

# CDP Climate Change Questionnaire 2020

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Respondent: **Total**

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## C0 Introduction

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### Introduction

**(C0.1) Give a general description and introduction to your organization.**

Total, which has produced energy for almost a century, is a broad energy company: one of the largest international oil and gas companies and a major player in low carbon energies. It is present on five continents and in more than 130 countries, with consolidated sales of 200,380 million USD in 2019.

Committed to better energy, over 107,000 employees help throughout the world to provide the Group's customers with products and services that are more affordable, more available and cleaner.

As well as conducting its business according to the highest standards of professional behaviour, Total maintains an ongoing commitment to transparency, dialogue and respect for others. The company is strategically dedicated to meeting the challenges faced by all its businesses when developing natural resources, protecting the environment, integrating our operations into host country cultures, and dialoguing with civil society.

Total's activities are divided into 4 main business segments:

- Exploration & Production of oil and natural gas.
- Integrated Gas, Renewables & Power spearheads the Group's ambitions in low carbon energies. It comprises gas and electricity activities that are developed downstream of the gas chain all the way down to end-use consumers, including through LNG and power. Its activities include power generation, from gas and from renewables, solar, wind, and hydro, and power storage through batteries. They also include services for energy efficiency and energy access.
- Refining & Chemicals encompasses refining and petrochemical activities, renewable fuel and plastics from biomass and Hutchinson's operations. It also includes oil Trading & Shipping activities.

- Marketing & Services includes worldwide supply and marketing activities mainly of oil products and services, but also of renewables incorporated in oil products, and of gas used for mobility.

The Group integrates climate into its strategy, considering an evolution of the energy markets in line with the challenges of climate change. Total establishes its strategy and long-term price trajectory taking into account the IEA's well below 2°C Sustainable Development Scenario.

This strategy is based on four pillars:

- expanding along the natural gas value chain;
- developing profitable low-carbon electricity businesses;
- focusing on oil assets with a low breakeven point;
- investing in technologies and businesses that contribute to carbon neutrality.

Total's ambition is to get to net-zero emissions by 2050, together with society, for its global business across its production and energy products used by its customers. It aims at reducing the carbon intensity of the energy mix that the Group offers to its customers and thus to contribute to the evolution of market demand and society's energy transition.

Three major steps have been defined:

- Net zero emissions across Total's worldwide operations by 2050 or sooner (scope 1+2);
- Net zero emissions across all its production and energy products used by its customers in Europe (EU, Norway and UK) by 2050 or sooner (scope 1+2+3);
- 60% or more reduction in the average carbon intensity of energy products used worldwide by Total customers by 2050 (less than 27.5 gCO<sub>2</sub>/MJ) - with intermediate steps of 15% by 2030 and 35% by 2040 (scope 1 + 2 + 3).

Total acts on several complementary levels:

- on emissions, by first reducing emissions from its facilities (CO<sub>2</sub> and methane), but also by advising its customers in reducing their emissions (electric mobility solutions, storage, energy efficiency consulting) and by developing carbon sinks (nature-based solutions or CCUS);
- on products, by developing energies with a lower carbon content, such as gas (including biogas and hydrogen), renewables and biofuels;
- on demand, by developing, for example, electric mobility or LNG as transport fuel.

Total intends to strengthen its involvement in the circular economy and implement a program of innovative responsible actions, particularly in the following areas: purchasing, waste management, new ranges of polymers, solarization of its own industrial sites and service stations and improved energy efficiency.

Total's challenge is to increase access to affordable energy to satisfy the needs of a growing population, while providing concrete solutions to help limit climate change and supplying its clients with an energy mix featuring a progressively decreasing carbon intensity. Total also acknowledges the growing pressure on natural resources, including water which has been identified as a priority in the group's environmental management and R&D efforts. The need to reduce water use from natural environments, to minimize Total's water dependency and to lower emissions to water in compliance with local, national and international regulations is thus clearly part of the Group's priorities.

**(C0.2) State the start and end date of the year for which you are reporting data.**

01/01/2019 – 31/12/2019

**Indicate if you are providing emissions data for past reporting years**

Yes, 2 years

**(C0.3) Select the countries/areas for which you will be supplying data.**

**(C0.4) Select the currency used for all financial information disclosed throughout your response.**

USD (\$)

**(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.**

Operational control

## Organizational activities: Chemicals

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**(C-CH0.7) Which part of the chemicals value chain does your organization operate in?**

### **Bulk organic chemicals**

- Lower Olefins (cracking)
- Aromatics
- Ethylene Oxide & Ethylene glycol
- Ethanol
- Methanol
- Polymers
- Adipic acid

### **Bulk inorganic chemicals**

- Ammonia
- Fertilizers

- Nitric acid
- Chlorine and Sodium hydroxide
- Carbon black
- Soda Ash
- Titanium dioxide
- Hydrogen
- Oxygen
- Other industrial gasses

**Other chemicals**

- Specialty chemicals
- Specialty organic chemicals
- Other, please specify: **Rubber manufacturing**

## Organizational activities: Oil and Gas

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**(C-OG0.7) Which part of the oil and gas value chain does your organization operate in?**

- Upstream
- Midstream
- Downstream
- Chemicals

**Other divisions**

- Biofuels
- Grid electricity supply from gas
- Grid electricity supply from coal
- Grid electricity supply from renewables
- Carbon capture and storage/utilization
- Coal mining

# C1 Governance

## Board oversight

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

(C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.

Please complete the following table.

Position of individual(s)	Please explain
Board chair	<p>The Chairman of the Board and CEO of Total, is responsible for climate change strategy at Group level for short, mid and long terms. The chairman of the board is the highest level of the organization, and Group strategy is most significant for the success of the business, this role has therefore been assigned the oversight of these most critical responsibilities, whereby climate-related issues are fully integrated into. In 2016, Total's CEO took a decisive step by announcing the creation of a combined Strategy &amp; Climate department in order for climate, a global concern, to be fully integrated into the Group's overarching strategy. The Chairman ensures that the board is informed of the market developments, the competitive environment and the main challenges facing the company, including climate change. Climate change is at the heart of the Company's strategic vision. Total positions itself on high-growth low-carbon markets and intends to offer customers an energy mix with a carbon intensity that shall gradually decrease. To accompany these changes, in 2018, Total's CEO introduced a carbon intensity indicator for the energy products used by its customers, covering scope 1, 2 and 3 with a reduction ambition for 2030 and 2040. In 2019, Total's CEO announced an absolute scope 1 and 2 emissions reduction target for the Group operated oil &amp; gas facilities.</p> <p>In 2020, Total's CEO and board of Directors reviewed the Group ambition in the fight against climate change and decided to take additional steps towards the Paris goals, with the ambition for Total to get to Net Zero by 2050 together with society, for its global business across its production and energy products used by its customers (scope 1+2+3). This ambition was jointly prepared with several institutional Investors as participants in Climate Action 100+.</p>
Director on Board	<p>The Board of Directors is a collegial body that determines the strategic direction of the Company and supervises the implementation of this vision. With the exception of the powers and authority expressly reserved for shareholders and within the limits of the Company's legal purpose, the Board may address any issue related to the Company's operation and make any decision concerning the matters falling within its purview. Total's Board of Directors ensures that climate-related issues are incorporated into the Group's strategy. Since 2008, these major issues for the Group have no longer been treated as one component of environmental risks, but rather on an independent basis. The Board of Directors examines the Group's GHG emissions reduction targets and reviews its performance on an annual basis. The Lead Independent Director ensures efficient governance of the company in accordance with current practice, is the Chairwoman of the Governance and Ethics Committee, member of the Compensation Committee and member of the Strategic &amp; CSR Committee. In 2020, Total's Board of Directors reviewed the Group ambition in the fight against climate change and decided to take additional steps towards the Paris goals, with a view for Total to get to Net Zero by 2050 together with society, for its global business across its production and energy products used by its customers (scope 1+2+3).</p>

**(C1.1b) Provide further details on the board’s oversight of climate-related issues.**

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled - some meetings	<ul style="list-style-type: none"> <li>● Reviewing and guiding strategy</li> <li>● Reviewing and guiding major plans of action</li> <li>● Reviewing and guiding risk management policies</li> <li>● Reviewing and guiding business plans</li> <li>● Monitoring implementation and performance of objectives</li> <li>● Overseeing major capital expenditures, acquisitions and divestitures</li> <li>● Monitoring and overseeing progress against goals and targets for addressing climate-related issues</li> </ul>	<p><b>Reviewing and guiding strategy, Reviewing and guiding major plans of action, Reviewing and guiding risk management policies, Reviewing and guiding business plans:</b></p> <p>Every year, the Board of Directors reviews the main issues related to climate change in the strategic outlook review of the Group’s business segments, which are presented by the respective general management structures.</p> <p>In 2020, Total’s Board of Directors reviewed the Group ambition in the fight against climate change and decided to take additional steps towards the Paris goals, with a view for Total to get to Net Zero by 2050 together with society, for its global business across its production and energy products used by its customers (scope 1+2+3).</p> <p><b>Monitoring implementation and performance of objectives:</b></p> <p>The Audit Committee does more specific work on the climatic and environmental reporting processes in the review of the performance indicators published by Total in its annual reports and audited by an independent third-party organization.</p> <p><b>Monitoring and overseeing progress against goals and targets for addressing climate-related issues:</b></p> <p>In 2016, the Compensation Committee decided to introduce changes to the variable compensation of the Chairman and Chief Executive Officer to take better account of the achievement of Corporate Societal Responsibility (CSR) and HSE targets. The importance given to these aspects in the remuneration keeps growing, and the Compensation Committee of the Board reviews these criteria every year. In 2019, the Board decided to introduce a quantitative criterion on the reduction of greenhouse gas emissions of the Group’s operated Oil &amp; Gas facilities to the CEO and 300 executive officer remuneration.</p> <p>The Board of Directors is fully mobilized by the Climate issue in order to support the development of Total, and it approved the publication of the first Climate Report in March 2016. This report is updated every year.</p> <p>All these points of information and decisions were made during programmed Board’s meetings along the year in 2019.</p>

**(C1.2) Provide the highest-level management position(s) or committee(s) with responsibility for climate-related issues (do not include any names).**

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	Both assessing and managing climate-related risks and opportunities	More frequently than quarterly
Other C-Suite Officer, please specify: President Strategy & Innovation	Both assessing and managing climate-related risks and opportunities	Annually
Risk committee	Both assessing and managing climate-related risks and opportunities	Annually
Chief Financial Officer (CFO)	Both assessing and managing climate-related risks and opportunities	Annually

**(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).**

Total's Chairman and Chief Executive Officer deploys the Group's climate strategy in keeping with the long-term strategic guidelines defined by the Board of Directors. The chairman of the board is the highest level of the organization, and Group strategy is most significant for the success of the business, this role has therefore been assigned the oversight of these most critical responsibilities, whereby climate-related issues are fully integrated into. In 2016, Total's CEO took a decisive step by announcing the creation of a combined Strategy & Climate department in order for climate, a global concern, to be fully integrated into the Group's overarching strategy. The Chairman and CEO ensures that the board is informed of the market developments, the competitive environment and the main challenges facing the company, including climate change. The board of Directors examines climate change risks and opportunities during the strategic outlook review of the Group's business segments. In 2020, Total's Chairman and CEO, and board of Directors reviewed the achievements and ambitions of the Group in the fight against climate change and decided to take additional steps towards the Paris goals, with the ambition to get to Net Zero by 2050 together with society, for its global business across its production and energy products used by its customers (scope 1+2+3). This ambition was jointly prepared with several institutional Investors as participants in Climate Action 100+.

General Management calls on the President Strategy & Climate, who is the highest-ranking person in the organization with a day-to-day responsibility for issues related to climate change. In particular, this includes the development of the climate road map for the Group, its implementation and the definition of greenhouse targets and ambitions. He reports directly to the President Strategy & Innovation, who sits on Total's Executive Committee.

The Executive Committee relies on the work done by the Group Risk Management Committee to have a map of the climate-related risks to which the Group is exposed, and to make sure that the risk management measures in place are efficient. Since 2006, the Group Risk Management Committee is chaired by a member of the Executive Committee, the Group's Chief Financial Officer, and includes the Senior Vice Presidents of the corporate functions together with the chief administrative officers or chief financial officers of the business segments. The Chief Financial Officer attends all meetings of the Board of Directors' Audit Committee, thus strengthening the link between the Group Risk Management and the Audit Committee. Moreover, the Risk Committee (CORISK) assesses investment projects, the risks and the corresponding climate-related issues (flaring, greenhouse gas emissions, sensitivity to CO<sub>2</sub> prices) before they are presented to the Executive Committee. Monitoring processes are implemented at different levels of the Group's organisation.

Finally, the Climate Vice President chairs the Climate-Energy steering committee, which includes cross-cutting corporate functions and representatives of Strategy and HSE management from the various business segments. The mission of this committee consists of structuring the Group's approach to the climate, and in particular of:

- developing and periodically adjusting the Group's climate-energy roadmap;

- proposing the targets that the Group sets itself (in terms of energy efficiency, GHG emission reductions, etc.);
- keeping a watch of the existing or emerging CO<sub>2</sub> markets;
- initiating or driving the technological roadmaps corresponding to these subjects (energy efficiency, capture and storage of CO<sub>2</sub>, for example).

## Employee incentives

### (C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

Please complete the following table.

Provide incentives for the management of climate-related issues	Comment
Yes	The Board of Directors' strong focus on climate issues is reflected, among other things, in changes in the Chairman and CEO's compensation. Since 2013, a Corporate Social Responsibility (CSR) performance criterion has been added for the attribution of the CEO's variable remuneration. The CSR performance is based on the achievement of targets for carbon emissions, energy efficiency, Total's position in the rankings published by non-financial rating agencies, the integration of climate into the Group's strategy as well as the reputation in the domain of CSR. In 2019 a quantitative criterion on the reduction of greenhouse gas emissions of the Group's operated Oil & Gas facilities has been added to the CEO and 300 executive officers' remuneration.

### (C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Types of incentive	Activity incentivized	Comment
Board Chair	Monetary reward	Emissions reduction target	Board Chairman and CEO: In 2013, the Board of Directors of Total decided to add a criterion for the attribution of the CEO's variable remuneration portion, based on the Corporate Social Responsibility (CSR) performance for the determination of the personal contribution made by the CEO. In 2015, the portion relating to the HSE/CSR performance criteria was set at a maximum of 16% of CEO's base salary. In 2016-2017, this HSE/CSR performance portion increased to 30%, with 20% tied to safety performance and 10% to CSR performance. In 2018, CSR performance portion raised from 10% to 15%. The CSR performance is based on the achievement of targets for carbon emissions, energy efficiency, Total's position in the rankings published by non-financial rating agencies, the integration of climate into the Group's strategy as well as the reputation in the domain of CSR.
Board / Executive Board	Non-monetary reward	Emissions reduction target	
Corporate executive team	Monetary reward	Emissions reduction target	

Entitled to incentive	Types of incentive	Activity incentivized	Comment
Chief Financial Officer (CFO)	Monetary reward	Emissions reduction target	In 2019, the Board decided to introduce a quantitative criterion on the reduction of greenhouse gas emissions of the Group's operated Oil & Gas facilities to the CEO and 300 executive officers remuneration, given the stated objective of reducing them from 46 Mt CO2e in 2015 to less than 40 Mt CO2e in 2025. The maximum weighting of this criterion is 10% of the CEO's base salary (see Total's 2019 Universal Registration Document, p. 184-189).
Executive officer	Monetary reward	Emissions reduction target	
Business unit manager	Monetary reward	Emissions reduction target	Total's remuneration system for management and senior executives comprises a variable component, which is linked to individual performance and the achievement of individually agreed performance targets. Depending on the responsibilities, individual targets of Total management relate to environmental or climate related issues (e.g. refinery and plant managers). Employee performance is assessed in a compulsory annual appraisal review. Total's HSE performance recognition policy is used by Total managers throughout the Group. This HSE performance recognition policy was designed to drive improvement in three areas: <ul style="list-style-type: none"> <li>• How management exercises its HSE responsibilities.</li> <li>• How individual performance is rewarded and/or sanctioned.</li> <li>• How collective performance is rewarded.</li> </ul> Managers are assessed on the basis of the specific KPIs (Key Performance Indicators) pertaining to their function and business unit or corporate department. Attainment of GHG emissions reduction targets is part of the KPIs for senior managers with relevant responsibility in that area.
Facilities manager	Monetary reward	Energy reduction target	
Environment / Sustainability manager	Monetary reward	Emissions reduction target	

## C2 Risks and opportunities

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

### Time horizons

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

Time horizon	From (years)	To (years)	Comment
Short-term	0 (N.B. = 2019)	2 (N.B. = 2021)	Excerpt of Total's 2019 Universal Registration Document (p. 228): the risks and opportunities related to climate change are analysed according to different timescales: short term (two years), medium term (until 2030) and long term (beyond 2030).
Medium-term	2 (N.B. = 2021)	11 (N.B. = 2030)	Excerpt of Total's 2019 Universal Registration Document (p. 228): the risks and opportunities related to climate change are analysed according to different timescales: short term (two years), medium term (until 2030) and long term (beyond 2030).
Long-term	12 (N.B. = 2030)	21 (N.B. = 2050)	Excerpt of Total's 2019 Universal Registration Document (p. 228): the risks and opportunities related to climate change are analysed according to different timescales: short term (two years), medium term (until 2030) and long term (beyond 2030).

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

The Group implements a risk-management system that is an essential factor in the deployment of its strategy. This system relies on a continuous process, at company and asset level, of identifying and analysing risks in order to determine those that could prevent the attainment of Total's objectives.

Climate risks are assessed in the same manner as other types of risk, by considering their materiality in terms of substantive financial impact, reputational impact, physical impact, legal impact etc. The Group risk mapping was updated in 2019. The risk materiality (severity) is assessed according to their probability of occurrence i.e. the probability of occurrence of the risk over time, their level of impact i.e. the effect produced by the risk for the perimeter/area under consideration and the level of control of this risk, i.e. the ability to detect, prevent and mitigate the risk. The impact level assessment is performed according to various financial, strategic, environmental, image/reputation, legal, human and HR criteria, and is based on different levels. The assessment of the level of materiality may be changed at any

time, in particular should new facts, whether external or specific to the Group, come to light. The materiality rating scale (impact level and probability of occurrence) is from 1 i.e. less material to 4 i.e. more material.

The financial impact is evaluated as a percentage of the Net Operating Income at the concerned perimeter and the strategic impact is assessed according to the Group's ability to be recognized as the responsible energy major.

Any investment, sale or financial commitment is subject to different levels of decision-making based on financial thresholds. Substantive change is defined as the amount of CAPEX involved in the particular project under analysis, based on "financial significance" thresholds, risks will be assessed through different processes and undergo different levels of validation, these thresholds are segment specific. In its decision-making process, the risks and associated climate issues (flaring, greenhouse gas emissions, CO<sub>2</sub> price sensitivity) are assessed prior to the presentation of the new projects (both upstream and downstream) to the Executive Committee, For each new project, the criteria for determining materiality are defined in the "Corisk" checklist, which needs to be completed before submission to the Risk Committee, prior to the presentation to / approval by the Executive Committee. The risks and impacts assess are real, potential, direct, indirect or induced, and the impacts severity is assessed on 4 levels from low, moderate, high to very high. Priorities are defined by the Executive Committee depending on the importance of the project, based on several parameters (e.g. geopolitical situation or risks in the country, oil price, gas price, forecast of the price evolution,). All these parameters are analysed and updated each year in the long-term plan documents (10 years forecast) prepared by each operational entity within the Group. For all material projects, Environmental and Social Baseline Studies and Impact Assessments are systematically conducted in the early stages of these projects, under the responsibility of the project manager. In order to ensure the viability of its projects and long-term strategy in light of the challenges raised by climate change, the Group integrates, into the financial evaluation of investments presented to the Executive Committee, a CO<sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO<sub>2</sub> in a given country if higher. Since January 1, 2020, the Group has been taking into account in the economic evaluations of investments submitted to the Executive Committee a CO<sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios. The Group performs sensitivity tests to assess the ability of its asset portfolio to withstand an increase in the price per ton of CO<sub>2</sub>.

## Management processes

### (C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Please complete the following table.

Value chain stage(s) covered	Risk management process	Frequency of assessment	Time horizon(s) covered	Description of process
<ul style="list-style-type: none"> <li>• Direct operations</li> <li>• Upstream</li> <li>• Downstream</li> </ul>	Integrated into multi-disciplinary company-wide risk management process	More than once a year	<ul style="list-style-type: none"> <li>• Short-term</li> <li>• Medium-term</li> <li>• Long-term</li> </ul>	<p>The identification of climate-related risks forms an integral part of the analysis of investment projects. The impact of these risks is also examined for the Group asset portfolio as a whole. Climate change also provides Total with opportunities (demand for electricity, contribution of renewables and gas to the production of electricity, CO<sub>2</sub> capture, use and storage technology (CCUS), helping customers to reduce their energy consumption and environmental, etc). Impact of climate-related risks and opportunities is at the heart of the Company's strategic vision.</p> <p><u>At company level:</u> The Group Management Risk Committee (GRMC) meets six times a year. At each meeting, the participants share any potential risks they have identified and presentations are given on one or more risk-related topics, during which the members of the GRMC are invited to cast a critical eye over the subject, question the work done and, if applicable, provide additional information or clarification in order to enhance the understanding of the risk and improve the risk management systems. Its objective is a better integration of risk management through a coordinated approach, and to:</p> <ul style="list-style-type: none"> <li>• identify cross-functional or emerging risks – including climate risks, both mitigation and adaptation - and assess residual risks on existing processes and, when appropriate, elaborate proposals for additional processes so that they stand at levels deemed acceptable, risk are assessed from low risk to very high risk, based on the potential consequences and timeframes;</li> <li>• ensure that risks and relevant processes for addressing them are effectively handled by managers appointed within the organization;</li> <li>• approve the corporate communication plan concerning the global risk management framework - including climate related risks - and its further development.</li> </ul> <p>The Board of Total has reassessed the importance of climate change in the Group's strategy. From 2008, climate issues were treated as completely separate from environmental risks, and are fully integrated into the company's business and strategic vision. Total's processes cover in particular transitional and physical risks.</p> <p>The Group Risk Management Committee uses the Group risk mapping work, updated in 2019. The risks' materiality (severity) are assessed according to their probability of occurrence and their level of impact. The impact level assessment is performed according to various financial, strategic, environmental, image/reputation, legal, human and HR criteria. In each category, the risks considered as being the most material, in line with the assessment based on the above criteria, are presented. The assessment by Total of this level of materiality may be changed at any time, in particular should new facts, whether external or specific to the Group, come to light. The Materiality rating scale (impact level and probability of occurrence) is from 1 i.e. less material to 4 i.e. more material.</p>

Value chain stage(s) covered	Risk management process	Frequency of assessment	Time horizon(s) covered	Description of process
				<p>In 2019, the Climate challenges related to transitional and physical risks were assessed with the following materiality: Deployment of the energy transition with materiality 3, Development of oil and gas reserves with materiality 3, Operating and financial risks relating to the effects of climate change with materiality 2, Reputational risk and management of talents with materiality 2.</p> <p><b><u>At asset level:</u></b> Similarly, for all the Group's assets, emerging risks – including climate risks - are identified by asset managers, who assess residual risks on existing processes and, when appropriate, elaborate proposals for additional processes so that they stand at levels deemed acceptable.</p> <p>Management: for all material projects, Environmental and Social Baseline Studies and Impact Assessments are systematically conducted in the early stages of these projects, under the responsibility of the project manager.</p> <p>The Risk Committee verifies the analysis of the various project-related risks in six main areas: environment (GHG emissions, water withdrawal, soil, etc.,), societal aspect, social aspects, health, industrial safety and security. For each new project, the criteria for determining materiality are defined in the "Corisk" checklist, which needs to be completed before submission to the Risk Committee, prior to the presentation to / approval by the Executive Committee. Priorities are defined by the Executive Committee depending on the importance of the project, based on a number of parameters (e.g. geopolitical situation or risks in the country, oil price, gas price, forecast of the price evolution). All these parameters are analysed and updated each year in the long-term plan documents (10 year forecast) prepared by each operational entity within the Group.</p> <p>In order to ensure the viability of its project and long-term (transition risk), the Group integrates into the financial evaluation of its investments presented to the corisk and the executive committee a CO<sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO<sub>2</sub> in a given country if higher. Since January 1, 2020, the Group has been taking into account in the economic evaluations of investments submitted to the Executive Committee a CO<sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios.</p> <p>The Group assesses the vulnerability of its facilities to climate hazards so that the consequences do not affect the integrity of the facilities, or the safety of people. More generally, natural hazards (climate-related risks as well as seismic, tsunami, soil strength and other risks) are taken into account in the construction of industrial facilities, which are designed to withstand both normal and extreme conditions. The Group carries out an assessment of the possible repercussions of climate change on its projects (Physicals risks). These analyses include a review by type of risk (e.g., sea level, storms, temperature, permafrost) and take into account the lifespan of the projects and their capacity to gradually adapt. These internal studies have not identified any facilities that cannot withstand the consequences of climate change known in 2019.</p>

**(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?**

Risk type	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	<p>Total's main emitting sites located in Europe are complying with the European carbon market (EU-ETS). The risk for Total is a loss of competitiveness on the international scale, in particular towards competitors located outside the European Union, which are not subject to similar regulation.</p> <p>Twice a year (Budget and Long-Term Plan), the CO<sub>2</sub> price impact is presented to the Executive Committee and associated mitigations measures are identified. The market's evolution is continuously monitored and is included into the Total risk management process at Company level with the Group Management Committee (GRMC) and at asset level with the Risk Committee. The Risk Committee (CORISK) assesses investment projects, the risks and the corresponding climate-related issues including the sensitivity to CO<sub>2</sub> prices before they are presented to the Executive Committee</p>
Emerging regulation	Relevant, always included	<p>More and more countries are likely to adopt carbon taxes to accelerate the low carbon transition, which could have an impact on the Total's activities and financial situation (loss of competitiveness, increase of operational cost) Total applies an internal CO<sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO<sub>2</sub> in a given country if higher when evaluating its investments. Since January 1, 2020, the Group has been taking into account in the economic evaluations of investments submitted to the Executive Committee a CO<sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios. The Risk Committee (CORISK) assesses investment projects, the risks and the corresponding climate-related issues including the sensitivity to CO<sub>2</sub> prices before they are presented to the Executive Committee.</p> <p>Total anticipates participating in trading schemes in the coming years i.e. in China, USA, Canada, Kazakhstan, Mexico, depending on emerging regulatory issues.</p>
Technology	Relevant, always included	<p>Because of the effects of global warming, many countries will increasingly be looking to develop alternative energy sources, or technologies which enable alternative energy sources development, such as renewable energy sources, energy storage solutions, etc. with a risk of technological breakthrough and emergence of a new competitive environment which could have an impact on Total markets and revenue. This risk is assessed by the Group Risk Management Committee and monitored by the concerned business units (Integrated Gas Power and Renewables, R&amp;D and Innovation, Marketing and Services, Refining and Chemicals, etc.).</p>
Legal	Relevant, always included	<p>Since 2016, there has been some legal cases involving oil and gas companies: some cases argue that some oil industry or other major fossil fuel producers should be held accountable for climate impacts. Other cases involve cities or local governments asking O&amp;G companies to pay a fair share of their local climate change costs. Dedicated team within the corporate Legal department in charge of following environmental and climate change related risks.</p>

Risk type	Relevance & inclusion	Please explain
Market	Relevant, always included	If the world is to have a chance of not exceeding global warming of 2°C, a carbon budget should not be exceeded. This has led some analysts to consider that coal and a part of the oil and gas reserves of publicly listed companies are ‘unburnable’ – the so-called stranded assets. Total applies an internal CO <sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO <sub>2</sub> in a given country if higher when evaluating its investments. Since January 1, 2020, the Group has been taking into account in the economic evaluations of investments submitted to the Executive Committee a CO <sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios., The Risk Committee (CORISK) assesses investment projects, the risks and the corresponding climate-related issues including the sensitivity to CO <sub>2</sub> prices before they are presented to the Executive Committee.
Reputation	Relevant, always included	Operational accidents in the oil and gas sector may cause the release of high quantities of pollutants / GHG emissions. The degraded reputation may result in a lack of confidence from investors and/or poor acceptability from stakeholders. A similar situation in terms of reputation may result from a slow reaction of the company to the energy transition. This risk is assessed at Corporate level by the Group Management Risk Committee. The Risk Committee (CORISK) assesses investment projects, the risks and the corresponding climate-related issues and CSR including the reputational and acceptability risk.
Acute physical	Relevant, always included	The effect of extreme events due to climate change may impact the robustness of our infrastructures or surrounding environment. In addition to assessing the vulnerability of Oil and Gas existing facilities, there is also a need to assess the vulnerability of nearby infrastructures (such as access roads), of surrounding populations (which include companies’ employees) etc. An example is the effect of severe flooding in Houston, TX. in 2017. Our internal procedures specifically call for the systematic assessment of the possible repercussions of climate change on our future projects. In-depth studies are carried out when the potential risk is significant relative to the existing safety margin. Our analyses include a review by type of risk - sea level, storms, temperature change and melting permafrost, among others. This risk is continually assessed in the risk management and prevention plans.
Chronic physical	Relevant, always included	The effect of slowly changing physical parameters (such as ambient temperature) due to climate change may impact the longer-term robustness of our infrastructures or surrounding environment. For instance, when it comes to the use of cooling water for process systems. This risk is assessed at Corporate level by the Group Management Risk Committee, and by the Corisk and continually monitored in the risk management and prevention plans.

## Risk disclosure

**(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?**

Yes

**(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.**

Please complete the following table.

Identifier	Where in the value chain does the risk driver occur?	Risk type	Primary climate-related risk driver	Primary potential financial impact	Company- specific description	Time horizon	Likelihood
Risk 1	Direct operations	Market	Other: Policy and legal: Mandates on and regulation of existing products and services	Other: Write-offs, asset impairment, and early retirement of existing assets due to policy changes	Some investors may divest from Total if they consider that some of our assets are stranded. For instance, those with high carbon intensities (Oil sands, etc.). Indeed, the UNFCCC Paris Agreement has set a clear 2°C objective for the world and has engaged countries to take action in order to reach this objective. If the world is to have a chance of not exceeding global warming of 2°C, a carbon budget should not be exceeded. This has led some analysts to consider that coal, oil and gas reserves of publicly listed companies are 'unburnable' – the so-called stranded assets. In Canada, Total holds a 24.58% stake in Fort Hills and a 50% stake in Surmont SAGD oil sands project.	Short-term	Likely

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
Medium- Low	Yes, a single figure estimate	5 billion USD		

Explanation of financial impact figure	Cost of response to risk	Description of response and explanation of cost calculation	Comment
<p>To ensure the viability of Total's projects and our long-term strategy with regard to climate change issues, Total applies an internal CO<sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO<sub>2</sub> in a given country if higher when evaluating our investments. Since January 1, 2020, the Group has been taking into account in the economic evaluations of investments submitted to the Executive Committee a CO<sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios. This is consistent with Total's support for mechanisms to replace coal with gas in power generation and our investment in R&amp;D on low-carbon technologies.</p> <p>A global carbon price would have some impact on the overall financial situation of Total: in 2019 studies have shown that a long-term CO<sub>2</sub> price of USD 40 per ton (effective from 2021, or the current price if higher in a given country) applied worldwide would have an impact of around 5% on Total's discounted present value (upstream and downstream assets), i.e more than 5 GUSD. Total's portfolio can therefore be considered resilient under such a scenario.</p>	2 MUSD	<p>In 2016, the Chairman of the Board and CEO of Total, took a decisive step by creating a combined Strategy &amp; Climate department, in order for climate, a global concern, to be fully integrated into the Group's overarching strategy.</p> <ol style="list-style-type: none"> <li>1. The management method by Total's Board is clearly set: Divestment from assets which are no longer consistent with this strategy. An example is that, following completion of the sale in 2015 of its subsidiary Total Coal South Africa, the Group ceased its coal production activities. In addition, in 2016 the Group ended its coal trading activities. Similarly, the Group has also decided to retrieve from the CTO project (Coal To Olefins) in China in August 2016. Total no longer develops oil sands project In Canada and in 2018 the Group sold its interests in the Joslyn oil sands project. It also disposed of 1.47% of its stake in the Fort Hills oil sands mining extraction project in Canada.</li> <li>2. Selection of new oil and gas projects by focusing on low breakeven costs.</li> <li>3. Focus more on gas than on oil.</li> <li>4. Development of CCUS.</li> </ol> <p>Another example is that Total continues to increase its presence in the renewable sector and low carbon sector. In 2016, Total acquired Saft + Lampiris + creation of Total Solar. In 2017, it entered the capital of Eren RE and Direct Energy.</p> <p>To take care of these topics: cost estimated at 1 MUSD to 2 MUSD which represents 8 FTEs of the Climate team + preparation / participation of business segments to Board meetings, "Corisk" meetings, and Climate-Energy Steering Committee meetings.</p>	

Identifier	Where in the value chain does the risk driver occur?	Risk type	Primary climate-related risk driver	Primary potential financial impact	Company- specific description	Time horizon	Likelihood
Risk 2	Direct operations	Emerging regulation	Carbon pricing mechanisms	Increased (indirect) operating costs	<p>More and more countries are likely to adopt carbon taxes to accelerate the low carbon transition, which could have an impact on Total's activities with a loss of competitiveness and an increase of operational costs.</p> <p>Total anticipates participating in trading schemes other than the EU ETS in the coming years (in China, USA, Canada, Kazakhstan, Mexico), depending on emerging regulatory issues. In 2019, South Africa introduced a new carbon tax (8 USD per ton of CO<sub>2</sub>). The rate will be reviewed in phase 2 (2023-30). Total is present in South Africa and has developed oil and gas exploration activities in the Outeniqua basin with operating interests in two blocks, 11B / 12B and South Outeniqua. Total applies an internal CO<sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO<sub>2</sub> in a given country if higher when evaluating our investments. Since January 1, 2020, the Group has been taking into account in the economic evaluations of investments submitted to the Executive Committee a CO<sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios.</p>	Medium-term	Likely

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
Medium-High	Yes, a single figure estimate	5 billion USD		

Explanation of financial impact	Cost of response to risk	Description of response and explanation of cost calculation	Comment
The price on carbon has some impact on the overall financial situation of Total: studies have shown that a long-term CO <sub>2</sub> price of USD 40 per ton (effective from 2021, or the current price if higher in a given country) applied worldwide would have an impact of around 5% on Total's discounted net present value (upstream and downstream assets), i.e. more than 5 GUSD. Total's portfolio can therefore be considered resilient under such a scenario.	1 MUSD	To ensure the viability of its projects and its long-term strategy with regard to climate change issues, Total applies an internal CO <sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO <sub>2</sub> in a given country if higher. Since January 1, 2020, the Group has been taking into account in the economic evaluations of investments submitted to the Executive Committee a CO <sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios. This is consistent with our support for mechanisms to replace coal with gas in power generation and our investment in R&D on low-carbon technologies. A price between 30 and 40 USD per ton would be enough to encourage a switch from coal to gas, steer investment toward the technologies required to reduce emissions. Total is part of the World Bank Carbon Pricing Leadership Coalition (CPLC) which helps anticipating these changes. As an example, with the implementation of the Kazakhstan ETS in 2014, Total E&P Kazakhstan stress-tested against the potential future CO <sub>2</sub> costs by evaluating the impact on the Net Positive Value of CO <sub>2</sub> prices of 30 to 40 USD per ton. To take care of these topics: cost estimated at 0.5 MUSD to 1 MUSD (which represents 3 FTEs of resources dedicated to carbon pricing mechanisms + support to the Climate Economy Chair, an academic initiative).	

Identifier	Where in the value chain does the risk driver occur?	Risk type	Primary climate-related risk driver	Primary potential financial impact	Company- specific description	Time horizon	Likelihood
Risk 3	Direct operations	Current regulation	Other: Policy and legal: Increased pricing of GHG emissions	Increased (indirect) operating costs	The financial risk related to the foreseeable purchase of CO <sub>2</sub> emission allowances on the market is expected to rise due to the effects of the ongoing reform of the EU-ETS Total's main emitting sites located in Europe are complying with the European carbon market (EU-ETS). The risk for Total is a loss of competitiveness on the international scale, in particular towards competitors located outside the European Union, which are not subject to similar regulation. The implementation of the Market Stability Reserve which came into effect in 2019, will reduce the amount of auctioned quotas in an attempt from the European Commission to drive the EU-ETS price up. 59% of scope 1&2 2019 emissions are from assets located in Europe.	Medium-term	Likely

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
Medium-High	Yes, a single figure estimate	185 MUSD		

Explanation of financial impact	Cost of response to risk	Description of response and explanation of cost calculation	Comment
<p>Based on available information, the Group estimates that around 25% of emissions subjected to EU-ETS are not covered by free quotas in the period 2013-2020 and up to 30% or more from 2021 to 2030. At the end of 2019, the price of these quotas was around €25/t, and the Group expects this price to be higher than €30/t in phase 4 of the EU ETS.</p> <p>The potential financial impact is around 185 MUSD (i.e. 25% of Total's Scope 1 emissions in Europe * 30 USD).</p>	1 MUSD	<p>Related investments made in installations (in particular in refineries and petrochemical plants in Europe) to mitigate our exposure risk, by advancing new technologies to limit GHG emissions through the improvement of energy efficiency, with clear ambition set for the Group (-1% per year). Total uses the most appropriate architectures and equipment and introduces technological innovations. For example, on offshore production barges, offshore platforms and onshore facilities, heat recovery systems at gas turbine exhausts have been implemented thereby avoiding the need for furnaces or boiler systems.</p> <p>The use of energy savings certificates in Europe (fuel sales).</p> <p>The use of a shadow price in all our investment decisions to ensure the viability of our project and the resilience of our assets even in a CO2 priced environment.</p> <p>Between 2008 and 2015 this shadow price was based on a cost of 25€ per ton of CO2 emitted. As of 2016, this shadow price was from 30 to 40 USD per ton of CO2 emitted depending on the oil price scenario retained, or the actual price if it is higher in a given country. From the 1st of January 2020, Total applies an internal CO2 price of 40 USD per ton, or the actual price if it is higher in a given country, with a sensitivity of 100 USD as from 2030 independent of the Brent prices scenarios.</p> <p>Compliance with the EU ETS, through a close monitoring of positions, improvement projects and, when necessary, market transactions.</p> <p>To take care of these topics: cost estimated at 0.5 MUSD to 1 MUSD (which represents 3 FTEs of resources dedicated to carbon pricing mechanisms + support to the Climate Economy Chair, an academic initiative).</p>	

Identifier	Where in the value chain does the risk driver occur?	Risk type	Primary climate-related risk driver	Primary potential financial impact	Company- specific description	Time horizon	Likelihood
Risk 4	Direct operations	Chronic physical	Changes in precipitation patterns and extreme variability in weather patterns	Decreased revenues due to reduced production capacity	<p>The tendency observed in recent years shows that hurricanes tend to become stronger than in the past. This could have an impact on the continuity of Total's operations, especially in Exploration and Production, and Refining and Petrochemicals, in particular in cyclone-prone areas. These physical risks could affect Total's business and value chain in the following way:</p> <ul style="list-style-type: none"> <li>The utilization rate of the production capacity could be less than expected in the event of major physical incident.</li> <li>The other consequences would be the repair costs to restore a normal situation and resume production, and a loss of revenue during the downtime.</li> </ul> <p>Geographical areas considered as highly exposed to hurricanes are the Gulf of Mexico and South-East Asia. In the USA, Total operates a refinery and a chemical plant in Port Arthur, Texas, and has some petrochemical plants in Texas.</p>	Medium-term	Very likely

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
Medium-Low	Yes, a single figure estimate	30 million USD		

Explanation of financial impact	Cost of response to risk	Description of response and explanation of cost calculation	Comment
<p>For Total, the financial implications are generally estimated on the basis on a number of days of lost production on a site and the corresponding loss of revenue (products not sold to customers during the downtime). For example, in average, a production stop of one month of a refinery would represent an operational loss of about 30 MUSD (one month corresponds to the average production stop faced during the last hurricanes in the USA).</p> <p>The potential financial implications of physical risks are limited when considering our global activities in 130 countries, so any weather-related event in a given country would only affect a small proportion of our activities at a given time.</p> <p>Given their locations, E&amp;P production sites operated by Total have so far suffered relatively limited exposure to extreme weather events.</p> <p>Geographical areas considered as highly exposed to hurricanes are the Gulf of Mexico and South-East Asia.</p>	1 MUSD	<p>Total has implemented an active process in order to regularly conduct vulnerability studies of our facilities, and our internal procedures specifically call for the systematic assessment of the possible repercussions of climate change on future projects. In-depth studies are carried out when the potential risk is significant relative to the existing safety margin. Our analyses take into account the life span of our projects and their capacity to gradually adapt. To date, these studies have not identified any facilities that cannot withstand the consequences of climate change. For instance, in Russia, the effect of climate change on the permafrost has been accounted for to design of Yamal LNG in 2013. Yamal LNG is one of the largest and most complex LNG projects in the world, which is operated by the Yamal LNG Company, owned by Novatek, Total, CNPC and Silk Road Fund. Gas export began in 2017. A total of 65,000 temperature-controlled piles driven to 10 to 28 meters deep have been installed to guarantee the stability of the heaviest structures and equipment and a total of 28,000 thermosyphon systems (a cooling device that lowers the temperature of the soil) have been positioned on the primary piles in order to maintains a temperature that guarantees the full bearing capacity of the piles for the plant's operating lifetime.</p> <p>For Upstream activities in particular, there is a dedicated team, coordinating specific studies for all assets: the annual cost (FTE + external studies) is approximately 1 MUSD excluding additional costs potentially due to specific site surveys. Dealing with physical risks attached to new projects in more exposed areas is integrated into the engineering and economic characteristics of the projects.</p>	

## Opportunity disclosure

**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**

Please complete the following table.

Identifier	Where in the value chain does the opportunity occur?	Opportunity type	Primary climate-related opportunity	Primary potential financial impact	Company-specific description	Time horizon	Likelihood
Opp1	Direct operations	Products and services	Development and/or expansion of low emission goods and services.	Increased revenue resulting from increased demand for products and services	As the worldwide demand for electricity is expected to grow strongly in the coming decades (~2% CAGR over 2015-40, source IEA), Total intends to become a major player in low-carbon electricity. Since the early 2000s, Total has developed along the whole of the low-carbon electricity value chain, from electricity generation, storage and sale to the end customer in Asia-Pacific, Africa and Latin America. The Group (Total Eren) has a diversified portfolio of assets in wind, solar and hydro. Total is as well a leader of French and Belgian low carbon electricity distribution market (Total Direct Energie) with 141 Twh in 2019 and had an installed capacity of 1.9 GW of low-carbon electricity generation from gas.	Short-term	Very likely

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
Medium	Yes, a single figure estimate	7 billion USD		

Explanation of financial impact	Cost to realize opportunity	Strategy to realize opportunity and explanation of cost calculation	Comment
Renewable energies will gradually increase in Total's portfolio. Low carbon electricity could represent 40% of Total's mix by 2050. Sales could double in 2030 and represent around 7 billion USD in 2030.	2 billion USD / year	Total invests \$1.5 to \$2 billion per year and aims at holding an installed gross production capacity of renewable electricity of more than 25GW by 2025, of which 10 GW in Europe. We have strengthened our position as a solar energy producer, thanks both to SunPower's state-of-the-art technologies and affiliate Total Solar's ground-mounted solar plant projects and work to solarize production facilities. Total Eren and Quadran (2018) enable the Group to boost its development in solar, wind power, hydraulic and biogas. In 2019, Total Quadran acquired the French company Vents d'Oc, which develops more than 200 MW of renewable energy projects, mainly in wind power and Total Eren acquired the Novenergia group and extended its presence, in particular in southern Europe.	\$1.5 to \$2 billion investment per year.

		<p>Total Eren assets operated or under construction worldwide represent an installed gross capacity of approximately 1.7 GW. In 2020 Total entered into an agreement with SSE Renewables, to acquire a 51% stake in the Seagreen 1 offshore wind farm project of 1,140 MW in the Scottish North Sea. Direct Energie (acquired in 2018 for nearly €2billion) allows the Group to accelerate its downstream integration along the full gas and power value chain and to reach critical mass in the French, Belgium and the Netherlands markets. Total is targeting 15% market share in France and Belgium, with a 5-year horizon in the residential segment. The group is marketing electricity in the UK and developing this distribution business in Spain and Germany. The acquisition of combined-cycle gas power plants in Europe is part of the strategy to integrate the gas and electricity value chain, and complements well the sources of production of intermittent renewable electricity. In France and Belgium, Total owns four combined-cycle natural gas (CCGT) power plants. The global installed capacity is 1.6 GW. In 2020, Total strengthens its positions in generation and supply of electricity and gas in Spain through the acquisition of the Energias de Portugal's portfolio of 2.5 million B2C customers and two gas-fired combined cycle power plants, which represent an electricity generation capacity of nearly 850 megawatts.</p>	
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Identifier	Where in the value chain does the opportunity occur?	Opportunity type	Primary climate-related opportunity	Primary potential financial impact	Company-specific description	Time horizon	Likelihood
Opp2	Direct operations	Products and services	Development and/or expansion of low emission goods and services.	Increased revenue resulting from increased demand for products and services	To respond responsibly to the strong rise in demand for electricity, Total remains committed to gas, whose CO <sub>2</sub> emissions are half those of coal when used to generate electricity and strengthens its development in the natural gas value chain from production to end customers. The activities of Total in the gas business contribute to the growth of the Group by ensuring market outlets for its current and future natural gas production.	Short-term	Very likely

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
Medium	No, we do not have this figure			

Explanation of financial impact	Cost to realize opportunity	Strategy to realize opportunity and explanation of cost calculation	Comment
The global natural gas market forecast is expected to increase by 2%/ year, and 5%/year for LNG.	15 billion USD	Total is a major <b>LNG</b> player in the world, and intends to develop B2B and B2C gas marketing, as well as create new LNG markets (LNG-to-Power through FSRU in emerging countries, LNG for transportation). Significant operations have taken place in the upstream and the downstream to make this possible. Upstream, Total has finalized various acquisitions, including that of the Engie and Anadarko LNG assets in Mozambique, and has launched some major LNG projects, such as Ichthys in Australia and Cameron in the United States. In addition, the Group has proceeded with or benefited from the launch of major developments, like the Arctic LNG 2 project. Total is the world's second-ranking operator on this market, with a volume sold of more than 34 Mt in 2019. In distribution, Total has engaged itself in the business of gas fuel for transport by acquiring a 25% stake in 2018 in Clean Energy Fuels Corp., one of the leading distributors of gas fuel for HGVs in the United States, or by signing a contract with CMA-CGM, the first shipping company	More than 15 billion USD, for the 2015-2019 period in LNG development.

		<p>to equip its transcontinental container ships with LNG-powered engines. In 2018, the Group also entered a partnership with the Adani group, India's largest private conglomerate in energy and gas infrastructures, in order to contribute to the development of the natural gas market. This partnership, which was extended in 2019, illustrates the Group's will to support countries that produce the greatest part of their electricity from coal to diversify their energy mix. Strengthening the position of gas in the energy mix is also accompanied by a greater focus on control of methane emissions.</p> <p>More than 15 billion USD were dedicated between 2015 and 2019 to development of gas and LNG projects.</p>	
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Identifier	Where in the value chain does the opportunity occur?	Opportunity type	Primary climate-related opportunity	Primary potential financial impact	Company-specific description	Time horizon	Likelihood
Opp3	Direct operations	Products and services	Development and/or expansion of low emission goods and services.	Increased revenue resulting from increased demand for products and services	Once efficient mechanisms to support the development of Carbon Capture, Utilization and Storage ( <b>CCUS</b> ) are implemented, Total will be in a favourable position to take a significant part to this development because of its extensive knowledge on this topic. This knowledge will come from its R&D program (which will make Total competitive), its experience in geosciences (needed for CO <sub>2</sub> storage), and its business development capacities. The development of CCUS has been a long-standing Group commitment, in particular through its Lacq pilot project conducted from 2010 to 2016 (oxy-combustion capture and storage in a depleted reservoir). Total is devoting 10% of its R&D investments to CCUS and has initiated work alongside its peers, within the Oil & Gas Climate Initiative, on the issues of commercialization (including relations with all stakeholders: public, government), capture technologies and world storage capacities.	Medium-term	About as likely as not

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
Medium	Yes, a single figure estimate	2.5 GUSD/year		

Explanation of financial impact	Cost to realize opportunity	Strategy to realize opportunity and explanation of cost calculation	Comment
The CCUS market is estimated to develop dramatically in the next 30-35 years, with significant worldwide CAPEX (order of magnitude over 100 GUSD per year) and OPEX. This market must first become profitable before such development. As per the IEA SDS scenario, 2.4 Gtof CO <sub>2</sub>	70 MUSD	Total is implementing an R&D roadmap for CCUS and business through a dedicated Business Unit. Total is allocating about 60 MUSD/year of R&D spending for CCUS and has about currently 15-20 FTE working on CCUS projects (from the Business Unit, seconded to projects or in E&P as support to the BU – 5MUSD) – expected to grow fast. Through the OGCI-CI (Climate Investments fund), Total will invest 50 MUSD on CCUS over 10 years (5MUSD per year) In 2017, Total joined the Technology Centre Mongstad, operated by Norwegian state-owned Gassnova with a capacity of 100,000 tons of carbon a year. Since 2017, Total is participating to a CCS project in Norway (Northern Lights). This project will be a milestone in the development of CCS in Europe as it will gather industrial emissions (from cement, waste to energy) from Norway but also potentially other European countries. In 2020, the final investment decision concludes the study phase during which Equinor, Shell and Total worked closely with Norwegian authorities to conduct engineering studies and	

are projected to be captured per year starting 2040. With 1% market share and 100\$/ton of CO <sub>2</sub> , sales could represent 2.5 GUSD/year for Total.		project planning. Since 2018, Total is also involved in the Clean Gas Project in the UK, based on the concept of hubs that can be replicated in other industrial areas; Total also stepped up its R&D program in 2019 by entering partnerships with the National Carbon Capture Center in the United States and IFPEN in France. The Group has also launched a development study for a major pilot industrial scale project in Dunkirk (19.3 million-euro budget over 4 years, including 14.8 million euros in European Union subsidies), a project to produce methanol from CO <sub>2</sub> and hydrogen in Germany, with the start-up Sunfire, and a feasibility study of an industrial system to capture and reuse the CO <sub>2</sub> produced by the LafargeHolcim cement works in the United States. All those projects will pave the way for the development of CO <sub>2</sub> storage.	
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Identifier	Where in the value chain does the opportunity occur?	Opportunity type	Primary climate-related opportunity	Primary potential financial impact	Company-specific description	Time horizon	Likelihood
Opp4	Direct operations	Products and services	Development and/or expansion of low emission goods and services.	Increased revenue resulting from increased demand for products and services	<b>Energy storage</b> is a major challenge for the future of power grids and a vital accompaniment to renewable energies, which are intermittent by nature. Large-scale electricity storage is essential to promote the growth of renewables and enable them to make up a significant share of the electricity mix. The acquisition of Saft, completed in 2016, fully aligned with Total's goal to develop in the low carbon electricity value-chain. Saft is a French company that celebrated its 100th anniversary in 2018 and specializes in the design, manufacture and marketing of high technology batteries for industry. Saft develops batteries based on nickel, lithium-ion and primary lithium technologies. The company is active in transport, telecommunications, industrial infrastructures, civil and military electronics, space, defence and energy storage.	Short-term	Very likely

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
Medium	Yes, a single figure estimate	2 billion USD		

Explanation of financial impact	Cost to realize opportunity	Strategy to realize opportunity and explanation of cost calculation	Comment
In 2019, Saft's turnover amounted to \$891 million and could double to more than 2 billion USD in 2030 as Saft is well placed to benefit from the growth in renewable energies beyond its current	1 billion USD	Saft is a French company that celebrated its 100 <sup>th</sup> anniversary in 2018 and specializes in the design, manufacture and marketing of high technology batteries for industry. Saft develops batteries based on nickel, lithium-ion and primary lithium technologies. The company is active in transport, telecommunications, industrial infrastructures, civil and military electronics, space, defense and energy storage. Building on the strength of its technological know-how, and through its energy storage activities, Saft is well placed to benefit from the growth in renewable energies beyond its current activities, by offering massive storage capacities, combined with renewable electricity, which is intermittent by nature. This is one of Saft's main sources of growth. In 2019, the company strengthened its energy storage and electric mobility activity, with the creation of a joint-venture with	

activities, by offering massive storage capacities, combined with renewable electricity, which is intermittent by nature.		Tianneng Energy Technology (TET), a subsidiary of the private Chinese group Tianneng, with a view to developing their lithium-ion activity, and with the acquisition of Go Electric Inc., an American specialist in energy resilience solutions for microgrids. Additionally, Saft signed a contract with the Finnish operator TuuliWatti to build the largest energy storage system in the Nordic countries. Saft is also active in the European alliance working on a new generation of “solid electrolyte” batteries. Total and PSA Group announced in January 2020 their plan to combine their know-how to develop an electric vehicles battery manufacturing activity in Europe. To that end, they intend to establish a joint venture named ACC (Automotive Cell Company). Cost to realize the opportunity: As of year-end 2019, Saft is present in 19 countries and has over 4,500 employees. Total acquired France-based battery manufacturer Saft in 2016 for around 1 billion USD.	
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Identifier	Where in the value chain does the opportunity occur?	Opportunity type	Primary climate-related opportunity	Primary potential financial impact	Company-specific description	Time horizon	Likelihood
Opp5	Direct operations	Products and services	Development and/or expansion of low emission goods and services.	Increased revenue resulting from increased demand for products and services	Given the need to reduce transportation-related carbon emissions, <b>biofuels</b> — which lower carbon dioxide emissions by at least 50% compared to regular fuels will increasingly take their place as a substitute for conventional fuels. Total is a pioneer in biofuels for more than 20 years in biofuels, and is now one of Europe’s major actors with the contribution of incorporation of 3.6 Mt blended sustainable biofuels in 2019 for a worldwide distribution of 3.2 Mt. Furthermore, Total produced 0.24 Mt of sustainable biofuels in its refineries in 2019.	Short-term	Very likely

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
Medium	Yes, a single figure estimate	3 GUSD		

Explanation of financial impact	Cost to realize opportunity	Strategy to realize opportunity and explanation of cost calculation	Comment
The 2019 sales represent over 3 GUSD.	300 MUSD	<p>The Group intends to reach a market share of over 10% in Europe in HVO production. In south-eastern of France (La Mède), Total has converted a former oil refinery into a new energies complex:</p> <ul style="list-style-type: none"> <li>• A biorefinery with a capacity of 500,000 tonnes of biofuel per year.</li> <li>• An 8-megawatt solar farm that can supply 13,000 people.</li> <li>• A unit to produce 50,000 cubic meters per year of AdBlue®, an additive that reduces nitrogen oxide emissions from trucks.</li> </ul> <p>The production at La Mède started up in 2019, with a capacity of 0.5 Mt per year of hydrotreated vegetable oil (HVO) based on sustainable certified charges.</p> <p>In 2018 Total acquired the fuel distribution company Zema Petróleo which currently manages an extensive branded network of 280 dealer-operated service stations and several oil products and ethanol storage facilities. Biofuels that are currently available are mainly made with vegetable oil and sugar.</p>	

		<p>For more than 10 years, Total's R&amp;D teams have developed technologies that have broadened the range of usable resources, while also meeting the need for sustainability. The consortium BioTFuel is working on, for example, the development of lignocellulose (plant waste).</p> <p>Cost to realize opportunity: project of converting a former oil refinery into a new energy complex, represented a capital expenditure of 300 MUSD. The project was launched in 2015.</p>	
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Identifier	Where in the value chain does the opportunity occur?	Opportunity type	Primary climate-related opportunity	Primary potential financial impact	Company-specific description	Time horizon	Likelihood
Opp6	Direct operations	Products and services	Development and/or expansion of low emission goods and services.	Increased revenue resulting from increased demand for products and services	<p>Consumers will require products that emit less CO<sub>2</sub> for the same use. In <b>Marketing</b>, our objectives are to change the customer relationship by bringing in more and more services (e.g. to move from selling fuel products to providing advice on how to best heat the home) in order to gain new customers and retain them.</p> <p>Total developed a label, Ecosolutions with a worldwide market, that helps its customers (consumers, businesses, manufacturers and communities) to offer efficient, innovative, lower-energy solutions that are more respectful of its shared environment.</p>	Short-term	Very Likely

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
High	Yes, a single figure estimate	165 MUSD		

Explanation of financial impact	Cost to realize opportunity	Strategy to realize opportunity and explanation of cost calculation	Comment
<p>Other financial implications are additional market share and attraction of new customers.</p> <p>Total Ecosolutions products represented around 10% of total net operating revenues of Marketing &amp; Services business segment in 2019 (approximately 165 MUSD).</p>	1 MUSD	<p>Total introduced products labelled Ecosolutions in 2009. At the end of 2019, there were 95 products. To manage this label, Total has set up a steering committee for Total Ecosolutions, where new labels are audited by an external consultant, and then submitted to steering committee approval: in 2019, the Total Ecosolutions Steering Committee met 4 times. External verification costs of the labelled products is 23 KUSD/year including validation of new labelled products. Cost to realized opportunity 23 KUSD + 4 FTEs/year (1 MUSD).</p>	

Identifier	Where in the value chain does the opportunity occur?	Opportunity type	Primary climate-related opportunity	Primary potential financial impact	Company-specific description	Time horizon	Likelihood
Opp7	Direct operations	Products and services	Development and/or expansion of low emission goods and services.	Increased revenue resulting from increased demand for products and services	The global <b>energy efficiency services</b> market is experiencing strong growth, which is expected to accelerate in the coming years. In this context, the Group is investing in this market, with the aim of helping customers optimize their consumption and emissions, in particular by choosing between the best energy sources. Group's strategy is to growth in the energy performance sector, in priority in major European countries (facilitated by the regulation).	Short-term	Very Likely

Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
High	Yes, a single figure estimate	1 billion USD		

Explanation of financial impact	Cost to realize opportunity	Strategy to realize opportunity and eplanation of cost calculation	Comment
Energy efficiency for both individuals and companies is becoming increasingly important; therefore Total is expecting significant revenues from this activity. Sales could more than double within 10 years, to 1 billion USD.	2 MUSD	In 2017, the Group finalized the acquisition of GreenFlex, a French company founded in 2009 with over 700 customers. GreenFlex employs around 500 people and recorded sales of €327 million at year- end 2019, By providing consultancy (strategic and operational), data intelligence (digital platforms) and financing services, GreenFlex helps companies and regions improve their energy and environmental performance. The Company's areas of expertise are varied and include, for example, the improvement and management of the energy performance of buildings, equipment, utilities and processes, sustainable mobility, flexible electricity consumption, renewables and positive-energy buildings. More than 700 companies have already been supported by GreenFlex. About 5 FTEs/year in Total + external support (approximately 1-2 M\$/year) + all staff from Greenflex.	

Identifier	Where in the value chain does the opportunity occur?	Opportunity type	Primary climate-related opportunity	Primary potential financial impact	Company-specific description	Time horizon	Likelihood
Opp8	Direct operations	Products and services	Development and/or expansion of low emission goods and services.	Increased revenue resulting from increased demand for products and services	According to the World Bank, around 1 billion people still do not have access to electricity and 3 billion still have to use intense carbon energy (biomass, coal...) to cook. In this context, Total provides <b>solar energy solutions</b> to low income customers in emerging countries and facilitate access to energy to a large number of people with its Total Access to Energy Program. This program is designed to test and develop innovative and profitable business models on a large scale, with a view to finding long-term solutions to the problem of energy access for low-	Short-term	Very likely

					income communities. The distribution of affordable and reliable off-grid solar solutions is the first major achievement of the program. The distribution channels used are both Total's traditional networks (service stations) and "last mile" networks built with local partners to bring these solutions to isolated areas. Reseller networks are then set up and economic programs developed with the support of external partners to recruit and train young solar resellers.		
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Magnitude of impact	Are you able to provide a potential financial impact figure?	Potential financial impact figure	Potential financial impact figure – minimum (currency)	Potential financial impact figure – maximum (currency)
Medium	Yes, a single figure estimate	1 million USD		

Explanation of financial impact	Cost to realize opportunity	Strategy to realize opportunity and explanation of cost calculation	Comment
<p>This new business segment could potentially bring several millions of USD of benefits. However, Total's Access to energy program is a social business and profitability is not the main driver. Beyond the extra financial values (social impact), this business unit could bring substantial financial benefits to the group (potentially estimated at more than 1 MUSD/year in 5 years).</p>	1 MUSD	<p>Total is engaged in the sector through institutional partnerships (International Finance Corporation, Global Off-Grid Lighting Association) and is in contact with institutions to undertake joint initiatives (United Nations Development Program and World Bank). Economic profitability is required to sustain the business and ensure its long-term impact. Social impact: lamp sold impacts 4.4 people (source World Bank), which means that more than 12 million people have benefited from Total Access to energy activities since launch in 2011 (by the end of 2017, 2.7 million lamps and solar kits had been sold). Resellers benefit from the project, through the training they receive (product knowledge, selling skills) and through the revenue generated by the lamps sold. The promotional campaigns and tools go a long way towards raising people's awareness about the use of solar products. Total's strategy is to: draw on the resources and assets of an international group (local affiliates with an extended network of service-stations and facilitated logistics), develop partnerships with international and local stakeholders in contact with off-grid communities, develop relevant activities throughout the value chain. To date, over 40 Total affiliates distribute solar solutions across Africa, Asia, and Latin America, with dedicated resources (budget and human resources). 6 FTEs at headquarters and representatives in the affiliates, which represents about 1 MUSD/year.</p>	

## C3 Business strategy

### Business strategy

**(C3.1) Have climate-related risks and opportunities influenced your organization's strategy and/or financial planning?**

Yes, and we have developed a low-carbon transition plan

**(C3.1a) Does your organization use climate-related scenario analysis to inform its strategy?**

Yes, qualitative and quantitative

**(C3.1b) Provide details of your organization's use of climate-related scenario analysis.**

Please complete the following table.

Climate-related scenarios and models applied	Details
IEA Sustainable development scenario	The Group's strategy incorporates the challenges of climate change. Total is relying on global energy demand data from the "World Energy Outlook" issued by IEA since 2016 and on its own supply assessments. The Group determines the oil & gas prices scenarios based on assumptions on the evolution of core indicators of the Upstream activity (investment forecasts, decline in production fields, changes in oil & gas reserves and supply by area and by nature of oil & gas products), of the Downstream activity (demand for oil & gas products in different markets, changes in refining capacity and demand for petroleum products) and by integrating challenges raised by the climate. The IEA 2019 WEO presents 3 scenarios (New Policies Scenario (NPS), Current Policies Scenario (CPS) and Sustainable Development Scenario (SDS)). Total's strategy incorporates the challenges of climate change using the SDS scenario as a reference.

Climate-related scenarios and models applied	Details
<p>Other, please specify: Total Energy Outlook</p>	<p>As part of its long-term plan, Total makes long-term energy demand forecasts (2040), the Total Energy Outlook 2040, a prospective vision of the evolution of energy supply and demand on the planet, around two scenarios: "Momentum" and "Rupture". The Rupture scenario is aligned with a well below 2°C scenario. It foresees technological breakthroughs, a reinforcement of public policies, a massive switch to renewable energies, an accelerated electrification in all sectors and a significant decrease in energy intensity of about 3% per year. Those scenarios cover all business segments of Total organisation.</p> <p>Total positions itself on high-growth low-carbon markets and intends to offer customers an energy mix with a carbon intensity that shall gradually decrease. To accompany these changes, Total has introduced a carbon intensity indicator for the energy products used by its customers.</p> <p>In 2020, Total's CEO and board of Directors reviewed the Group ambition in the fight against climate change and decided to take additional steps towards the Paris goals, with the ambition to get to Net Zero by 2050 together with society, for its global business across its production and energy products used by its customers (scope 1+2+3).</p>

**(C3.1d) Describe where and how climate-related risks and opportunities have influenced your strategy.**

Business area	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
<p>Products and services</p>	<p>Yes</p>	<p>Climate Change impacts clients' needs and behaviours, as well as other stakeholders' expectations. For instance, more and more of our clients request low carbon solutions, as well as services to help them improving their energy consumption. The impact is high, in particular as the Company aims at becoming the Responsible Energy Major, and first amongst its peers. This led Total to develop Total Ecosolutions products, with a worldwide market, that helps its customers (consumers, businesses, manufacturers and communities) to get efficient, innovative, lower-energy solutions that are more respectful of its shared environment. 95 products were labelled Total Ecosolutions in 2019, but also to acquire new businesses in energy efficiency (Greenflex recently), in energy storage (Saft), etc. Time scale: short term (two years), medium term (until 2030) and long term (beyond 2030).</p>

Business area	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Supply chain and/or value chain	Yes	<p>The Group believes in the essential role of natural gas in the energy transition. Strengthening the position of gas in the energy mix must however be accompanied by a greater focus on control of methane emissions. To preserve the advantage that gas offers in terms of GHG emissions compared to coal for electricity generation, it is necessary to strictly reduce the methane emissions associated with the production and transportation of gas, i.e. along the whole gas value chain.</p> <p>Total's methane emissions of oil and gas assets are around 0.20% of the Group's marketed operated gas production and one of the best amongst its peers. For gas producing assets, intensity is below 0.1%. Improving measurement of these emissions and their reduction is a priority for Total in terms of environmental impact. On this basis, since 2014 the Group has been a member of the partnership between governments and industrial companies for the improvement of tools to measure and control methane emissions set up by the Climate and Clean Air Coalition and promoted by UN Environment and the non-profit organization Environmental Defense Fund. As a member of the Oil &amp; Gas Climate Initiative, Total provides technical and financial support to international research such as the Oil and gas Methane Science Studies and signed the guiding principles on the reduction of methane emissions by the gas value chain. The impact is medium as it is critical for proving the role of gas.</p> <p>Time scale: short term (two years), medium term (until 2030) and long term (beyond 2030).</p>
Investment in R&D	Yes	<p>Climate change influences more and more where the Group puts its efforts in terms of R&amp;D and new investments. In particular, it has led to increasing the R&amp;D budget associated to CCUS. Once efficient mechanisms to support the development of Carbon Capture, Utilization and Storage (CCUS) are implemented, Total will be in a favourable position to take a significant part to this development because of its extensive knowledge on this topic. This knowledge will come from its R&amp;D program (which will make Total competitive), its experience in geosciences (needed for CO2 storage), and its business development capacities. The development of CCUS has been a long-standing Group commitment, in particular through its Lacq pilot project conducted from 2010 to 2016 (oxy-combustion capture and storage in a depleted reservoir). Total is devoting 10% of its R&amp;D investments to CCUS. The Group relies on a dynamic R&amp;D policy to conduct and develop its activities. There are two main priorities: developing activities and programs with a direct impact on Total's aim to become the responsible energy major; anticipating technological breakthroughs in order to seize opportunities for development relating to the evolution of the energy mix. The impact is high. In 2019, the Group invested \$968 million in Research &amp; Development (R&amp;D), compared to \$986 million in 2018 and \$912 million in 2017. There were 4,339 people dedicated to R&amp;D activities in 2019 compared to 4,288 in 2018 and 4,132 in 2017.</p> <p>Time scale: short term (two years), medium term (until 2030) and long term (beyond 2030).</p>

Business area	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Operations	Yes	<p>For more than a decade, Total has integrated climate changes issues in the way it operates. In particular, it has led the Group to reduce routine flaring in a proactive manner, as well as to introduce energy efficiency efforts wherever possible. As part of its Global Gas Flaring Reduction Partnership, Total identified the Ofon field as a major contributor to its gas flaring volumes and responded by initiating the Ofon Phase 2 Project. Ofon is an offshore field that came on stream in 1997, and is located some 180 kilometers from Port Harcourt (about 65 kilometers from shoreline). In its first phase, all associated gas was flared with minor fuel gas usage. One of the main objectives of OFON 2 project was to stop flaring by the end of 2014. The Company's flare down objective in Ofon field was achieved end of 2014, accounting for an immediate 10% cut in the overall volume of gas flared by the Group's Exploration &amp; Production activities. This reduction in gas flaring is estimated to have led to reduction of greenhouse gas emissions from 80kt CO<sub>2</sub> equivalent to less than 8 ktCO<sub>2</sub> equivalent in the Ofon field.</p> <p>Both topics are covered by Group objectives, which are actually translated in business units and assets objectives. The impact is high. Time scale: short term (two years), medium term (until 2030) and long term (beyond 2030).</p>

**(C3.1e) Describe where and how climate-related risks and opportunities have influenced your financial planning.**

Please complete the following table:

Financial planning elements that have been influenced	Description
Revenues	<p>Internal studies conducted by Total have shown that a long term CO<sub>2</sub> price of 40 USD / ton applied worldwide would have a negative impact of around 5% on the discounted present value of the Group's assets (upstream and downstream). In addition, the average reserve life of the Group's proved and probable reserves is approximately 20 years and the discounted value of proved and probable reserves with a reserve life of more than 20 years is less than 10% of the discounted value of the Group's upstream assets. The impact is low-medium. Time scale: short term (two years), medium term (until 2030) and long term (beyond 2030). To ensure the viability of Total's projects and our long-term strategy with regard to climate change issues, Total applies an internal CO<sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO<sub>2</sub> in a given country if higher when evaluating our investments. Since January 1, 2020, the Group has been taking into account in the economic evaluations of investments submitted to the Executive Committee a CO<sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios. This is consistent with Total's support for mechanisms to replace coal with gas in power generation and our investments in low-carbon energies.</p>

Financial planning elements that have been influenced	Description
Operating costs	<p>Total's strategy is built around four key areas that integrate the challenges of climate change:</p> <ol style="list-style-type: none"> <li>1) Oil products: avoiding expensive oil, reducing emission at our facilities and promoting biofuels;</li> <li>2) Growing in gas value chains (natural gas, biogas and hydrogen);</li> <li>3) Developing a profitable low-carbon electricity business;</li> <li>4) Investing in carbon sink businesses.</li> </ol> <p>In order to ensure the viability of its projects and long-term strategy in light of the challenges raised by climate change, the Group integrates, into the financial evaluation of investments presented to the Executive Committee, a long-term CO2 price of 40 USD per ton or the actual price of CO2 in a given country if higher with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios. The Group performs sensitivity tests to assess the ability of its asset portfolio to withstand an increase in the price per ton of CO2. The impact is medium. Time scale: short term (two years), medium term (until 2030) and long term (beyond 2030).</p>
Capital expenditures/capital allocation	<p>As the worldwide demand for electricity is expected to grow strongly in the coming decades (~2% CAGR over 2015-40, source IEA), Total intends to become a major player in low-carbon electricity. Since the early 2000s, Total is developing along the whole of the low-carbon electricity value chain, from electricity generation, storage and sale to the end customer. Total invests 1.5 to 2 billion USD in low carbon electricity aims at holding an installed gross production capacity of renewable electricity of more than 25GW by 2025, of which 10 GW in Europe. The Group has a diversified portfolio of assets in wind, solar and hydro and is as well a leader of French and Belgian low carbon electricity distribution market (Total Direct Energie)</p> <p>In the hydrocarbon area, Total has been shifting progressively its investment efforts from oil to gas. Gas was a third of our production ten years ago and 50% today. The energy transition has therefore a strong impact our capital allocation.</p> <p>Additionally, through the integration of a CO2 / carbon cost in all new capital expenditure decisions since 2008 of all its new projects / activities brought to Total's Excom directly integrate the impact of its future greenhouse gas emissions. In order to ensure the viability of its projects and long-term strategy in light of the challenges raised by climate change, from 2016 to 2019, the Group integrates, into the financial evaluation of investments presented to the Executive Committee, a long-term CO2 price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO2 in a given country if higher. Since January 1, 2020, a CO2 price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios. The Group performs sensitivity tests to assess the ability of its asset portfolio to withstand an increase in the price per ton of CO2.</p> <p>The impact is medium. Time scale: short term (two years), medium term (until 2030) and long term (beyond 2030).</p>
Acquisitions and divestments	<p>Total's strategy is built around four key areas that integrate the challenges of climate change:</p> <ol style="list-style-type: none"> <li>1) Oil products: avoiding expensive oil, reducing emission at our facilities and promoting biofuels;</li> <li>2) Growing in gas value chains (natural gas, biogas and hydrogen);</li> <li>3) Developing a profitable low-carbon electricity business;</li> <li>4) Investing in carbon sink businesses. This strategy is reflected in Total acquisitions and divestments:</li> </ol> <p><u>Divestments</u>: Following completion of the sale in 2015 of its subsidiary Total Coal South Africa, the Group ceased its coal production activities. In addition, in 2016 the Group ended its coal trading activities. In 2018 the Group sold its interests in the Joslyn oil sands project.</p> <p><u>Acquisitions</u>: Total acquired Total Eren (2017, renewable energy) Direct Energie (2018, gas and electricity suppliers on the French and Belgian markets), Quadran (renewable energy 2018), Saft (2016 - Energy Storage), Engie's LNG assets (2018), G2Mobility (2018), Energías de Portugal's (2020)</p> <p>The impact is high. Time scale: short term (two years), medium term (until 2030) and long term (beyond 2030).</p>

Financial planning elements that have been influenced	Description
Access to capital	The growing concern of certain stakeholders with regards to climate change could also have an impact on certain external financing of the Group's projects or influence certain investors involved in the oil and gas sector. In June 2017, the TCFD of the G20's Financial Stability Board published its final recommendations on information pertaining to climate to be released by companies. Total publicly announced in 2017 its support for the TCFD and its recommendations. Total discloses its climate related Governance, Strategy, Risk Management, and Metric & Target according to the TCFD recommendations. The impact is low. Time scale: short term (two years), medium term (until 2030) and long term (beyond 2030).
Assets	In 2019, internal studies conducted by Total showed that a long-term CO2 price of 40 USD / ton applied worldwide would have a negative impact of around 5% on the discounted present value of the Group's assets (upstream and downstream). In addition, the average reserve life of the Group's proved and probable reserves is approximately 20 years and the discounted value of proved and probable reserves with a reserve life of more than 20 years is less than 10% of the discounted value of the Group's upstream assets. The impact is low-medium. The limited level of 2019 impairments reflects the resilience of the portfolio on a long-term price trajectory in line with the IEA Sustainable Development Scenario (SDS). Time scale: short term (two years), medium term (until 2030) and long term (beyond 2030).

**(C3.1f) Provide any additional information on how climate-related risks and opportunities have influenced your strategy and financial planning (optional).**

i) How Total's business strategy is influenced - Internal processes:

Regulatory watch: after the Paris agreement, Total decided, early 2016, to fully integrate climate into its strategy and to take into account the implications of the 2°C scenario across its value chain. Total's objectives for the next 20 years are to contribute to building a low-carbon future that does not curb economic and social development, and that meets the challenges of demographic growth.

Prospective aspect watch: Total's strategy incorporates the challenges of climate change using the IEA SDS as a reference.

Total is a member of OGCI and is involved in different working groups that help companies focus on best practices to integrate climate risks and opportunities into their strategy.

ii) Examples of how the business strategy has been influenced:

Total's board and top management decided to publish a specific report on climate in 2016, updated every year - and to create a combined Strategy & Climate Division in the fall of 2016, in order for climate, a global concern, to be fully integrated into Total's overarching strategy. A new business segment called Gas, Renewables & Power (GRP) was created: it spearheads Total's ambitions in low-carbon businesses by expanding in downstream gas and renewable energies and in energy efficiency businesses.

Following completion of the sale in 2015 of its subsidiary Total Coal South Africa, Total ceased its coal production activities and in 2016, ended its coal trading activities. Total also chose to withdraw from China's coal-to-olefins (CTO) project for producing plastics from coal, since it was no longer consistent with Total's long-term strategy.

Total positions itself on high-growth low-carbon markets and intends to offer customers an energy mix with a carbon intensity that shall gradually decrease. To accompany these changes, Total introduced in 2018 a carbon intensity indicator for the energy products used by its customers. It

additionally introduced an emission reduction target set early 2019 by Total's Executive Committee on GHG emissions (Scopes 1&2) of Total's operated oil and gas facilities. This objective is included in Total executives' compensation. In 2020, Total's CEO and board of Directors reviewed the Group ambition in the fight against climate change and decided to take additional steps towards the Paris goals, with the ambition for Total to get to Net Zero by 2050 together with society, for its global business across its production and energy products used by its customers (scope 1+2+3).

iii) The main aspects of climate change that influenced our strategy:

Regulatory changes: to ensure that investment projects are as profitable as anticipated in the desirable event that the international community agrees to put a cost on CO<sub>2</sub> emissions, between 2008 and 2016 investments have been valued since based on a cost of 25€/tCO<sub>2</sub>. As of 2016, this cost has been raised to 30 to 40 USD/tCO<sub>2</sub> depending on the price scenario retained. Since January 1, 2020, a CO<sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios Opportunity to develop low carbon business: focusing and developing Total's gas business has been and is largely influenced by the climate change related need to accelerate the growth of the gas share in the energy mix to replace coal for power generation.

iv) Influence on short term strategy:

Total takes into account the challenges related to climate change and strives to improve the impact of its activities on the environment and the carbon intensity of its production mix, by setting its short-term climate strategy around the following focal points:

- Continue efforts in reducing GHG emissions.
  - a 80% reduction of operated routine flaring (World Bank's Zero Routine Flaring initiative) over 2010-2020 with a view to eliminating it by 2030;
  - a 1% per year on average improvement in energy efficiency of operated installations over 2010-2020.
  - a reduction in the intensity of the methane emissions of the upstream segment's operated facilities to less than 0.20% of the commercial gas produced.
  - a GHG emission reduction (Scopes 1 & 2) on operated oil & gas facilities of 46 Mt CO<sub>2</sub>e in 2015 to less than 40 Mt CO<sub>2</sub>e in 2025.
- Select new oil and gas projects by focusing on low break-even costs, while meeting the highest standards of safety and environmental stewardship.
- Improve the energy efficiency of its facilities and products with a 300 M\$ capital investment plan in energy efficiency over 5 years in downstream facilities.
- Develop sustainable biofuels.

v) Influence on long term strategy:

Through the integration of a CO<sub>2</sub> / carbon cost in all new capital expenditure decisions since 2008 all of its new projects / activities brought to Total's Excom directly integrate the impact of its future GHG emissions. Total strives to improve the impact of its activities on the environment and the carbon intensity of its production mix, by setting its long-term climate strategy around the following focal points:

- Growing in natural gas: to respond responsibly to the strong rise in demand for electricity, Total remains committed to gas, whose CO<sub>2</sub> emissions are half those of coal when used to generate electricity. The Group wishes to be present throughout the whole gas chain, from production to end customer. Develop CCUS (up to 10% of its R&D spending) and preserve and restore the capacity of ecosystems to act as carbon sinks (with an investment budget \$100 million per year from 2020 onwards).

- Develop a profitable low-carbon electricity business. To meet this target, Total invests \$1.5 to \$2 billion per year.

The Group also has the ambition to reduce the carbon intensity of energy products used by its customers by 15% between 2015 and 2030, by 35% by 2040 and by 60% in 2050. This carbon intensity was already reduced from 75 g CO<sub>2</sub>/kBtu in 2015 to 70 gCO<sub>2</sub>/kBtu in 2019, a reduction of 6%. This reduction was achieved through a threefold increase in LNG sales (from 10 to 34 Mt) and an almost eightfold increase in electricity sales (from 6 to 46 TWh); over the same period, these efforts were accompanied by investments of more than \$20 billion.

vi) Paris Agreement influence:

In the wake of the Paris agreement, Total decided to fully integrate climate change into its strategy and to create a new Gas, Renewables and Power division, whose director is a member of the ExCom. For any new project, Total considers how it might contribute to the local NDC.

vii) Strategic advantage:

Being at the same time one of the largest gas player and a world solar leader provides Total a key competitive advantage in the race to prepare for the future. Engaging in international initiatives and seeking continuous improvement also enables Total to develop additional profitability and to differentiate from its main competitors. The simultaneous growth of gas and renewables is encouraging Total to take a broader approach to the end-to-end electricity value chain.

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## C4 Targets and performance

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### Targets

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#### **(C4.1) Did you have an emissions target that was active in the reporting year?**

Both absolute and intensity targets

**(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.**

Target reference number	Year target was set	Target coverage	Scope(s) (or Scope 3 category)	Base year	Covered emissions in base year (metric tons CO2e)	Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)
Abs1	2016	Company-wide	Scope 1	2010	8,140,000	15%

Target year	Targeted reduction from base year (%)	Covered emissions in target year (metric tons CO2e) [auto-calculated]	Covered emissions in reporting year (metric tons CO2e)	% of target achieved[auto-calculated]
2020	80%	1,628,000	990,000	100%
Target status in reporting year	Is this a science-based target?	Please explain (including target coverage)		
Achieved	No, but we anticipate setting one in the next 2 years	<p>Total's current set of Group targets and commitments (defined at the beginning of 2016) illustrates our efforts in reducing our direct GHG emissions through, in particular, a 80% reduction of operated routine flaring over 2010-2020 with a view to eliminating it by 2030 as per the World Bank's Zero Routine Flaring initiative. It is assumed that 1 Mm<sup>3</sup>/day of flaring is equivalent to 1.1 Mt CO<sub>2</sub> per year.</p> <p>This objective was reached in 2017. The daily volume of routine flaring is stable in 2019 compared to 2018, with respectively 0.9 Mm<sup>3</sup>/d and 1.1 Mm<sup>3</sup>/d. reducing routine flaring has been a long-standing target for the Group, which design its new project without resorting it. Total has decreased routine flaring by 85% since 2010, thus the target is 100% completed in emissions reduction.</p>		

Target reference number	Year target was set	Target coverage	Scope(s) (or Scope 3 category)	Base year	Covered emissions in base year (metric tons CO2e)	Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)
Abs2	2016	Company-wide	Scope 1	2010	8,140,000	15%
Target year	Targeted reduction from base year (%)	Covered emissions in target year (metric tons CO2e) [auto-calculated]	Covered emissions in reporting year (metric tons CO2e)	% of target achieved[auto-calculated]		
2030	100%	8,140,000	990,000	88%		

Target status in reporting year	Is this a science-based target?	Please explain (including target coverage)
Underway	No, but we anticipate setting one in the next 2 years	Total's current set of Group targets and commitments (defined at the beginning of 2016) illustrates our efforts in reducing our direct GHG emissions through, in particular, a 80% reduction of operated routine flaring ( ) over 2010-2020 with a view to eliminating it by 2030 as per the World Bank's Zero Routine Flaring initiative. It is assumed that 1 Mm <sup>3</sup> /day of flaring is equivalent to 1.1 Mt CO <sub>2</sub> per year. Total is currently on track to reach the Zero Routine Flaring target.

Target reference number	Year target was set	Target coverage	Scope(s) (or Scope 3 category)	Base year	Covered emissions in base year (metric tons CO <sub>2</sub> e)	Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)
Abs3	2019	Company-wide	Scope 1+2 (location-based)	2015	45,800,000	100%
Target year	Targeted reduction from base year (%)	Covered emissions in target year (metric tons CO <sub>2</sub> e) [auto-calculated]	Covered emissions in reporting year (metric tons CO <sub>2</sub> e)	% of target achieved[auto-calculated]		
2025	12.7%	40,000,000	41,500,000	74%		
Target status in reporting year	Is this a science-based target?	Please explain (including target coverage)				
New	No, but we anticipate setting one in the next 2 years	At the beginning of 2019, Total announced a target to reduce GHG emissions (Scopes 1 & 2) on its hydrocarbon upstream activities from 46 Mt CO <sub>2</sub> e to less than 40 Mt CO <sub>2</sub> e in 2025. The Group has reduced by 50% the GHG emissions produced by its operated activities since 2005. This reduction was reached thanks to notably reducing flaring and improving energy efficiency.				

Target reference number	Year target was set	Target coverage	Scope(s) (or Scope 3 category)	Base year	Covered emissions in base year (metric tons CO <sub>2</sub> e)	Covered emissions in base year as % of total base year emissions in selected Scope(s) (or Scope 3 category)
Abs4	2020	Company-wide	Scope 1+2 (location-based)	2015	45,800,000	100% (net zero emissions)

Target year	Targeted reduction from base year (%)	Covered emissions in target year (metric tons CO2e) [auto-calculated]	Covered emissions in reporting year (metric tons CO2e)	% of target achieved [auto-calculated]
2050	50%	22,900,000	41,500,000	19%

Target status in reporting year	Is this a science-based target?	Please explain (including target coverage)
New	No, but we anticipate setting one in the next 2 years	Total shares the ambition to get to Net Zero emissions by 2050, together with society, with an objective of net zero emission across Total's worldwide operations by 2050 or sooner for scope 1 and 2.

**(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).**

Target reference number	Year target was set	Target coverage	Scope(s) (or Scope 3 category)	Intensity metric	Base year	Intensity figure in base year (metric tons CO2e per unit of activity)	% of total base year emissions in selected Scope(s) (or Scope 3 category) covered by this intensity figure
Int1	2019	Business activity	Scope 1 & 2	Other: kg CO2e per barrel of oil equivalent (BOE)	2019	20 kg CO2-e	44%

Target year	Targeted reduction from base year (%)	Intensity figure in target year (metric tons CO2e per unit of activity) [auto-calculated]	% change anticipated in absolute Scope 1+2 emissions	% change anticipated in absolute Scope 3 emissions	Intensity figure in reporting year (metric tons CO2e per unit of activity)
2025	N.A (to be maintained)	20 kg CO2e	N.A.	N.A	20 kg CO2e

% of target achieved [auto-calculated]	Target status in reporting year	Is this a science-based target?	Please explain (including target coverage)
100%	Achieved	No, but we anticipate setting one in the next 2 years	In 2019, the Group has set a target of maintaining the intensity of CO2e emissions of facilities operated by the Group for its Upstream hydrocarbon activities under 20 kg CO2e/boe.

## Other climate-related targets

### (C4.2) Did you have any other climate-related targets that were active in the reporting year?

Select all that apply from the following options:

- Target(s) to increase low-carbon energy consumption or production
- Target(s) to reduce methane emissions
- Other climate-related target(s)
- No other climate-related targets

### (C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number	Year target was set	Target coverage	Target type: absolute or intensity	Target type: category	Metric (target numerator if reporting an intensity target)	Target denominator (intensity targets only)
Oth1	2018	Business division	Intensity	Methane reduction target	Methane leakage rate (%)	Other, please specify: commercial gas produced in Mm <sup>3</sup>
Base year	Figure or percentage in base year	Target year	Figure or percentage in target year	Figure or percentage in reporting year	% of target achieved [auto-calculated]	
2017	0.30	2025	0.20	0.20	100%	
Target status in reporting year	Is this target part of an emissions target?	Is this target part of an overarching initiative?	Please explain (including target coverage)			
Achieved	This intensity target is part to the GHG emission reduction target for Scopes 1 & 2 (ABS3) on operated oil & gas facilities of 46 Mt CO <sub>2</sub> e in 2015 to less than 40 Mt CO <sub>2</sub> e in 2025. By targeting a zero-routine flaring in 2030, Total is also engaged to reduce methane emissions (ABS1- ABS2).	Other, please specify: Oil & Gas Climate Initiative (OGCI)	In 2019, the methane emission intensity for the Exploration and production segments' operated facilities scope is around 0.20% of the commercial gas produced and the methane emissions represent 4% of the Group's GHG emissions (CO <sub>2</sub> -eq) and approximately 30% are related to flaring. The upstream Oil and Gas asset CH <sub>4</sub> emissions represent 98% of the Group methane emissions in 2019. Total is as well acting to disseminate good practices, especially in terms of transparency. At the end of 2017, the Group signed with other oil & gas companies, as well as non-governmental and scientific organizations, guidelines on the responsible management of methane at the operational level, R&D and sustainable regulations (Methane Guiding Principles).			

Target reference number	Year target was set	Target coverage	Target type: absolute or intensity	Target type: category	Metric (target numerator if reporting an intensity target)	Target denominator (intensity targets only)
Oth2	2020	Business division	Intensity	Methane reduction target	Methane leakage rate (%)	Other, please specify: commercial gas produced in Mm <sup>3</sup>
Base year	Figure or percentage in base year	Target year	Figure or percentage in target year	Figure or percentage in reporting year	% of target achieved [auto-calculated]	
2019	0.1	2025	0.1	0.1	100%	
Target status in reporting year	Is this target part of an emissions target?	Is this target part of an overarching initiative?	Please explain (including target coverage)			
Achieved	This intensity target is part to the GHG emission reduction target for Scopes 1 & 2 (ABS3) on operated oil & gas facilities of 46 Mt CO <sub>2</sub> -e in 2015 to less than 40 Mt CO <sub>2</sub> -e in 2025. By targeting a zero-routine flaring in 2030, Total is also engaged to reduce methane emissions (ABS1- ABS2).	No	In 2019, the methane emission intensity for its upstream hydrocarbon activities operated gas facilities is around 0.10% of the commercial gas produced and the methane emissions represent 4% of the Group's GHG emissions (CO <sub>2</sub> -eq) and approximately 30% are related to flaring. The upstream Oil and Gas asset CH <sub>4</sub> emissions which represent 98% of the Group methane emissions in 2019. Total is as well acting to disseminate good practices, especially in terms of transparency. At the end of 2017, the Group signed with other oil & gas companies, as well as non-governmental and scientific organizations, guidelines on the responsible management of methane at the operational level, R&D and sustainable regulations (Methane Guiding Principles).			

## Methane targets

**(C-OG4.2c)** Indicate which targets reported in C4.1a/b incorporate methane emissions, or if you do not have a methane-specific emissions reduction target for your oil and gas activities, please explain why not and forecast how your methane emissions will change over the next five years.

Not applicable.

## Emissions reduction initiatives

**(C4.3)** Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

**(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.**

Stage of development	Number of initiatives	Total estimated annual CO2e savings in metric tons CO2e (only for rows marked *)
Under investigation	200+	
To be implemented*	250	2,500,000
Implementation commenced*	40	1,100,000
Implemented*	1	1,000,000
Not to be implemented	0	

**(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.**

Initiative category	Initiative type	Estimated annual CO2e savings (metric tons CO2e)	Scope	Voluntary/Mandatory	Annual monetary savings (unit currency, as specified in C0.4)	Investment required (unit currency, as specified in C0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency in production processes	Process optimization	1,000,000	1	Voluntary	30,000,000 USD	300,000,000 USD	21-25 years	> 30 years	Total has a 300 MUSD capital investment plan in energy efficiency in Downstream facilities. Monetary savings are estimated based on Total's internal carbon price. Based on externally available literature and internal studies, the investment required lies between 30 and 300 USD per ton of CO2.

**(C4.3c) What methods do you use to drive investment in emissions reduction activities?**

Method	Comment
Compliance with regulatory requirements / standards	EU ETS, Carbon Pollution Reduction Scheme (CPRS – Australia).
Dedicated budget for energy efficiency	In Exploration & Production and the Refining & Chemicals divisions.
Dedicated budget for low carbon product R&D	Approximately 30% of the Group's R&D budget dedicated to low carbon technologies.
Dedicated budget for other emission reduction activities	Total Ecosolutions program, and dedicated budget for CCS (CO2 capture and storage) R&D.
Employee engagement	Under consideration; projects are being defined.

Method	Comment
Internal price on carbon	New investments projects presented to the Executive Committee are evaluated using a long-term cost of 30 to 40 USD per ton of CO <sub>2</sub> emitted depending on the oil price scenario retained, or the actual price if it is higher in a given country. From the 1st of January 2020, Total applies an internal CO <sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO <sub>2</sub> in a given country if higher and since January 1 <sup>st</sup> , 2020, a CO <sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios.
Partnering with governments on technology development	In particular, with the French agency ADEME, and also through the participation in R&D JIPs (Joint Industry Projects) in Canada, Australia, Norway, Europe H2020.

## Low-carbon products

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**(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?**

Yes

**(C4.5a) Please provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.**

Level of aggregation	Description of product/ Group of products	Are these low-carbon product(s) or do they enable avoided emissions?	Taxonomy, project, or methodology used to classify product(s) as low-carbon or to calculate avoided emissions	% revenue from low-carbon product(s) in the reporting year	Comment
Group of products	<p><u>Total Ecosolutions:</u> Products or services that provide a significant competitive advantage in terms of environmental impacts reduction (reducing consumption of energy, water and other resources or environmental impact) when compared with the market standard. It represents 95 products and services as of the end of 2019. Among these products: Fuel Eco lubricants, motor fuels, bitumen, special fluids and solvents, polymers, resins, solar panels.</p> <p><u>Energy Efficiency:</u> White Certificates exist in various European countries (Italy, UK, France, etc.). In France, Total's compliance with energy efficiency certificate requirements has led to 50 TWhc/year of energy savings during the last 3 years. Total offers customers an energy efficiency consultancy service so that they can optimize their own energy consumption and reduce their GHG emissions. The GreenFlex acquisition (2017) forms part of this initiative. More than 700 companies have already been supported by GreenFlex.</p>	Avoided emissions	Other	10	<p>Total Ecosolutions Products represented about 10% of total net operating revenues of the Marketing &amp; Services business segment and 2 Mt CO<sub>2</sub> eq of avoided emissions.</p> <p>Avoided emissions related to White Certificates are estimated to 2Mt CO<sub>2</sub>eq per year. This estimation is based on an average ratio calculated by ADEME (Agence de l'Environnement et de la Maîtrise de l'Energie).</p>

Level of aggregation	Description of product/ Group of products	Are these low-carbon product(s) or do they enable avoided emissions?	Taxonomy, project, or methodology used to classify product(s) as low-carbon or to calculate avoided emissions	% revenue from low-carbon product(s) in the reporting year	Comment
Group of products	<p><u>Electricity:</u> Activities in electricity production from low carbon rely on Total Direct Energie, Total Quadran, Total Solar SunPower and Total Eren. Total is involved in electricity storage with Saft batteries. In 2018, Total acquired 4 CCGT power plants in France, global capacity 1.6 GW and G2Mobility smart recharging solution renamed Total EV Charge</p> <p><u>Natural Gas:</u> Total has made various acquisitions, i.e. Engie and Anadarko LNG assets in Mozambique, launched some major LNG projects: Ichthys, Yamal LNG, Cameron, Arctic LNG 2 project. In 2019, Total entered a partnership with the Adani group, India's largest private conglomerate in energy and gas infrastructures. In 2018, Total acquired a 25% stake in Clean Energy Fuels Corp., one of the leading distributors of gas fuel in the USA.</p> <p><u>Biofuels:</u> in 2019, 2.5 Mt blended sustainable biofuels, production of 0.24 Mt of sustainable biofuels in its refineries. Start-up of La Mède factory, with a capacity of 0.5 Mt per year of hydrotreated vegetable oil.</p>	Low carbon product	Other	10	<p>Cumulated GHG emissions of additional SunPower PV plant installed are compared to cumulated GHG emission of equivalent local electricity mix (kg CO2eq, over 30 years lifetime). The avoided emissions corresponding to SunPower PV plants installed by the end of 2019 are estimated at 9 Mt CO2. For the 2019 sales only, these are estimated at 2 Mt.</p> <p>Most low carbon businesses are under the responsibility of the new Gas, Renewables &amp; Power (GRP) segment. The revenues from sales of GRP represented approximately 10% of the Group revenues from sales in 4Q2019.</p>

## Methane reduction efforts

### (C-OG4.6) Describe your organization's efforts to reduce methane emissions from your activities.

For over thirty years, the Group has made the methane emissions reduction one of its priorities, originally for safety reasons. As part of its inspection and maintenance programs, as soon as a leak is detected, it is analyzed, repaired and the follow-up documented.

Since 2006, Total has implemented a Methane emissions reporting, which is verified yearly by a third party. This detailed reporting system operates at each site level, more accurately at each emitter type level, and the data are aggregated at each level up to the corporate level. The details of this reporting system were published through Society of Petroleum Engineers paper n°179288-MS. Since 2006, LDAR surveys are performed and Total has developed a dedicated Methane R&D program.

The methane intensity of the Total's operated scope is around 0.20% of the natural gas produced in 2019, methane emissions represents 4% of the Group's GHG emissions (CO<sub>2</sub> eq) and approximatively 30% are related to flaring. In 2020, Total has set a new methane target, to maintain the intensity of its gas assets below 0.1% of the commercial gas produced

Total is acting to eliminate routine flaring by 2030 as part of the World Bank's Global Gas Flaring Reduction, and thus to reduce the unburned Methane from flaring. Total is acting as well to limit the source of venting on its existing installation and future project,

Total has various R&D programs dedicated to improve knowledge on measurement, detection and quantification of methane emissions, and to accelerate new technologies (cost-efficient sensors, remote detection, satellite, modeling.). In 2018, the transverse anomaly detection infrastructure (TADI) was inaugurated. The TADI platform aims to test and qualify innovative technologies for gas leak detection and quantification. Two campaigns were performed in 2018 and one campaign in 2019 Total developed a dedicated monitoring program combining both aerial and ground based campaign, which will be deployed over the next years based on the typology of sites and the maturity of technologies.

As part of the Climate and Clean Air Coalition, the Group participates in the Oil & Gas Methane Partnership, a partnership between oil companies, governments and NGOs that promotes the measurement, control and reporting of methane emissions. In 2020, Total participated actively in the review of OGMP reporting framework, which will focus on reduction approaches, technology advancement and policy development, aiding the oil and gas industry in realizing deep reductions in methane emissions.

Within OGCI, for which the reduction of methane emissions is one of the main objectives, Total contributes to improving the knowledge of these emissions. OGCI provides technical and financial support for two global studies for which the complementary approaches (knowledge of global methane emissions and life cycle analysis across the entire gas chain) will help focusing investments.

Total is acting to disseminate good practices, especially in terms of transparency. At the end of 2017, the Group signed with other oil & gas companies, as well as non-governmental and scientific organizations, guidelines on the responsible management of methane at the operational level, R&D and sustainable regulations (Methane Guiding Principles).

Total supports policies to reduce methane emissions from natural gas production and consumption. In November 2019, Total wrote to the US agency in charge of the environment (US-EPA), through a public consultation process, to oppose the projected lowering of regulatory requirements on methane emission control in the oil and gas industry.

## Leak detection and repair

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**(C-OG4.7) Does your organization conduct leak detection and repair (LDAR) or use other methods to find and fix fugitive methane emissions from oil and gas production activities?**

Yes

**(C-OG4.7a) Describe the protocol through which methane leak detection and repair or other leak detection methods, are conducted for oil and gas production activities, including predominant frequency of inspections, estimates of assets covered, and methodologies employed.**

Since 2006, Total has engaged comprehensive leak detection and repair LDAR campaigns based on the use of Infra-Red cameras in most of its major upstream assets (Angola, Nigeria, UK, The Netherlands,...) and in 2019 approximately 80% of upstream affiliates are equipped with Infra-Red cameras (other affiliates using contracted services). Those campaigns are performed by affiliates or contractors on a yearly basis and repairs are done as soon as reasonably practical, Total's Refining operated sector is also completely covered by regular LDAR surveys using recognized methodologies

Total has various R&D programs dedicated to improve knowledge on measurement, detection and quantification of methane emissions, and to accelerate new technologies (cost-efficient sensors, remote detection, satellite, modeling.). In 2018, the transverse anomaly detection infrastructure (TADI) was inaugurated. The TADI platform aims to test and qualify innovative technologies for gas leak detection and quantification, Total is the only O&G company being equipped with such testing platform. Three campaigns were performed in 2018 and 2019.

Total is developing the Airborne Ultra-light Spectrometer for Environmental Application, or AUSEA, in partnership with France's National Center for Scientific Research (CNRS). AUSEA is a miniaturized sensor, fitted onto a commercial drone, that can detect methane and carbon dioxide. This emerging technology will make it possible to measure greenhouse gases, estimate their path and use models to trace them back to their source. Testing has been conducted at TADI and our industrial sites in the Netherlands, France and Nigeria.

Based on this expertise and experience, Total develops a dedicated monitoring program combining both aerial (satellite, drone) and ground based (Infra-Red Camera, fixed detection) campaigns which will be deployed over the next years depending on the type of site and the maturity of the technologies. In 2019, in Upstream, 7 kt of CH<sub>4</sub> emissions compared to 11 kt in 2018, were due to fugitives' losses and represents approximately 11% of the Total emissions (66kt in 2019). The main sources of fugitive losses could be valves, screwed connections, flanges, open-ended lines and pump seals, etc.

## Flaring reduction efforts

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**(C-OG4.8) If flaring is relevant to your oil and gas production activities, describe your organization's efforts to reduce flaring, including any flaring reduction targets.**

Reducing routine flaring has been a long-standing goal of the Group, with a commitment made in 2000 to have no continuous flaring of associated gas incorporated into the design of its new projects. The Group has supported the World Bank in developing and launching the Zero Routine Flaring initiative involving oil & gas companies, producing countries and international institutions. The initiative aims to support elimination of routine flaring by 2030. To ensure progression, an objective to decrease by 80% has been defined for 2020 compared to 2010, in other words, to achieve an average of 1.5 Mm<sup>3</sup>/day. This objective was reached in 2017.

Furthermore, as part of the Global Gas Flaring Reduction program, Total has worked alongside the World Bank for over 10 years to help producing countries and industrial players control routine flaring of associated gas.

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## C5 Emissions methodology

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### Base year emissions

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(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Please complete the following table:

Scope	Base year start	Base year end	Base year emissions (metric tons CO2e)	Comment
Scope 1	01.01.2010	31.12. 2010	51,600,000	
Scope 2 (location-based)	01.01.2010	31.12. 2010	5,400,000	

### Emissions methodology

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(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.



IPIECA's Petroleum Industry Guidelines for reporting greenhouse gas emissions, 2<sup>nd</sup> edition, 2011

## C6 Emissions data

### Scope 1 emissions data

**(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO<sub>2</sub>e?**

	2019	2018	2017
Scope 1 emissions (metric tons CO <sub>2</sub> e)	40,661,555	40,475,670	37,752,403

Since 2005, the Group has reduced the GHG emissions produced by its operated activities by 50% (Scope 1 & 2). This reduction entails reducing gas flared and improving energy efficiency.

Total's set of targets and commitment illustrates our efforts in reducing our direct GHG emissions through, in particular:

- a 80% reduction of operated routine flaring (according to the World Bank's Zero Routine Flaring initiative) over 2010-2020 with a view to eliminating it by 2030;
- a reduction of methane emissions intensity of Upstream hydrocarbons operated activities to less than 0.20% of the commercialized gas produced,
- a 1% per year on average improvement in energy efficiency of operated installations over 2010-2020;
- a reduction of operated Oil & Gas facilities GHG scope 1 and 2 emission from 46 Mt CO<sub>2</sub>e in 2015 to less than 40 Mt CO<sub>2</sub>e in 2025.
- to maintain the intensity of CO<sub>2</sub>e emissions of the facilities operated by the Group for its Upstream hydrocarbons activities lower than 20 kg CO<sub>2</sub>e/boe.

In 2020, Total announced its ambition to get to Net Zero Emissions by 2050 together with society.

### Scope 2 emissions reporting

**(C6.2) Describe your organization's approach to reporting Scope 2 emissions.**

Scope 2, location-based	Scope 2, market-based	Comment
We are reporting Scope 2, location-based figure.	We have operations where we are able to access electricity supplier emission factors or residual emissions factors, but are unable to report a Scope 2, market-based figure.	

## Scope 2 emissions data

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Please complete the following table:

Scope 2, location-based - 2019	Scope 2, location-based - 2018	Scope 2, location-based - 2017	Comment
3,596,127	3,742,356	4,000,000	Scope 2 emissions: indirect emissions attributable to energy consumption by site.

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

No

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

Not applicable

## Scope 3 emissions data

(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.

Scope 3 category	Evaluation status	Metric tons CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Please explain
Purchased goods and services	Not relevant, explanation provided				The percentage of purchased goods and services Scope 3 emissions is not significant and represents less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.

Scope 3 category	Evaluation status	Metric tons CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Please explain
Capital goods	Not relevant, explanation provided				The percentage of capital goods Scope 3 emissions is not significant and represents less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Not relevant, explanation provided				The percentage of Fuel-and-energy-related activities (not included in Scope 1 or 2) Scope 3 emissions is not significant and represents less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.
Upstream transportation and distribution	Not relevant, explanation provided				The percentage of upstream transportation and distribution Scope 3 emissions is not significant and represents much less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.
Waste generated in operations	Not relevant, explanation provided				The percentage of waste generated in operations Scope 3 emissions is not significant and represents much less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.
Business travel	Not relevant, calculated	72,900	This figure is provided by Total's global business travel agencies (it's a legal obligation in France).	100	The Business travel category is not relevant compared to the use of sold product category (0.02% = 72,900 / 410,000,000).
Employee commuting	Not relevant, calculated	72,200	Total had 107,776 employees at the end of 2019 and, on average, according to the French Statistics Bureau INSEE, the average consumption is 0.67 tCO <sub>2</sub> per annum.	100	The Employee commuting category is not relevant compared to the use of sold product category (0.02% = 72,200 / 410,000,000).

Scope 3 category	Evaluation status	Metric tons CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Please explain
Upstream leased assets	Not relevant, explanation provided				The percentage of upstream leased assets Scope 3 emissions is not significant and represents much less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.
Downstream transportation & distribution	Relevant, calculated	5,600,000	The methodology is based on the emission factors (in tons*km).	100	The detailed figures are collected for time charter and spot contracts, for sea, and river transport. The downstream transportation and distribution category represent around 1% of the use of product category (1% = 5,600,000 / 410,000,000).
Processing of sold products	Not relevant, explanation provided				The percentage of processing of sold products Scope 3 emissions is not significant and represents much less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.
Use of sold products	Relevant, calculated	410,000,000	The Group follows the Oil & Gas industry reporting guidelines published by IPIECA and which are conform to the GHG Protocol methodologies. Emissions are calculated based on sales of finished products for which the next stage is end use, in other words combustion of the products to obtain energy. A stoichiometric emission factor is applied to these sales (oxidation of molecules to carbon dioxide) to obtain an emission volume (see Total's 2019 Universal Registration Document, p. 232).	100	The Use of sold product is the main Scope 3 category for an Oil & Gas company.
End of life treatment of sold products	Not relevant, explanation provided				The percentage of end of life treatment of sold products Scope 3 emissions is not significant and represents much less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.

Scope 3 category	Evaluation status	Metric tons CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Please explain
Downstream leased assets	Not relevant, explanation provided				The percentage of downstream leased assets scope 3 emissions is not significant and represents much less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.
Franchises	Not relevant, explanation provided				The percentage of franchises Scope 3 emissions is not significant and represents much less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.
Investments	Not relevant, explanation provided				This percentage of investments Scope 3 emissions is not significant and represents much less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.
Other (Upstream)	Not relevant, explanation provided				This percentage of Other upstream Scope 3 emissions is not significant and represents much less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.
Other (Downstream)	Not relevant, explanation provided				This percentage of Other downstream Scope 3 emissions is not significant and represents much less than 1% of the emissions related to the use of sold products and to Downstream transportation and distribution.

## Carbon dioxide emissions from biologically sequestered carbon

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?

No

## Emissions intensities

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO<sub>2</sub>e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Please complete the following table:

Intensity figure	Metric numerator (Gross global combined Scope 1 and 2 emissions)	Metric denominator	Metric denominator: Unit total	Scope 2 figure used	% change from previous year	Direction of change	Reason for change
20	17,829,841,000 kg of CO <sub>2</sub> -eq	Other: barrel of oil equivalent (boe)	891,492,050	Location-based	0	No change	This intensity is calculated with the emissions scope 1 and 2 of the Upstream hydrocarbon activities divided by the 100% operated hydrocarbon combined production in barrel of oil equivalent. The objective of the Group is to maintain this intensity below 20 kg CO <sub>2</sub> -eq /boe.
30	15,945,594,000 kg of CO <sub>2</sub> -eq	Other: barrel of product	533,526,544	Location based	3	Increased	This intensity is calculated with the Scope 1 + 2 emissions of the refineries operated by Total (100% operated) divided by Total's refinery throughput (100% operated). Slight increase between 2019 (30 kg CO <sub>2</sub> -eq /bbl) compared to 2018 (29 kg CO <sub>2</sub> -eq/t) due to a slight decrease of Total's refinery throughput (100% operated).

## Emissions intensities: Oil and gas

**(C-OG6.12) Provide the intensity figures for Scope 1 emissions (metric tons CO<sub>2</sub>e) per unit of hydrocarbon category.**

Please complete the following table:

Unit of hydrocarbon category (denominator)	Metric tons CO <sub>2</sub> e from hydrocarbon category per unit specified	% change from previous year	Direction of change	Reason for change	Comment
Other: hydrocarbon combined production in barrel of oil equivalent	20	0	No change	New intensity calculation methodology in 2019. No change between 2018 and 2019.	This intensity is calculated with the emissions scope 1 of the Upstream operated hydrocarbon activities divided by the 100% hydrocarbon combined production in barrels of oil equivalent. The objective of the Group is to maintain this intensity below 20 kg CO <sub>2</sub> e/boe.
Thousand barrels of refinery throughput	28	4	Increased	Slight increase between 2019 (28 kg CO <sub>2</sub> -eq/t) compared to 2018 (27 kg CO <sub>2</sub> -eq/t) due to a slight decrease of Total's refinery throughput (100% operated)	This intensity is calculated with the Scope 1 emissions of the refineries operated by Total (100% operated) divided by Total's refinery throughput (100% operated).

**(C-OG6.13) Report your methane emissions as percentages of natural gas and hydrocarbon production or throughput.**

Please complete the following table:

Oil and gas business division	Estimated total methane emitted expressed as % of natural gas production or throughput at given division	Estimated total methane emitted expressed as % of total hydrocarbon production or throughput at given division	Comment
Upstream	0.20	0.10	<p>The intensity of the Oil and Gas assets methane emission is below</p> <ul style="list-style-type: none"> <li>0.20% if the denominator is commercial gas produced</li> <li>below 0.10% if the denominator is Oil and Gas production (tCH<sub>4</sub>/100t hydrocarbon).</li> </ul> <p>The Group's objective is to reduce its methane intensity for Oil and Gas facilities to below 0.2.</p>

## C7 Emissions breakdown

### Scope 1 breakdown: GHGs

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type providing the used global warming potential (GWP), and the source of each GWP.

Greenhouse gas	Scope 1 emissions (metric tons of selected GHG, in CO2e)	GWP Reference
CO <sub>2</sub>	38,548,421	IPCC Fourth Assessment Report (AR4 – 100 years)
CH <sub>4</sub>	1,691,586	IPCC Fourth Assessment Report (AR4 – 100 years)
N <sub>2</sub> O	421,548	IPCC Fourth Assessment Report (AR4 – 100 years)
Other:	0	

(C-OG7.1b) Break down your total gross global Scope 1 emissions from oil and gas value chain production activities by greenhouse gas type.

Emissions category	Value chain	Product	Gross Scope 1 CO <sub>2</sub> emissions (metric tons CO <sub>2</sub> )	Gross Scope 1 methane emissions (metric tons CH <sub>4</sub> )	Total gross Scope 1 GHG emissions (metric tons CO <sub>2</sub> e)	Comment
Combustion	Upstream	Oil	5,292,04	2,538	5,484,087	Gross scope 1 CO <sub>2</sub> combustion emissions are split between Oil and Gas (50%-50%).

Emissions category	Value chain	Product	Gross Scope 1 CO <sub>2</sub> emissions (metric tons CO <sub>2</sub> )	Gross Scope 1 methane emissions (metric tons CH <sub>4</sub> )	Total gross Scope 1 GHG emissions (metric tons CO <sub>2</sub> e)	Comment
Combustion	Upstream	Gas	5,292,048	2,538	5,484,087	Gross scope 1 CO <sub>2</sub> combustion emissions are split between Oil and Gas (50%-50%).
Combustion	Downstream	Unable to disaggregate	15,402,742	372	15,476,849	Refining
Flaring	Upstream	Oil	2,454,680	11,176	2,757,160	Gross scope 1 CO <sub>2</sub> emissions are split between Oil and Gas (50%).
Flaring	Upstream	Gas	2,454,680	11,176	2,757,160	Gross scope 1 CO <sub>2</sub> emissions are split between Oil and Gas (50%).
Flaring	Downstream	Unable to disaggregate	717,794	249	727,688	Refining
Venting	Upstream	Oil	1,036	14,123	354,107	Gross scope 1 CO <sub>2</sub> emissions are split between Oil and Gas (50%).
Venting	Upstream	Gas	1,036	14,123	354,107	Gross scope 1 CO <sub>2</sub> emissions are split between Oil and Gas (50%).
Fugitives	Upstream	Oil	0	5,317	132,930	Gross scope 1 CO <sub>2</sub> fugitive emissions are split between Oil and Gas (50%).
Fugitives	Upstream	Gas	0	5,317	132,930	Gross scope 1 CO <sub>2</sub> fugitive emissions are split between Oil and Gas (50%).
Fugitives	Downstream	Unable to disaggregate	0	464	11,595	
Process emissions	Upstream and Downstream	Unable to disaggregate	6,932,359	269	6,988,855	

**(C7.2) Break down your total gross global Scope 1 emissions by country/region.**

Country/Region	Scope 1 emissions (metric tons CO2e)
Europe	24,076,315
Africa	11,050,992
Americas	4,389,563
C.I.S. and Asia	385,273
Middle East	759,412

**(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.**

Select all that apply from the following options:

By business division

By facility

By activity

**(C7.3a) Break down your total gross global Scope 1 emissions by business division.**

Business division	Scope 1 emissions (metric tons CO2e)
Hydrocarbon Upstream Activities	17,672,994
Integrated Gas, Renewables and Power (excluding gas upstream activities)	2,275,968
Refining & Chemicals	20,307,277
Marketing & Services	105,316

## Scope 1: sector production activities

(C-OG7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

Sector production activity	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions, metric tons CO2e	Comment
Chemicals production activities	0		
Oil and gas production activities (upstream)	17,672,994		Hydrocarbon Upstream Activities
Oil and gas production activities (midstream)	2,575,968		Integrated Gas renewables and Power
Oil and gas production activities (downstream)	20,412,593		Refining & Chemicals, Marketing & Service

## Scope 2 breakdown: country

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Americas	1,086,271	-	3,313,846	-
Africa	54,240	-	143,957	-
CIS and Asia	156,167	-	426,332	-
Europe	2,239,678	-	9,286,176	-
Middle East	66,953	-	167,383	-

## Scope 2: business breakdowns

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business divisions	Scope 2, location-based emissions, metric tons CO <sub>2</sub> e	Scope 2, market-based emissions, metric tons CO <sub>2</sub> e
Upstream	156,847	-
Gas, Renewables & Power	193,038	-
Refining & Chemicals	3,085,292	-
Marketing & Services	147,160	-
Holding	13,790	-

## Scope 2: sector production activities

(C-OG7.7) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO<sub>2</sub>e.

Sector production activity	Scope 2, location-based, metric tons CO <sub>2</sub> e	Scope 2, market-based (if applicable), metric tons CO <sub>2</sub> e	Comment
Chemicals production activities	0	0	
Oil and gas production activities (upstream)	170,637	0	Hydrocarbon Upstream Activities + Holding
Oil and gas production activities (midstream)	193,038	0	Integrated Gas renewables and Power
Oil and gas production activities (downstream)	3,232,452	0	Refining & Chemicals, Marketing & Service

**(C-CH7.8) Disclose the percentage of your organization's Scope 3, Category 1 emissions by purchased chemical feedstock.**

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology
-	-	-

**(C-CH7.8a) Disclose sales of products that are greenhouse gases.**

	Sales, metric tons	Comment
CO <sub>2</sub>	-	-
CH <sub>4</sub>	-	-
N <sub>2</sub> O	-	-
Others: <a href="#">HFCs</a> , <a href="#">PFCs</a> , <a href="#">SF<sub>6</sub></a> , <a href="#">NH<sub>3</sub></a>	-	-

## Emissions performance

**(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?**

Increased

**(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.**

Reason	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	No major change in renewable energy consumption impacted scope 2 emissions between 2019 and 2018.
Other emissions reduction activities	0	No change	0	The Group has reduced by 50% the GHG emissions (Scopes 1 & 2) produced by its operated activities since 2005. This reduction was reached thanks to notably reducing flaring and improving energy efficiency.
Divestment	0	No change	0	

Reason	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Acquisitions	1,000,000	Increased	2%	Total's Scope 1+2 greenhouse gas emissions (operated scope) were 44 MtCO <sub>2</sub> -eq in 2018 and 45 MtCO <sub>2</sub> -eq in 2019 (therefore an increase of approx. 5% = $(44-45/44)*100$ , i.e. 1 MtCO <sub>2</sub> -eq) The increase in emissions is mainly explained by acquisition in 2019 and change in the reporting perimeter (CCGT and Gazocean). A decrease in global flaring is to be noticed in 2019, -12% compared to 2018 ( $+20\% = (6.5 - 5.7 / 6.5) * 100$ ) with routine flaring which has decreased by approximatively 18% in 2018. The decrease in flaring is due to better compressor reliability and shorter start-up in Africa.
Mergers	0	No change	0	No mergers in 2019.
Change in output	0	No change	0	No change in 2019.
Change in methodology	0	No change	0	No modification of the reporting methodology in 2019.
Change in boundary	0	No change	0	No modification of the reporting boundaries in 2019.
Change in physical operating conditions	0	No change	0	Although all our emissions are reported in our H@rpe system, we are not entering into that kind of details in the present report.
Unidentified	0	No change	0	
Other	880,000	Decreased	20%	Global flaring has decreased in 2019, -12% compared to 2018, ( $-20\% = (6.5 - 5.7 / 6.5) * 100$ ) and routine flaring has decreased 18% in 2018 ( $10\% = (1.1 - 0.9 / 1.1) * 100$ ). The decrease in flaring is due to better compressor reliability and shorter start-up in Africa. The volumes of routine gas flared gas totaled 0.9m <sup>3</sup> / d in 2018. It's assumed that 1 Mm <sup>3</sup> /day of flaring is equivalent to 1.1 Mt CO <sub>2</sub> per year.

**(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?**

Location-based

## C8 Energy

### Energy spend

**(C8.1) What percentage of your total operational spend in the reporting year was on energy?**

More than 50% but less or equal to 55%

*Note: Energy accounts for more than half of our refineries' operating costs.*

### Energy-related activities

**(C8.2) Select which energy-related activities your organization has undertaken.**

**Change from 2019:**

Activity	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

**(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

Energy carrier	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable + non-renewable) MWh
Consumption of fuel (MWh's in LHV)	LHV (lower heating value)	0	142,287,552	142,287,552
Consumption of purchased or acquired electricity	N/A	830,000	6,024,641	6,854,641

Energy carrier	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable + non-renewable) MWh
Consumption of purchased or acquired steam	N/A	0	2,957,544	2,957,544
Consumption of self-generated non-fuel renewable energy	N/A	0	N/A	0
Total energy consumption	N/A	830,000	151,269,737	152,099,737

**(C-CH8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.**

Energy carrier	Heating value	Total MWh
Consumption of fuel (MWh's in LHV)	LHV (lower heating value)	
Consumption of purchased or acquired electricity	N/A	
Consumption of purchased or acquired heat	N/A	
Consumption of purchased or acquired steam	N/A	
Consumption of purchased or acquired cooling	N/A	
Consumption of self-generated non-fuel renewable energy	N/A	
Total energy consumption	N/A	

**(C8.2b) Select the applications of your organization's consumption of fuel.**

Fuel application	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	No
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	No

**(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.**

Fuels	Heating value	Total MWh consumed by the organization	MWh consumed for the self-generation of electricity	MWh consumed for the self-generation of heat	Emission factor	Unit	Emission factor source	Comment
Natural gas	LHV (lower heating value)	127,433,192	127,433,192	0	2.7	metric tons CO <sub>2</sub> -e / metric ton	EU ETS Monitoring reporting guidelines	When required (e.g. EU ETS), fuel analyses are used. Such analyses are progressively extended throughout all our operations worldwide and are performed based on the frequency required by the quality control of the analysis of fuel components. Otherwise, Total uses standard emission factors (as stated in the European Guidelines and the API Guidelines where relevant).
Other: Liquid fuels	LHV (lower heating value)	4,367,588	4,367,588	0	3.1	metric tons CO <sub>2</sub> -e / metric ton	EU ETS Monitoring reporting guidelines	When required (e.g. EU ETS), fuel analyses are used. Such analyses are progressively extended throughout all our operations worldwide and are performed based on the frequency required by the quality control of the analysis of fuel components. Otherwise, Total uses standard emission factors (as stated in the European Guidelines and the API Guidelines where relevant).
Other: Solid fuels	LHV (lower heating value)	10,486,772	10,486,772	0				

**(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.**

Energy Carrier	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	6,310,000	4,313,020	2,000,000	0
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

**(C-CH8.2d) Provide details on electricity, heat, steam, and cooling your organization has generated and consumed for chemical production activities.**

Energy Carrier	Total Gross generation (MWh) inside chemicals sector boundary	Generation that is consumed (MWh) inside chemicals sector boundary
Electricity	N.A.	
Heat		
Steam		
Cooling		

## Feedstock consumption: Chemicals

**(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?**

Yes

**(C-CH8.3a) Disclose details on your organization's consumption of fuels as feedstocks for chemical production activities.**

Chemical feedstocks derive from 94% of oil primary resources, and 6% of natural gas.

**(C-CH8.3b) State the percentage, by mass, of primary resource from which your chemical feedstocks derive.**

Percentage of total chemical feedstock (%)	
Oil	93.87
Natural gas	6.0
Coal	0
Biomass	0.08
Waste (non-biomass)	0.05

## C9 Additional metrics

### Other climate-related metrics

**(C9.1) Provide any additional climate-related metrics relevant to your business.**

Please complete the following table:

Description	Metric value	Metric numerator	Metric denominator (intensity metric only)	% change from previous year	Direction of change	Please explain
Waste	65	% of recycled or valorized waste	Total waste	14	Increased	The increase in the valorization percentage in 2019 is mainly due to the valorization, at the biological treatment center, of 83kt of polluted soil resulting from remediation work related to the incident on the Île-de-France pipeline. The Group's valorization percentage would have been 60% without this soil.
Other: SO <sub>2</sub> emissions	39	Kt	N/A	2	Decreased	In 2010, SO <sub>2</sub> emissions totaled 99 kt, and the target for 2020 is to remain below 49.5 kt, a level reached in 2017.

Description	Metric value	Metric numerator	Metric denominator (intensity metric only)	% change from previous year	Direction of change	Please explain
Other: NOx emissions	72	Kt	N/A	9	Increased	NOx emissions mainly concern hydrocarbon exploration and production activities and are primarily located offshore and far away from the coast. Their impact on air quality is therefore considered to be minor. The increase in 2019 is mainly due to an increase in offshore drilling and logistics activities.
Other: HC content of water discharges, offshore	13	mg/l	N/A	8	Decreased	The Group's target is to maintain hydrocarbon content of water discharges below 30 mg/l for offshore sites. The hydrocarbon content is well below 30 mg/l, and 100% of sites have met the target.
Other: HC content of water discharges, onshore	1.7	mg/l	N/A	6	Decreased	The Group's target is to maintain hydrocarbon content of water discharges below 15 mg/l for onshore sites. The hydrocarbon content is well below 15 mg/l, and 100% of sites have met the target.

## 1P Oil and gas reserves and production

### (C-OG9.2a) Disclose your net liquid and gas hydrocarbon production (total of subsidiaries and equity-accounted entities).

Please complete the following table:

Hydrocarbon category	Year-end net production	Comment
Crude oil and condensate, million barrels	610	Equity share domain according to the United States Securities & Exchange Commission.
Natural gas liquids, million barrels	0	
Oil sands, million barrels (includes bitumen and synthetic crude)	0	
Natural gas, billion cubic feet	2,789	Equity share domain according to the United States Securities & Exchange Commission.

## 1P Methodologies

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**(C-OG9.2b) Explain which listing requirements or other methodologies you use to report reserves data. If your organization cannot provide data due to legal restrictions on reporting reserves figures in certain countries, please explain this.**

The definitions used for proved, proved developed and proved undeveloped oil and gas reserves are in accordance with the United States Securities & Exchange Commission (SEC) Rule 4-10 of Regulation S-X as amended by the SEC Modernization of Oil and Gas Reporting release issued on December 31, 2008. Proved reserves are estimated using geological and engineering data to determine with reasonable certainty whether the crude oil or natural gas in known reservoirs is recoverable under existing regulatory, economic and operating conditions. Total's oil and gas reserves are consolidated annually, taking into account, among other factors, levels of production, field reassessments, additional reserves from discoveries and acquisitions, disposal of reserves and other economic factors. Unless otherwise indicated, any reference to Total's proved reserves, proved developed reserves, proved undeveloped reserves and production reflects the Group's entire share of such reserves or such production. Total's worldwide proved reserves include the proved reserves of its consolidated subsidiaries as well as its proportionate share of the proved reserves of equity affiliates. The reserves estimation process involves making subjective judgments. Consequently, estimates of reserves are not exact measurements and are subject to revision under well-established control procedures.

The reserves booking process requires, among other things: that internal peer review of technical evaluations is carried out to ensure that the SEC definitions and guidance are followed; and that management makes significant funding commitments towards the development of the reserves prior to booking. The average reserve life of the Group's proved and probable reserves is approximately 20 years.

2P and 3P reserves are not disclosed as it is confidential information. As of December 31, 2019, 1P reserves are 12,681 Mboe for hydrocarbons, 6,006 Mboe for liquids and 36,015 BCF for Gas.

## Estimated total reserves 2P & 3P

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**(C-OG9.2c) Disclose your estimated total net reserves and resource base (million BOE), including the total associated with subsidiaries and equity-accounted entities.**

Estimated total net proved + probable reserves (2P) (million BOE)	Estimated total net proved + probable + possible reserves (3P) (million BOE)	Estimated net total resource base (million BOE)	Comment
			2P and 3P reserves are not disclosed as it is confidential information.

## Percentage split for 2P, 3P reserves

(C-OG9.2d) Provide an indicative percentage split for 2P, 3P reserves, and total resource base by hydrocarbon categories.

Hydrocarbon category	Net proved + probable reserves (2P) (%)	Net proved + probable + possible reserves (3P) (%)	Net total resource base (%)	Comment
Crude oil / condensate / Natural gas liquids				2P and 3P reserves are not disclosed as it is confidential information.
Natural gas				2P and 3P reserves are not disclosed as it is confidential information.
Oil sands (includes bitumen and synthetic crude)				2P and 3P reserves are not disclosed as it is confidential information.

## Percentage split for 1P, 2P, 3P production

(C-OG9.2e) Provide an indicative percentage split for production, 1P, 2P, 3P reserves, and total resource base by development types.

Development type	In-year net production (%)	Net proved reserves (1P) (%)	Net proved + probable reserves (2P) (%)	Net proved + probable + possible reserves (3P) (%)	Net total resource base (%)	Comment
						2P and 3P reserves are not disclosed as it is confidential information.

## Total refinery throughput

(C-OG9.3a) Disclose your total refinery throughput capacity in the reporting year in million barrels per year.

Total refinery throughput capacity	Throughput (Million barrels per year)
Capacity	715

## Feedstocks used in refinery

(C-OG9.3b) Disclose feedstocks processed in the reporting year in million barrels per year.

Feedstock	Throughput (Millions barrels)	Comment
Oil	543	Includes equity share of refineries in which the Group holds a direct or indirect interest.
Other feedstocks	67	Includes equity share of refineries in which the Group holds a direct or indirect interest.
Total	610	Includes equity share of refineries in which the Group holds a direct or indirect interest.

## Refinery products and net production

(C-OG9.3c) Are you able to break down your refinery products and net production?

Yes

(C-OG9.3d) Disclose your refinery products and net production in the reporting year in million barrels per year.

Product produced	Refinery net production (Million barrels)*not including products used/consumed on site
Gasolines	105
Other: Aviation fuels	68
Other: Diesel and heating oil	245
Other: Heavy fuels	30
Other: Other products	137

## Chemicals production

(C-OG9.3e) Please disclose your chemicals production in the reporting year in thousand metric tons.

Product produced	Production, thousand metric tons	Capacity, thousand metric tons
Other: Olefins		7,863
Other: Aromatics		6,995
Other: Polyethylene		2,223
Other: Polypropylene		2,990
Other: Polystyrene		1,013
Other: Others		116

## Low-carbon investments: Coal / Electric utilities / Oil & gas

(C-OG9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

Please complete the following table:

Investment in low-carbon R&D	Comment
Yes	In 2019, the Group invested \$968 million in Research & Development (R&D), compared to \$986 million in 2018 and \$912 million in 2017. There were 4,339 people dedicated to R&D activities in 2019 compared to 4,288 in 2018 and 4,132 in 2017. Total invested \$1.1 billion to prepare for the future, this includes the entire Research & Development (R&D) effort, as well as developments in the fields of digital, technology and the investments funded by Total Carbon Neutrality Ventures (Total's venture capital fund entirely dedicated to carbon neutrality activities is expected to have invested a total of \$400 million by 2023). As part of the Group's ambition to become the responsible energy major, in 2019 Total R&D finalized its strategic plan to determine its positioning for the next five years, together with its research programs portfolio. The Group's R&D is based around five focus areas that aim to address both the specific challenges of each segment and the Group's transverse challenges: Safety and environment; Low-carbon mix; Operational efficiency; New products; and Digital.

**(C-OG9.6a) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.**

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Other: Low carbon technologies	Applied research and development	21-40%	320,000,000	To achieve the Group's ambition to become the responsible energy major, Total R&D engages its employees in programs in five focus areas, that aim to address both the specific challenges in these segments and the Group's transverse issues. The program on energy mix is based on low-carbon energies combining gas and LNG (liquefied natural gas) technologies, sun and wind power, hybrid energy management systems, as well as battery technologies, CO2 capture, use and storage (CCUS) technologies, bioproducts, such as biofuels and biopolymers, hydrogen and recycling. 320 MUSD (excluding gas) corresponds to 33% of Total's 2019 R&D budget.

## Breakeven price (US\$/BOE)

**(C-OG9.7) Disclose the breakeven price (US\$/BOE) required for cash neutrality during the reporting year, i.e. where cash flow from operations covers CAPEX.**

Less than 30 USD / boe

## Transfers & sequestration of CO<sub>2</sub> emissions

**(C-OG9.8) Is your organization involved in the sequestration of CO<sub>2</sub>?**

Yes

**(C-OG9.8a) Provide, in metric tons CO<sub>2</sub>, gross masses of CO<sub>2</sub> transferred in and out of the reporting organization (as defined by the consolidation basis).**

CO <sub>2</sub> transferred – reporting year (metric tons CO <sub>2</sub> )	
CO <sub>2</sub> transferred in	0
CO <sub>2</sub> transferred out	0

**C-OG9.8b) Provide gross masses of CO<sub>2</sub> injected and stored for the purposes of CCS during the reporting year according to the injection and storage pathway.**

Injection and storage pathway	Injected CO <sub>2</sub> (metric tons CO <sub>2</sub> )	Percentage of injected CO <sub>2</sub> intended for long-term (>100 year) storage	Year in which injection began	Cumulative CO <sub>2</sub> injected and stored (metric tons CO <sub>2</sub> )
CO <sub>2</sub> used for enhanced oil recovery (EOR) or enhanced gas recovery (EGR)	330,000	30%	2017	339,000
CO <sub>2</sub> injected into a geological formation or saline formation for long-term storage	658,000	100%	2009	6,727,000
Other, please specify: Oil fields with full associated gas reinjection (high CO <sub>2</sub> content).	677,000	100%	2018	1,110,000

**(C-OG9.8c) Provide clarification on any other relevant information pertaining to your activities related to transfer and sequestration of CO<sub>2</sub>.**

Numbers provided are in Group share. They are based on estimates.

# C10 Verification

## Verification

**(C10.1) Indicate the verification/assurance status that applies to your reported emissions.**

Scope	Verification/assurance status
Scope 1	Third party verification or assurance process in place
Scope 2 (location-based or market-based)	Third party verification or assurance process in place
Scope 3	Third party verification or assurance process in place

**(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions and attach the relevant statements.**

Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported emissions verified (%)
Annual process	Complete	Limited assurance	Total's 2019 Universal Registration document (Chapter 5)	See pages 252-255	ISAE 3000	100

**(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.**

Scope 2 approach	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/ section reference	Relevant standard	Proportion of reported emissions verified (%)
Scope 2 location-based	Annual process	Complete	Limited assurance	Total's 2019 Universal Registration document (Chapter 5)	See pages 252-255	ISAE 3000	100

**(C10.1c) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.**

Scope 3 category	Verification or assurance cycle in place	Status in the current reporting year	Type of verification or assurance	Attach the statement	Page/ section reference	Relevant standard	Proportion of reported emissions verified (%)
Scope 3: Use of sold products	Annual process	Complete	Limited assurance	Total's 2019 Universal Registration document (Chapter 5)	See pages 252-255	ISAE 3000	100

**Other verified data**

**(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?**

Yes

**(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?**

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C4. Targets and performance	Progress against emissions reduction target	Article L. 225-102-1 of the French Commercial Code	Total's 2019 Universal Registration document (see pages 203-255). The external auditor EY verifies the social and environmental information. French companies have to report as per Article L. 225-102-1 of the French Commercial Code and disclose information on the Company and the entities included in the consolidation scope, in accordance with Article L. 233-16 of the French Commercial Code.
C5. Emissions performance	Year on year change in emissions (Scope 1 and 2)	Article L. 225-102-1 of the French Commercial Code	Total's 2019 Universal Registration document (see pages 203-255). The external auditor EY verifies the social and environmental information. French companies have to report as per Article L. 225-102-1 of the French Commercial Code and disclose information on the Company and the entities included in the consolidation scope, in accordance with Article L. 233-16 of the French Commercial Code.

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	Article L. 225-102-1 of the French Commercial Code	Total's 2019 Universal Registration document (see pages 203-255). The external auditor EY verifies the social and environmental information. French companies have to report as per Article L. 225-102-1 of the French Commercial Code and disclose information on the Company and the entities included in the consolidation scope, in accordance with Article L. 233-16 of the French Commercial Code.
C7. Emissions breakdown	Year on year change in emissions (Scope 1 and 2)	Article L. 225-102-1 of the French Commercial Code	Total's 2019 Universal Registration document (see pages 203-255). The external auditor EY verifies the social and environmental information. French companies have to report as per Article L. 225-102-1 of the French Commercial Code and disclose information on the Company and the entities included in the consolidation scope, in accordance with Article L. 233-16 of the French Commercial Code.
C8. Energy	Other: Energy efficiency	Article L. 225-102-1 of the French Commercial Code	Total's 2019 Universal Registration document (see pages 203-255). The external auditor EY verifies the social and environmental information. French companies have to report as per Article L. 225-102-1 of the French Commercial Code and disclose information on the Company and the entities included in the consolidation scope, in accordance with Article L. 233-16 of the French Commercial Code.
C9. Additional metrics	Other: Waste, water	Article L. 225-102-1 of the French Commercial Code	Total's 2019 Universal Registration document (see pages 203-255). The external auditor EY verifies the social and environmental information. French companies have to report as per Article L. 225-102-1 of the French Commercial Code and disclose information on the Company and the entities included in the consolidation scope, in accordance with Article L. 233-16 of the French Commercial Code.

# C11 Carbon pricing

## Carbon pricing systems

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

EU ETS

(C11.1b) Complete the following table for each of the emissions trading systems you are regulated by.

2020 - Please complete the following table.

System name	% of Scope 1 emissions covered by the ETS	% of Scope 2 emissions covered by the ETS	Period start date	Period end date
EU-ETS	60%	62%	01/01/2019	31/12/2019

Allowances allocated	Allowances purchased	Verified Scope 1 emissions in metric tons CO <sub>2</sub> e	Verified Scope 2 emissions in metric tons CO <sub>2</sub> e	Details of ownership	Comment
22,500,000	Not disclosed	24,000,000	2,240,000	Facilities we own and operate	Facilities owned and operated by Total (mainly in the Refining & Chemicals business segment). The number of allowance purchases is confidential information and is not disclosed.

**(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?**

Total's overall strategy and plans include:

- reducing GHG emissions resulting from our own operations and optimize energy efficiency, and
- optimizing CO<sub>2</sub> quotas management.

In Europe specifically, Total is fully organised to optimise compliance with the EU ETS, through a close monitoring of positions, improvement projects and, when necessary, market transactions: a dedicated organisation dealing with emissions trading and quota management was set up in 2005 consisting of operational desks in each business unit, and a centralized trading desk which intervenes in the open market on their behalf. Through this organisation, positions are monitored on a regular basis with a view to ensure optimised compliance by the end of each calendar year.

Total participates in the market, and the value of CO<sub>2</sub> is routinely taken into account in operational decisions of the business units participating in the scheme (such as power generation, energy project evaluation or refining optimisation). Additionally, through the integration of a CO<sub>2</sub> / carbon cost in all new capital expenditure decisions since 2008 of all its new projects / activities brought to Total's Excom directly integrate the impact of its future greenhouse gas emissions.

From 2016 to 2019, Total applies an internal CO<sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO<sub>2</sub> in a given country if higher and since January 1, 2020, a CO<sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios in the economic calculations for all new projects worldwide.

Total anticipates participating in trading schemes other than the EU ETS in the coming years (in China, USA, Canada, Kazakhstan, Mexico), depending on emerging regulations.

## Project-based carbon credits

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**(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?**

No

## Internal price on carbon

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**(C11.3) Does your organization use an internal price on carbon?**

Yes

**(C11.3a) Provide details of how your organization uses an internal price on carbon.**

Objective for implementing an internal carbon price	GHG Scope	Application	Actual price(s) used (Currency /metric ton)	Variance of price(s) used	Type of internal carbon price	Impact & implication
<ul style="list-style-type: none"> <li>• Change internal behavior</li> <li>• Drive low-carbon investment</li> <li>• Stress test investments</li> </ul>	Scope 1	To ensure that investment projects are as profitable as anticipated in the desirable event that the international community agrees to put a cost on CO <sub>2</sub> emissions, investments have been valued between 2008 and 2015 based on a cost of 25€ per ton of CO <sub>2</sub> emitted. As of 2016, new investments projects presented to the Executive Committee are evaluated using a long-term cost of 30 to 40 USD per ton of CO <sub>2</sub> emitted depending on the oil price scenario retained, or the actual price if it is higher in a given country. From the 1 <sup>st</sup> of January 2020, Total applies an internal CO <sub>2</sub> price of \$30 to \$40 per ton (depending on the price of crude oil), or the actual price of CO <sub>2</sub> in a given country if higher and since January 1, 2020, a CO <sub>2</sub> price of \$40/t with a sensitivity of \$100/t as from 2030, independent of the Brent price scenarios.	40 USD / ton	100 USD / ton by 2030	Shadow price	Taking into account for investment project decisions.

## C12 Engagement

### Value chain engagement

**(C12.1) Do you engage with your value chain on climate-related issues?**

- Yes, our suppliers
- Yes, our customers
- Yes, other partners in the value chain

**(C12.1a) Provide details of your climate-related supplier engagement strategy.**

Type of engagement	Details of engagement	% of suppliers by number	% total procurement spend (direct and indirect)	% of supplier-related Scope 3 emissions as reported in C6.5	Rationale for the coverage of your engagement	Impact of engagement, including measures of success
Innovation & Collaboration (changing markets)	Other: Innovation & Collaboration	100%	100%	N.A.	The Group ensures that contractual conditions are negotiated in an equitable manner with its suppliers. The Code of Conduct restates this requirement and the three essential principles that guide Total's relations with its suppliers: dialogue, professionalism and the fulfilment of commitments: respect for human rights at work, the protection of health, security and safety, preservation of the environment, prevention of corruption and of conflicts of interest and the fight against fraud, respect for competition law, as well as the promotion of economic and social development. This program covers 100% of the Group suppliers.	A Responsible Procurement roadmap, which was updated in 2019, defines Total's guidelines for 2019-2023 in terms of respecting human rights throughout the supply chain, environment and economic development.

**(C12.1b) Give details of your climate-related engagement strategy with your customers.**

Type of engagement	Details of engagement	% of customers by number	% customer-related Scope 3 emissions as reported in C6.5	Please explain the rationale for selecting this group of customers and scope of engagement	Impact of engagement, including measures of success
Innovation & Collaboration	Other: Innovation & Collaboration		10%	<p>Emissions at sites related to our operations (Scope 1 and 2 emissions) are within our control, and as a result we can take the necessary steps to reduce them. But emissions related to the use of our products by Total customers (Scope 3 emissions) depend primarily on the choices they make. We closely monitor customer demand and consumption habits as part of our desire to help customers generate fewer carbon emissions across the life cycle of the products they use. To this end, we have developed a carbon intensity indicator that evaluates the average greenhouse gas emissions for the energy products used by our customers. It lets us track customer demand for lower-carbon products and keep tabs on the pace of the energy transition.</p> <p>Our Strategy, R&amp;D and Marketing teams have constant interaction with customers in order to assess changes and emerging needs. The</p>	<p>Total's ambition is to reduce that carbon intensity by 15% between 2015 — the year of the Paris Agreement — and 2030. In the longer term, beyond 2030, our ambition is to maintain or even accelerate this rate of reduction, depending on developments in technology and public incentive policies. That would add up to a total decrease of 35% by 2040 and 60% by 2050. The carbon intensity of the products used by Total customers has already decreased by 6% at end of 2019.</p> <p>At the end of 2019, 95 different products and services had received the Total Ecosolutions label. According to our estimates, based on a comparison with reference products and services offering an equivalent outcome for the customer, the use of Total Ecosolutions products and services sold in 2019 avoids 2,200,000 metric tons of carbon dioxide emissions (on the whole life cycle).</p> <p>White Certificates (or Energy Efficiency Certificates) exist in various European countries (Italy, UK, Denmark,</p>

Type of engagement	Details of engagement	% of customers by number	% customer-related Scope 3 emissions as reported in C6.5	Please explain the rationale for selecting this group of customers and scope of engagement	Impact of engagement, including measures of success
				<p>Total Ecosolutions program, which was launched in 2009, streamlines the work and exchanges between the Strategy, R&amp;D, Innovation and Marketing teams, in order to design and promote new products and services to help our customers (both businesses and consumers) to reduce their environmental footprint such as energy consumption. Total's priority targets are our main B2B (business to business) customers.</p> <p>Sales with the Total Ecosolutions program contribute to around 10% of the Marketing &amp; Services segment Net Operating Income.</p>	<p>France, etc.). In France, Total's compliance with energy efficiency certificate requirements has led to:</p> <ul style="list-style-type: none"> <li>○ Around 100 direct and indirect jobs being created.</li> <li>○ 100,000 energy efficiency operations annually, involving insulation solutions and furnace upgrades.</li> <li>○ An enhanced customer relationship that can stimulate new solutions.</li> <li>○ Participation in car pooling initiatives involving 150,000 drivers.</li> <li>○ Actions that encourage 40,000 Total employees to cut their energy use at home.</li> </ul>

**(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.**

Total shares society's goal of achieving zero net emissions from its global operations by 2050, through its production and the energy products used by its customers, and is joining forces with multiple players in the value chain, such as:

- Coalition for the energy of the future to support and accelerate the joint development of tangible energy solutions, therefore directly contributing to the reduction of carbon intensity of the transportation and logistics sectors (marine, road transportation...).
- - Getting to net zero coalition to support the maritime industry's decarbonisation by collaborating with companies across the maritime, energy, infrastructure and finance sectors.
- The Getting to Zero Coalition's ambition is to help achieve the target set by the International Maritime Organisation to reduce Greenhouse Gases emissions from shipping by at least 50% by 2050 - compared to 2008 levels. The Coalition is aiming, through its members, at getting commercially viable deep-sea zero-emission vessels powered by zero-emission fuels into operation by 2030. The Getting to Zero Coalition was launched in September 2019 as a partnership between the Global Maritime Forum, the Friends of Ocean Action and the World Economic Forum. It comprises over 120 public and private organisations and has been endorsed by governments of 14 countries, including France and the UK.
- Clean Sky for tomorrow. With air travel predicted to double by 2035, the aviation sector could represent a significantly higher share of GHG emissions by 2050 compared to its 2-3% share today. The Clean Skies for Tomorrow Coalition provides a crucial mechanism for top executives and public leaders, across and beyond the aviation value-chain, to align on a transition to sustainable aviation fuels as part of a meaningful and proactive pathway for the industry to achieve carbon-neutral flying. Clean Sky for tomorrow was launched in 2019 by the World Economic Forum, along with Airbus, Boeing, Air Transport Action Group, Shell, Heathrow, Schiphol.

- Engagement pour une croissance verte with the French Ministry of Ecology and Inclusive Transition and the French Ministry of Transportation in France, As part of these commitments, five key players in French biojet fuel (Air France, Airbus, Safran, Suez and Total) are currently conducting a study to define the optimal conditions for producing and marketing clean fuels for air transportation.

Our shipping division closely monitors our contractors' emissions performance. In 2019, time-chartered ships navigated to economic speed as often as possible and thus reduced emissions. In addition, an effort is made to improve the energy efficiency of the fleet when the units are renewed.

## Public policy engagement

**(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?**

- Direct engagement with policy makers
- Trade associations
- Funding research organizations
- Other

**(C12.3a) On what issues have you been engaging directly with policy makers?**

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
European Union 2030 objectives	Support	Total supports the EU enhanced ambition on GHG emission reduction targets for 2030.	Total advocates for a technology-neutral and coherent set of European rules and will follow up on the various proposals due in 2020 and 2021.
European Green Deal	Support	Total supports the ambition of the European Union to become climate neutral by 2050 and has taken the commitment to reach Net Zero across all its production and energy products used by its customers in Europe by 2050 or sooner (scope 1+2+3).	Total is in favor of a green recovery package and is advocating for the introduction of a Carbon Border Adjustment Mechanism.
Cap and Trade	Support with minor exceptions	Total supports market-driven carbon emission reduction systems.	Strengthen international agreement for the limitation of GHG emissions through carbon market implementation and industry protection.

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Flaring reduction	Support	In 2014, Total joined the initiative launched by the World Bank and made a commitment to eliminate routine flaring from its operations by 2030.	Total advocates the emergence of local regulations in producing countries in order to stimulate infrastructures and gas to power projects that would help to reduce flaring.
Methane regulation	Support	Total supports policies to reduce methane emissions from natural gas production and consumption. In November 2019, Total wrote to the US agency in charge of the environment (US-EPA), through a public consultation process, to oppose the projected lowering of regulatory requirements on methane emission control in the oil and gas industry.	Total advocates for methane policies and regulations that incentive early actions, drive performance improvement, facilitates proper enforcement and support flexibility and innovation.
Carbon tax / Paying for carbon	Support	In 2014, Total decided to join the call of the United Nations Global Compact, which encourages companies to consider a CO <sub>2</sub> price internally and publicly support the importance of such a price via regulation mechanisms suited to the local contexts. Total now also helps to deploy the World Bank's Carbon Pricing Leadership Coalition (CPLC). Total is founding member of the Climate Leadership Council advocating for a carbon dividend mechanism.	Total advocates the introduction of carbon pricing frameworks in all countries.

**(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?**

Yes

**(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.**

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you influenced, or are you attempting to influence the position?
CEFIC (European Chemical Industry)	Consistent	CEFIC is a European chemical industry trade association. It supports the fight against climate change and the Commission's ambition to transform the EU into a competitive low carbon economy. The EU Emissions Trading System (ETS) is a key instrument in the implementation of this common ambition. The ETS reform provides a real opportunity to create a dynamic, flexible system for carbon leakage protection that would retain the current incentives while fostering companies that wish to invest and grow in the EU.	The head of the Refining & Chemicals business segment of Total is a CEFIC Board Member. Total also participates in various CEFIC working groups on Energy and Climate.
EpE	Consistent	The French "Entreprises pour l'Environnement" association has published in May 2019 the "ZEN 2050" report about the feasibility of reaching net zero emissions in 2050 in France.	Total's CEO is an active member of the board of EpE.
ERT	Consistent	The European Roundtable of Industrialists has an Energy Transition & Climate Change Working Group working on issues such as European energy security strategy and European policy framework for energy and climate change, including carbon pricing.	Total's CEO is an active member of the ERT.
Fuels Europe	Consistent	Fuels Europe recognizes that climate change is a global challenge, which requires global actions.	Total participated in the Working Groups on Transportation issues that published the Vision 2050 report (how to best mitigate and reduce GHG emissions of the refining sector and its products).
IOGP	Consistent	The International Oil & Gas Producers association supports the international community's commitment to address the global challenge of climate change. IOGP also believes that the Oil and Gas industry is very much a part of the solution to this challenge and that it can be addressed while meeting society's future energy needs.	Total is an active member of the Energy & Climate working Group of IOGP.
IPIECA	Consistent	In support to the UNFCCC's work, IPIECA has launched, in November 2016, a report called "Exploring low-emissions pathways: Advancing the Paris Puzzle". This publication builds on IPIECA's 2015 Paris Puzzle, providing perspective on the common elements and enablers of pathways to meet a low-emissions future.	Florent Journet-Cuenot (Total) was co-chair of the Climate Change working group of IPIECA, who produced these two papers.
OGCI (Oil & Gas Climate Initiative)	Consistent	Launched in early 2014, the Oil and Gas Climate Initiative currently has 13 members: BP, Chevron, CNPC, Eni, Equinor, ExxonMobil, Occidental Petroleum, Pemex, Petrobras, Repsol, Saudi Aramco, Shell and Total.  The vision of the OGCI is to become a more recognized and ambitious provider of practical solutions to climate change mitigation. The values of the OGCI are based upon a bottom-up, voluntary, industry-led initiative that encourages a wide range of actors in the oil and gas industry to work in a collaborative manner to deliver a tangible, credible, transparent and integrated contribution to climate change solutions.	Total CEO is an active member of the OGCI CEOs Steering Committee. Jérôme Schmitt (Total) is the chair of the Executive Committee of OGCI. Several people of Total's corporate Strategy & Climate team are very active in this association.

Trade association	Is your position on climate change consistent with theirs?	Please explain the trade association's position	How have you influenced, or are you attempting to influence the position?
WBCSD	Consistent	The World Business Council for Sustainable Development has a Climate Policy Working Group focusing on issues such as Paris Agreement implementation, carbon pricing and Science-Based Targets (SBTs).	Total has been actively involved on the subject of the TCFD with the WBCSD: Total's CEO signed in 2017 the "CEO guide to climate-related financial disclosure" and in 2017 and 2018 Total participated in the TCFD Oil & Gas Preparer Forum and the subsequent publication of the "Climate-related financial disclosure by oil and gas companies" report. Total also participates to the working group on Natural Climate Solutions.
ACC	Mixed	The American Chemistry Council has adopted a set of Climate Policy Principles. The main ones are that policies must take into account the US oil and gas resources, that they should be at federal level and technology neutral and protect the US industry competitiveness. However, they have expressed opposition to the Clean Power Plan defined in 2015 by the EPA.	The head of Total Americas' Refining and Petrochemicals Business Unit is a member of the board of ACC.
API	Mixed	The American Petroleum Institute is the main trade association for Oil and Gas in the USA. It considers climate change an important issue and is engaging to address this complex global challenge. However, API does not have an official position on Carbon pricing but has often been critical of putting a price on carbon. Also, API has supported the rollback of methane emissions regulations which Total has opposed.	Total is a member of the newly created Climate committee of the API where climate-related subjects will be discussed.
CAPP	Inconsistent	The Canadian Association of Petroleum Producers is in principle supportive of climate-related subjects such as the elimination of flaring, the reduction of methane emissions and the development of CCS. However, their position lacks clarity on the subject of carbon pricing. Additionally, in their March 2020 letter to the Canadian government in the context of the COVID-19 crisis, CAPP took some public positions that are not aligned with our climate positions. On May 5, 2020, Total therefore decided not to renew its membership.	Total E&P Canada CEO had numerous exchanges with the association in 2019-2020, as a member of the Board of Governors.

**(C12.3d) Do you publicly disclose a list of all research organizations that you fund?**

Yes

**(C12.3e) Provide details of the other engagement activities that you undertake.**

Total actively engages with policy makers on climate change related issues and other topics through a number of either worldwide, European or national (i.e. French) trade organizations (IPIECA, IOGP, WBCSD, AFEP, ERT, MEDEF, UFIP, CEFIC, EUROPIA, CONCAWE, IDDRI...), and also as an individual company. For instance, in 2019, Total continued to sponsor, at the Paris Dauphine University in France, a chair on the economics of climate.

Total also supports the following organizations and initiatives:

- The World Bank's Zero Routine Flaring by 2030 initiative.
- The Climate and Clean Air Coalition's Oil & Gas Methane Partnership.
- The U.N. Global Compact's Caring for Climate initiative.;
- The World Bank's Carbon Pricing Leadership Coalition.
- The French Business Climate Pledge, a commitment by 99 French companies to combat climate change.
- The Climate Leadership Council, which promotes a carbon dividends framework as a pragmatic solution to tackle climate change.
- A Coalition to Contribute to Universal Access to Energy, bringing together 25 international businesses and organizations.
- The coalition for the energy of the future which supports and accelerates the joint development of tangible energy solutions, therefore directly contributing to the reduction of carbon intensity of the transportation and logistics sectors (marine, road transportation...).
- Getting to net zero coalition which supports the maritime industry's decarbonisation by collaborating with companies across the maritime, energy, infrastructure and finance sectors.
- The Terrawatt Initiative, which brings together key players in the private sector to promote affordable solar energy around the world.
- Clean Sky for Tomorrow coalition which provides a crucial mechanism for top executives and public leaders, across and beyond the aviation value-chain, to align on a transition to sustainable aviation fuels as part of a meaningful and proactive pathway for the industry to achieve carbon-neutral flying.

**C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?**

Total has adopted a lobbying ethics charter that is published on its website ([www.total.com](http://www.total.com)). It governs Total's practices and ensures that our publicly stated positions are clearly communicated to our professional organizations or associations. The consensus required by these organizations does not always reflect our position. In such cases, Total believes that it is preferable to promote its ideas from within by working to convince its peers of to adopt its position, rather than leave the discussions. Total's participation in these organizations, beneficial in many ways including sharing of best practices, does not prevent us from publicly defending our positions, even when they differ from those of the organizations to which Total belongs. In the event of a difference, Total's position prevails. Mindful of the need to be fully transparent on climate-related issues, Total is committed to publishing a list of all of the professional organizations and associations of which Total is a member.

The Climate-Energy steering committee is a cross-functional committee, under the responsibility of the Director of the Strategy & Climate division and which includes representatives of diverse divisions such as HSE, Strategy & Climate (at corporate and business segments levels). Its aim is to coordinate, streamline and optimize the Group's climate change positions and engagement and the overall management of CO<sub>2</sub> policies around the world as well as to contribute to improving the energy efficiency of our installations by setting objectives and following the achievements. The Climate-Energy steering committee meets at least two times per year. It prepares the set of objectives for the Group in terms of emissions reduction. Then these objectives are approved by the Executive Committee. The Climate-Energy steering committee is Total's main tool to ensure that our activities that influence policy are consistent with our overall climate change strategy.

## Communications

**(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).**

Publication	Status	Attach the document	Page/section reference	Content elements	Comment
In mainstream reports, incorporating the TCFD recommendations	Complete	Total's 2019 Universal Registration Document	Chapter 3, p. 84-85, p. 95, p. 121-125 Chapter 5, p. 227-234	<ul style="list-style-type: none"> <li>• Governance</li> <li>• Strategy</li> <li>• Risks &amp; opportunities</li> <li>• Emissions figures</li> <li>• Emission targets</li> <li>• Carbon pricing</li> </ul>	
In other regulatory filings	Complete	Total's 2019 Form 20-F document	Chapter 3, p. 84-85, p. 95, p. 121-125 Chapter 5, p. 227-234	<ul style="list-style-type: none"> <li>• Governance</li> <li>• Strategy</li> <li>• Risks &amp; opportunities</li> <li>• Emissions figures</li> <li>• Emission targets</li> <li>• Carbon pricing</li> </ul>	
In voluntary communications	Complete	Total's Climate report - November 2019	Full report	<ul style="list-style-type: none"> <li>• Governance</li> <li>• Strategy</li> <li>• Risks &amp; opportunities</li> <li>• Emissions figures</li> <li>• Emission targets</li> <li>• Carbon pricing</li> </ul>	

## C15 Signoff

**(C15.1) Provide details for the person that has signed off (approved) your CDP climate change response.**

Job title	Corresponding job category
Patrick POUYANNÉ - Chief Executive Officer - Board chair	Board chair