	The risk may result in a reduced demand for Saipem services	Scouting of technological partners; reinforcement of technological agreements with external partners, reinforcement of internal R&D and innovation efforts
Relevant	The risk may result in the write-off, early retirement or damage of existing assets	Initiatives to strengthen the asset integrity management system (i.e. barrier management); maintenance programmes on assets (engines, on-board tools, etc.); insurance coverage and reinsurance by a captive company
Negligible	The risk may lead to increased costs and/or reduced demand for products and services resulting from fines and sentences	Constant monitoring of the regulation on GHG (greenhouse gas) emissions worldwide; periodic maintenance and upgrading to improve environmental performances of assets
Negligible	The risk may cause an increase in the price of lending and a reduction in capital availability	Analysis of financial stakeholder expectations and priorities in order to align strategy; team to manage requests submitted by financial stakeholders on ESG/Sustainability matters and Saipem performance, proactive engagement activities, and release of sustainability documents and reports to facilitate financial stakeholders' understanding of Saipem's ESG strategy

position) of the subsidiary present the relevant results to their respective **Board of Directors** for approval. Risk assessment is regularly updated on a **six-month basis** through several meetings conducted by the Enterprise Risk Management function along with the management team.

Each risk owner is responsible for managing risks under their responsibility and monitoring the evolution of the ones evaluated as 'top risks' and the respective remedial or mitigation actions.

At project level, risk management is implemented by the Project Manager (both in the commercial and the execution phases) to identify any risks and opportunities to be mitigated and capitalised upon.

The identification process determines and records the risks or opportunities identified that might affect the project.

Risks are prioritised through quantitative assessments, which defines the probability and impact of each risk within values ranges, whose thresholds are defined in the risk management plan, which defines how risk management will be structured and performed on the project. For any identified risks, a numeric score will be calculated as a combination of the likelihood of occurrence and the economic impact. Where feasible, depending on the priority assigned, a mitigation plan is associated with the risk and monitored during the project life-cycle.

<b>Business Opportunity</b>	<b>Time horizon*</b>	<b>Likelihood</b>
Increase revenues in renewable business segment to reduce climate-related impacts (offshore wind farm, biofuel, Concentrated Solar Power, biomass, geothermal)	Short-term	Likely
Increase revenues in consolidated business segments to reduce climate-related impacts (e.g.railway infrastructures)	Current	Moderate
Apply technologies already available to implement CCS projects and develop new and economic viable technologies to be able to unlock CO <sub>2</sub> -rich gas field projects	Long-term (CCS) Medium-term (gas field)	Unlikely (CCS)/ Moderate (gas field)
Offer more efficient and cost-optimised solutions commercially available or newly developed to clients	Short-term	Moderate
Offer more efficient and cost-optimised solutions through energy efficient solutions in vessels and yards	Current	More than likely

(\* A time horizon minor or equal to 1 year is considered 'Short-Term', between 2 and 4 years is considered 'Medium-Term', longer than 4 years is considered 'Long-Term'.

## CLIMATE-RELATED OPPORTUNITY MANAGEMENT

The opportunity management process is executed in terms of business development, commercial activities, tendering and operations. The identification of development opportunity, the analysis of the competition, the analysis of the evolution of Saipem competitive positioning, the identification of the main future challenges of the reference industry, the possibilities of diversification of business portfolio are one of the elements considered by the Divisions and by the CEO, when they draw up the Strategic Plan and evaluate the specific significant investment initiatives.

The BoD examines and approves periodic reports and the Strategic Plan, regularly monitoring its implementation. On the occasion of the quarterly accounting closures, the Board of Directors examines the economic, equity and financial data, comparing the results achieved with those planned.

**In revenue is estimated to be the overall potential financial impact of climate-related opportunities in a 3-year time frame** **-€2.3 bln**

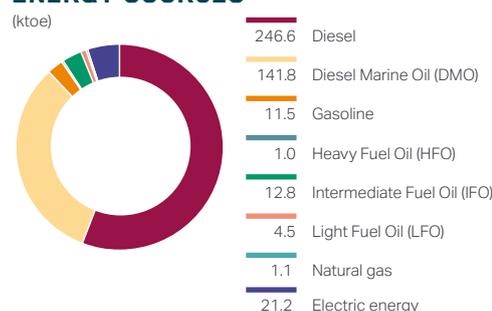
Magnitude of impact	Explanation of financial impact	Strategy to seize the opportunity
Negligible	Financial impact calculations considers the market outlook and current tendering activities and is an estimation of future Saipem revenues in these segments	R&D investment and innovation efforts. Strengthen commercial efforts in these market segments. Scouting activities to identify strategic partners
Very relevant	Market opportunities in terms of value of railway projects for ongoing tenders or projects to be awarded within next 3 years may be significant	Strengthen commercial efforts in these market segments
Negligible	The CCS market will be strongly influenced by worldwide carbon tax evolution, technology development and utilisation of CO <sub>2</sub> as raw material (e.g. methanol and urea). CO <sub>2</sub> -rich Gas field market is estimated to be around €55 billion. Saipem financial impact is estimated to be a share of this market	R&D investment in technology development, new partnership agreement. Strengthen commercial efforts in these market segments
Negligible	Project value estimation at 2020	R&D investment in new products and solutions, new partnership agreement. Strengthen commercial efforts in these market segments
Negligible	Annual cost saving calculated in term of reduced fuel and electricity consumption cost	Amount spent to promote energy efficiency

# METRICS AND TARGETS

All Saipem projects and sites monitor their energy consumption data, including subcontractor data, on a quarterly basis. Data are uploaded to a dedicated IT system. More details about the reporting boundary can be found in the Consolidated Non-Financial Statements. Energy consumption data are used to calculate GHG emissions. Saipem has developed a methodology to estimate emissions for each specific emission source. This methodology was reviewed and validated by a third party. The methodology was updated recently and the review will be finalised in 2018. The calculation methodology will also be customised to strengthen the reliability of

greenhouse gas emissions from electricity and will also be extended to transportation (indirect emissions).

## ENERGY SOURCES



## TOTAL ENERGY CONSUMPTION

Year	Energy consumption/revenues*	Total energy consumption (ktoe)
2015	44.7	514.0
2016	41.3	411.7
2017	49.0	440.6

(\*) Tonnes of oil equivalent produced per €1 million in revenue.

## TOTAL GHG EMISSIONS

Year	GHG emissions/revenues*	Scope 1 emissions**	Scope 2 emissions**
2015	134.5	1,504.2	43.0
2016	124.5	1,203.4	38.9
2017	144.4	1,299.7	37.5

(\*) Tonnes of carbon dioxide equivalent produced (Scope 1 + Scope 2) per €1 million in revenue.

(\*\*) kt CO<sub>2</sub> eq.

Energy consumption increased by 7% in 2017 against 2016, in line with an increase in activities at significant operating projects. The projects contributing the most to the increase in energy consumption are: Zohr (Egypt), which involved many vessels in the fleet, including Castorone, Saipem 10000 and Normand Maximus; the SCPX Pipeline project (Azerbaijan); Jazan Integrated Gasification Combined Cycle and EPC Khurais (Saudi Arabia); the Hydrodesulfuring gas plant project at the Minatitlan Refinery Plant (Mexico) and Tangguh LNG Expansion (Indonesia). These last two projects and the Normand Maximus vessel saw the most significant increase in energy consumption

compared to the previous year. The increase in the consumption of gasoline is mainly due to the execution of EPC Khurais project (Saudi Arabia), because of the greater use of vehicles. The increase in the use of Diesel Marine Oil is mainly due to the use of the Normand Maximus vessel and the start-up of the new onshore Tangguh LNG Expansion project in 2017, as typically occurs in the first operational phases. The increase in the use of electricity from renewable sources is due to the full operating efficiency reached by the San Vitale logistics base (Ravenna, Italy) in 2017 in producing a constant quantity of renewable electricity (photovoltaic) throughout the year. Moreover,



an 11% increase in self-produced renewable resources was also recorded in Fano (Italy). This latter increase can be attributed to the contingent meteorological conditions over the year.

## TARGETS

Saipem Group Strategic GHG reduction plan will be defined in 2018 including all Saipem Divisions. This represents a fundamental milestone and concrete evidence of Saipem's commitment and vision.

**Amount spent on decarbonisation R&D and technology application** €3.1 mln

## EMISSION REDUCTION INITIATIVES

*Saipem is constantly committed to the containment of GHG emissions*

The significant initiatives implemented to promote energy efficiency are briefly described below.

Saipem's approach to energy efficiency (and consequently to greenhouse gas emissions) has become increasingly more structured over the years. Energy assessments, in line with the ISO 50001:2011 standard, have been carried out over the years on selected assets: significant office buildings, vessels, construction yards and drilling vessels.

The choice of assets to be assessed is made in accordance with the following criteria: level of criticality in terms of consumption, level of control, feasibility of intervention, and need for regulatory compliance.

These assessments laid the foundation for identifying the areas where energy efficiency can be increased. A technical-economic feasibility study of the solutions identified is

carried out and submitted to management for the definition of an action plan.

**Tonnes of CO<sub>2</sub> saving due to implemented energy efficiency initiatives** 2,800

## Energy efficiency for offshore vessels and rigs

### Ship Energy Efficiency Management Plan

In 2017, a Corporate-level Template was created to align Ship Energy Efficiency Management Plans (SEEMP) on Saipem vessels. The objective is to define KPIs suitable for measuring vessel energy performance and the minimum technical and management requirements.

### Energy efficiency assessments on vessels

Energy assessments were performed for several relevant vessels to quantify the environmental benefits of systems already implemented on board and to evaluate further related interventions. In particular, Saipem 7000 and Castorone were subject to an in-depth study carried out with Politecnico di Milano. Studies have defined:

- best practices such as the definition of ecospeed (tests conducted to define the optimal speed for a vessel to cover a route with the lowest fuel consumption); tests to build the specific consumption curve (SFOC - specific fuel oil consumption) of diesel generators on board;
- feasibility studies and an estimation of the environmental and economic advantages of a list of initiatives, including, for example, the identification of the most appropriate LED systems for Offshore operations subject to extreme marine conditions; implementation of heat recovery systems from fumes or other heat sources; implementation of VFD

(variable frequency drive) systems on cooling water pumps; implementation of automatic systems that can choose the most suitable of the two available fan speeds to avoid waste; and the hybridization of a vessel with energy storage systems.

Furthermore, the environmental benefit of a heat recovery system already implemented on board Castorone was evaluated for the first time, and a saving of 2,123 tonnes of marine diesel oil and of 6,593 tonnes of CO<sub>2</sub> emissions per year was estimated. An investment plan will be defined in 2018 for interventions scheduled by management.

### Route optimisation

Saipem continued to implement an initiative for route optimisation of its offshore and drilling vessels through the use of route optimisation software. The best route is detected each day by taking weather conditions and marine currents into consideration. In this regard, in 2017 software was applied to the FDS 2 vessel and to the Scarabeo 9 drilling rig, saving 51 tonnes of marine diesel oil and 157 tonnes of CO<sub>2</sub> emissions.

Route optimisation became a regular good practice within Saipem's organisation and it should be evaluated and implemented for long routes. Indeed, the Oil & Gas industry has changed radically over the last few years and current contracts are very often characterised by short term activities and the need for frequent long relocations. Within this context, route optimisation can be considered an efficient solution for reducing CO<sub>2</sub> emissions.

### Innovative upgrades onboard Castorone

Modernisation and upgrading in 2016 of the switchboard and of the entire electrical system on board the Castorone were carried out. This led to improvements in the reliability of the vessel in dynamic positioning operations, in terms of asset integrity system strengthening, and a reduction in diesel consumption. The main improvements included reductions in: generator maintenance and therefore in the waste generated, fuel and oil consumption, noise and emissions into the atmosphere.

### TOTAL SAVINGS IN 2017

Tonnes of marine diesel

237

Tonnes of CO<sub>2</sub> emissions

737

### Energy efficiency for fabrication yards

#### A continuous effort in the Kuryk yard

In 2017, ERSAl built a new part of the Training Centre in the Kuryk yard using selected construction materials

and building technologies in order to achieve the highest energy efficiency.

### EXPECTED SAVINGS

New building reduction of energy consumption per m<sup>2</sup> compared to the old one

-38%

Moreover, the lighting system of the yard was improved by implementing lighting automation and replacing old lamps with LED light (1,513 LED lamps installed).

### EXPECTED SAVINGS

MWh of electric energy

4,334

Tonnes of CO<sub>2</sub>

1,998

### Rig electrification project

In 2017 and 2018, Saipem decided to invest in the electrification of 2 onshore drilling rigs operating in Kazakhstan.

These rigs are currently powered through the local electrical high voltage grid distribution system and by the local gas turbine power station owned by Client. Specifically, the new configuration has several advantages in comparison with the typical configuration powered by rig diesel generators.

The advantages are: cost reduction related to the maintenance of rig diesel generators; reduction of the emissions of harmful substances into the atmosphere (including GHG emissions); reduction of noise emission levels; significant Client cost savings due to the reduction of fuel cost and fuel transportation cost.

In light of the above, the rig electrification is the proof that this kind of fruitful client-contractor partnership is able to achieve significant goals in terms of operating efficiency and reduction of the operational environmental impacts.

### Promoting sustainable mobility

Generally speaking, Saipem promotes behavioural changes to reduce emissions attributed to commuting. In fact, several locations offer different options to discourage the use of private cars. For example, the Company:

- organises a shuttle-bus system to and from the main offices and yards;
- offers its employees reduced prices for public transportation, public bike-sharing services, and a car-sharing service;
- has created a carpooling incentive system for employees.

# INTERNAL CARBON PRICING

## Applying internal carbon pricing to quantify social impacts

Saipem's business strategy is driven by the creation of shared value. This is the basis of Company's sustainability concept that recognises the importance of taking all stakeholders into account in Saipem's value creation process, including society as a whole and the environment.

An important step forward in this approach entails the identification of all environmental and social impacts our Company generates and their measurement in order to be adequately managed for the benefit of the environment and society.

The measurement of these impacts is of paramount importance for a company to better integrate sustainability aspects in its decision-making process, aware that more comprehensive measurements lead to a more comprehensive management approach and to be transparent in term of sustainable accountability.

Based on previous experiences, studies on this topic and literature reviews, Saipem has designed its own measurement model, called **Revalue**, which strives to value the

overall impact of Saipem's business activities worldwide.

The **Revalue** model is based on existing impact measurement techniques that delineate the relationship between business activity inputs, their corresponding outputs and their long term outcomes. The impact is then the measure of the outcome attributable to the business activities. This causal process has been structured considering the perspectives and impacts for Saipem's relevant stakeholders, including government and local authorities, business partners, local employees and neighbouring communities.

A comprehensive analysis of input/output/impact has been carried out taking into consideration the main inputs (impact drivers) related to Saipem's activities worldwide.

In order to quantify the impacts, proxies have been identified and quantified by using different methodologies and data sources, both internal and external.

With reference to climate change, an impact pathways has been identified as follow:



The impact for society has been calculated by use of a proxy as societal costs of GHG emissions, amounting for €135 per tonne CO<sub>2</sub> (estimated value including impacts on humans and the environment).

Further details can be found [here](#).

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