

# PATH TO DECARBONIZATION

# ENIFOR 2017



Eni has long been committed to promoting the complete and effective disclosure on climate change and it is the only company among Oil & Gas peers to be part of the Task Force on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board which, at the end of June 2017, published the voluntary recommendations to promote an effective disclosure of the financial implications linked to climate change. In this perspective, Eni is engaging in a progressive implementation of these recommendations.





Message to our stakeholders Main results and targets 2 4

| CLIMATE  | RISK  |        | CLIMATE   |                            | METRICS  |                               |
|--|---|--------|---|----------------------------|--|-------------------------------|
| <b>GOVERNANCE</b> 6  | MANAGEMENT  | 10     | STRATEGY  | 16                         | & TARGETS  | 32                            |
| Organization's governance<br>around climate-related risks<br>and opportunities.<br>Role of the Board of Directors<br>and Board's Committees 6<br>Role of management 7<br>Interview to<br>Christiana Figueres 9 | How the organization ide<br>assesses and manages cli<br>related risks.<br>Integrated climate<br>risk management model<br>Risks and opportunities<br>related to climate change | imate- | Actual and potential impact<br>of climate-related risks<br>and opportunities on the<br>organization's businesses,<br>strategy and financial<br>planning where such<br>information is material.<br>Eni's reference scenario<br>Eni strategy<br>1 Reduction of GHG<br>emissions<br>2 Low carbon Oil & Gas<br>Portfolio<br>3 Development of green<br>investments<br>4 Research and Development<br>for the energy transition<br>Interview to<br>R. C. Armstrong (MIT) | 16<br>17<br>18<br>21<br>25 | Metrics and targets<br>assess and manage<br>climate-related risk<br>opportunities where<br>information is mate | e relevant<br>s and<br>e such |

Climate change partnerships Climate disclosure 30 31



The 17 Sustainable Development Goals by 2030 (SDGs), promoted by the United Nations, are a reference for Eni to address development projects in a long-term perspective.

The index of this document is based on the dashboard which represents the four thematic areas covered by the recommendations of the Task Force on Climate-related Financial Disclosures - TCFD (June 2017).

# MESSAGE TO OUR STAKEHOLDERS

The energy industry is facing a dual challenge: guaranteeing access to low-cost energy to the entire global population, which will grow from 7 to 9 billion people by 2040, whilst ensuring this happens sustainably, limiting the temperature rise to within 2 °C. Eni has long set an integrated strategy for energy transition towards a low carbon future that is based on 4 main pillars. These are the reduction of direct GHG emissions from our production activities, a portfolio of low-cost and low-carbon activities and projects, the development of new green projects and investment in Research and Development - a fundamental and transversal element in all our activities to achieve maximum efficiency and underpin energy transition. This document, born as a collection of the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD), where Eni is the only participating Oil & Gas company, is a commitment to transparency that aims to increase dialogue with our stakeholders. It is an important opportunity to showcase our business model which is focused on long-term sustainable growth, and our solid governance. Our approach has always been proactive. We have always focused on innovation and technological development as a driver of growth, and in decarbonization, we have seized an opportunity for transformation and efficiency, looking at our assets through a new lens. It was for this that we launched our green businesses, where Eni was the first company to convert a traditional refinery into a bio-refinery through its own proprietary technology, to develop green chemistry, as well as to implement new "waste-to-fuel" and circular economy projects. We have started renewable projects, in synergy with our remediation activities and our asset management, giving new life to reclaimed areas to produce energy from solar and wind power and promoting a cleaner energy mix in the Countries where we operate.

We have been working to reduce flaring emissions by generating energy for local development and producing electricity for domestic consumption. Overall, in Sub-Saharan Africa, today we provide electricity to 18 million people and we aim at extending this model elsewhere. For the future, we have already outlined a decarbonization road map that we are following with commitment, determination and with the involvement of all our people, starting from the Board of Directors, with whom there is constant dialogue on these issues also thanks to the support of the Sustainability and Scenarios Committee and, as of 2017, of the Advisory Board. We set ourselves challenging targets to 2025 to reduce the emission intensity of our upstream operations by 43% compared to 2014 levels. We have developed a portfolio of low-cost, low-carbon activities and projects and, stimulating the production of new, cleaner and more efficient "bio" fuels and materials thanks to our innovative research. Moreover, thanks to the application of a unique and distinctive model, which leverages existing synergies with the producing assets in our Countries, we aim at the growth of investments in renewable energies to reach 5 GW of capacity by 2025.

We strongly believe in the need for and the effectiveness of a joint commitment of all the Oil & Gas companies on the energy transition and decarbonization issues. This is why we were one of the five companies that founded the Oil & Gas Climate Initiative (OGCI) in 2015, and why we participate in the most significant international partnerships on these issues, such as the World Bank's Global Gas Flaring Initiative and the Climate and Clean Air Coalition led by the United Nations Environment Programme. In the awareness of our role and responsibility, we follow a path that involves courageous and shared choices, but above all, the ability to question received knowledge, looking at the scenario and at our activities from a new perspective. Today, more than ever, in the face of phenomena of unprecedented and extraordinary complexity, we need to be ambitious and provide future generations with a model for sustainable development, making the most of innovation and our skills.

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Claudio Descalzi Chief Executive Officer

### → ENI CLIMATE STRATEGY



### REDUCTION OF GHG EMISSIONS

- Reduction of carbon intensity of the different businesses through energy efficiency initiatives
- Zeroing of process flaring
- Abatement of fugitive methane emissions
- Use of carbon offsets for emissions compensation



- Greater incidence of natural gas in the hydrocarbon resources
- Upstream projects in execution with a low breakeven price
- Conventional and low CO<sub>2</sub> intensity
- hydrocarbon portfolio, resilient to a low carbon scenario



- Development of renewables on industrial scale
- Green refinery: main producer of green diesel in Europe
- Green chemistry: new platform of bio-based products



### RESEARCH AND DEVELOPMENT PARTNERSHIPS

Development of innovative and transversal solutions for all company's activities by leveraging on proprietary technologies
 Development of technologies to support energy transition with the Energy Transition Program
 Global network of partnerships



# PATH TO DECARBONIZATION

# MAIN RESULTS AND TARGETS

|   |                           | 2015   | 2016   | 2017   |
|---|---------------------------|--------|--------|--------|
| GHG emissions/100% operated hydrocarbon gross production (upstream) | (tCO <sub>2</sub> eq/tep) | 0.177  | 0.166  | 0.162  |
| Non-combusted methane and fugitive emissions (upstream)             | (tCH <sub>4</sub> )       | 91,416 | 72,644 | 38,819 |
| Volumes of hydrocarban sent to flaring                              | (MSm³)                    | 1,564  | 1,530  | 1,556  |
| Equity hydrocarbon production <sup>(a)</sup>                        | (kboe/day)                | 1,760  | 1,759  | 1,816  |
| Incidence of natural gas on total equity hydrocarbon production     | (%)                       | 48     | 50     | 53     |
| Biorefinery capacity  | (Kt/y)                    |        | 360    |        |
| Green Investments   | (€ MIn)                   | 29     | 50     | 110    |
| R&D total expenditures  | (€ MIn)                   | 176    | 161    | 185    |
| of which related to decarbonization <sup>(b)</sup>                  | (€ MIn)                   | -      | 63     | 72     |

(a) Hydrocarbon production from fields fully operated by Eni (Eni's interest 100%) amounting to 137 mln toe, 122 mln toe and 125 mln toe in 2017, 2016 and 2015, respectively. (b) This classification is material since 2016 with the start-up of the Energy Transition Program related to the new R&D structure.

Eni has undertaken a decarbonization path to meet the crucial challenge of the energy sector: the transition to a low carbon future and the access to resources for a growing world population. In this direction, the strategy adopted includes, in addition to the reduction of direct GHG emissions, a resilient portfolio of hydrocarbons in which natural gas plays a central role, the development of green businesses and the commitment to the research and development of innovative solutions to support all the activities.

### PLLARS OF ENI'S STRATEGY

|  | COMMITMENTS  | TARGETS   |  |  |  |
|--|--|---|--|--|--|
|  | Reduction of GHG emission intensity index (upstream)   | 2025: -43% vs 2014  |  |  |  |
| REDUCTION IN   | Zeroing of hydrocarbons' volumes sent to process flaring   | Zero process flaring by 2025  |  |  |  |
| GHG EMISSIONS  | Reduction of fugitive methane emissions<br>(upstream)  | 2025: -80% vs 2014  |  |  |  |
|  | Investments in GHG emissions reduction (100% operated activities) - upstream   | >€ 0.55 Bln in 2018-2021  |  |  |  |
|  | Promotion of Natural Gas:<br>incidence of natural gas on total equity hydrocarbon resources 3P+ Contingent: >50% at 31/12/2017 |   |  |  |  |
| LOW CARBON AND RESILIENT<br>OIL & GAS PORTFOLIO        | (Brent @ 50 \$/bl) and to 18% (Brent @ 70 \$/bl) w   | $n^{(a)}$ price <30 \$/bl and internal rate of return equal to 13%  |  |  |  |
|  | Development of renewables  | 2021: 1 GW installed capacity<br>2018-2021 investments equal to €1.2 BIn<br>2025: 5 GW installed capacity   |  |  |  |
| GREEN BUSINESS   |  | Green refinery:<br>Venice, capacity of 560 kton/y from 2021<br>Gela, capacity of 720 kton/y and completion by the<br>end of 2018  |  |  |  |
| DEVELOPMENT  | Reconversion of traditional industrial sites in green<br>plants and new chemical platform of bio-based<br>products             | Biobased chemicals:<br>Porto Torres, bio-intermediates production (capacity<br>of 70 kton/y)<br>Porto Marghera, bio-chemicals through the metathesis<br>of vegetable oils |  |  |  |
|  |  | 2018-2021 investments equal to approximately € 390 MIn  |  |  |  |
| RESEARCH AND DEVELOPMENT<br>RELATED TO DECARBONIZATION | Research projects on energy transition, renewable, biorefining and green chemistry   | 2018-2021 expenditures equal to approximately<br>€ 280 Mln  |  |  |  |
|  | Oil & Gas Climate Initiative (OGCI) - new technologies to reduce GHG emissions   | \$ 10 Mln/year from 2017 for 10 years   |  |  |  |
| MAIN PARTNERSHIPS                                      | Massachusetts Institute of Technology (MIT)/<br>Commonwealth Fusion Systems (CFS)  | Initial investment equal to \$ 50 Mln for the industrial development of fusion power generation technology  |  |  |  |

(a) Actual Brent price that allows to recover, in the full life, costs, included fiscal costs, and to remunerate the capital employed at the Weighted Average Cost of Capital (WACC).

# **CLIMATE GOVERNANCE**

# Role of the Board and Board's Committees

The Board of Directors<sup>1</sup> (BoD) plays a central role in managing the main aspects linked to climate change. The current BoD was appointed by the Shareholders' Meeting on 13 April 2017 for a three-year term which, confirming eight of the nine directors, ensured continuity with the previous Board's mandate in which a transformation process was launched for the company.

### BASED ON PROPOSALS FROM THE CEO, THE BOD EXAMINES AND/OR APPROVES:

The objectives related to climate change and the energy transition, as an integral part of business strategies

The "GHG Action Plan" with investments to achieve the objectives of reducing emissions by 2025

The portfolio of Eni's top risks including climate change

The Short Term Incentive Plan with objectives related to the reduction of GHG emissions for CEO and managers with strategic responsibilities<sup>2</sup>

Annual sustainability results and HSE reviews, including performances on climate change

Institutional reporting including the Interim Consolidated Report and the Annual Financial Report (including the consolidated Disclosure of Non-Financial information) and the sustainability report (Eni for)

The relevant projects and their progress, on a six-monthly basis, with sensitivity to the Eni and IEA SDS carbon pricing<sup>3</sup>

Resilience test on all the upstream Cash Generating Units (CGU) applying the IEA SDS scenario

Strategic agreements, including initiatives related to climate change

On the subject of climate change, the BoD is mainly assisted by three Board committees: Sustainability and Scenarios Committee, Control and Risk Committee and Remuneration Committee. The Sustainability and Scenarios Committee (SSC) addresses the integration among strategy, evolution scenarios and business sustainability over the medium to long term and examines the scenario for the strategic plan preparation. Set up in 2014, the SSC was the first example, in the Oil & Gas sector, of an integrated approach in the evaluation of sustainability and energy scenarios. In each of the twelve meetings held in 2017, the SSC discussed issues related to climate change and assessed the consistency of the results achieved with the climate objectives.

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<sup>1)</sup> Board of Directors: https://www.eni.com/en\_IT/company/governance/board-of-directors.page.

 <sup>2)</sup> Managers with strategic responsibilities: Managers reporting directly to Eni's Chief Executive Officer and Chairman of the Board and, in any case, the members of the Company's Management Committee. For more information on the organizational structure of Eni, see the "Company" section of the website (www.eni.com).
 3) Sustainable Development Scenario (SDS) from the World Energy Outlook 2017 of the International Energy Agency (IEA).

### MAIN ISSUES ADDRESSED BY THE SUSTAINABILITY AND SCENARIOS COMMITTEE AT THE MEETINGS HELD IN 2017



ENERGY SCENARIOS



DEVELOPMENT OF RENEWABLE SOURCES



TECHNOLOGICAL INNOVATION



TREND OF ETS MARKETS



OGCI/TCFD CLIMATE INITIATIVES

The **Control and Risk Committee**<sup>4</sup> (**CRC**) supports the BoD in the quarterly review of the main risks, including climate change.

The **Remuneration Committee** proposes to the BoD the general criteria for the annual incentive of the CEO and managers with strategic responsibilities, which include specific objectives associated with the reduction of GHG emissions. Since the second half of 2017, for a broader view of the factors affecting the value creation in the long term, the Board has set up an **Advisory Board**, composed by international experts<sup>5</sup>, to further strengthen the monitoring of long-term trends in energy markets, geo-politics, technological innovation, energy transition and the decarbonization process.

The Board has attributed a central role in the internal control system to **Chairman**, entrusting this role with the task of presiding over the Internal Audit function<sup>6</sup>. The chosen model sets out the clear separation between the functions of the Chairman and those of the CEO.

### **BOARD TRAINING**

To increase the effectiveness and awareness of the Board members role, immediately after the appointment of the BoD in 2014 and in 2017, a training plan was prepared for the Board, which also included sustainability issues. Furthermore, in 2015 as part of the "UN Global Compact LEAD Board Programme", the Board examined issues on integrating sustainability in the strategy and in business management, focusing on climate change. Regular refresher courses provided by external experts on climate change are planned as part of the meetings of the Sustainability and Scenarios Committee.

# Role of Management

Issues relating to climate change risks and opportunities are considered and integrated in all stages of the business cycle, from negotiation to decommissioning. All the company functions, within their area of responsibility, contribute to the decarbonization path. The CEO is responsible for identifying the main business risks, including those connected with climate change, ensuring their assessment and management, and monitoring the progress of mitigation actions. Every year, the CEO assigns Guidelines<sup>7</sup> to each business line and support function for the definition of the strategies in the strategic plan, including those regarding the path to decarbonization.

4) The Control and Risk Committee is made up exclusively of independent directors, who have the necessary skills to carry out the duties assigned to them: Eni requires that at least two members have adequate accounting, financial or risk management experience, bolstering the provision of the Corporate Governance Code, which recommends just one. Currently, the CRC is composed of three members possessing the experience requirement laid down by the Corporate Governance Code. The CRC is chaired by a director from the minority list.

6) The Head of the Internal Audit Department reports to the Board, and on its behalf, to the Chairman, without prejudice to his being functionally subject to the authority of the Control and Risk Committee and the CEO, as Director in charge of the internal control and risk management system ("ISRMS guidelines").

7) See page 13 of Eni for 2017 Sustainability Report for more detail on the process for planning and defining the sustainability guidelines.

<sup>5)</sup> Chaired by the Director Fabrizio Pagani; members: Christiana Figueres; Ian Bremmer; Phillip Lambert; and Davide Tabarelli.

8

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The CEO's Short-Term Incentive Plan (STI) includes objectives associated with climate strategy that are consistent with the guidelines defined in the Strategic Plan. Under the Short-Term Incentive Plan, a portion of the bonus matured is deferred over a three-year period, subject to further performance conditions, in order to assess sustainability over the medium term. In particular, 25% of the STI is composed by environmental sustainability and human capital objective, half of this refers to reducing the GHG emissions intensity rate of

The "Energy Solutions" business

projects. In order to identify new

solutions to support the path to

division, which reports directly to the CEO, was set up in 2015 to develop renewable energies with large-scale

technological, managerial and strategic

decarbonization, the Climate Change

top management level with a cross-

In 2016, the Programme's objective was updated in order to define a roadmap for the medium-long term

decarbonization strategy in line with

the Paris Agreement goals.

Programme, was also set up in 2015, at

cutting team that reports to a Steering Committee chaired by the CEO. operated hydrocarbon production, in line with the 2025 target announced to the market. This objective is also assigned to top management and managers with responsibilities associated with the emissions reduction.



### FUNCTIONS INVOLVED IN THE CLIMATE CHANGE PROGRAMME

HSEQ PLANNING OTHER INVESTOR FUNCTIONS RELATIONS ON DEMAND CLIMATE CHANGE PROGRAMME ENERGY SUSTAINABILITY SOLUTIONS INTEGRATED RESEARCH E RISK MANAGEMENT DEVELOPMENT

The Programme is coordinated by the HSEQ (Health, Safety, Environment & Quality) division, which encompasses a specific competence centre that oversees aspects related to climate change. In 2016, the Energy Transition Programme was set up under the research and development function to identify the technologies aimed at supporting energy transition. Furthermore, the management is constantly informed about progresses related to the path to decarbonization.

### OCCASIONS IN WHICH MANAGEMENT IS INVOLVED ON DECARBONIZATION ISSUES

8) The CEO illustrates the strategies and objectives of the Strategic Plan to managers.

9) Quarterly meeting between the Chairman, the CEO and the managers reporting directly to the latter to monitor progresses in the objectives and strategic lines. 10) The CEO comments on the main events on the company intranet.

# RENEWABLE ENERGIES AND NATURAL GAS: THE KEY PLAYERS OF THE ENERGY TRANSITION

### Interview to Christiana Figueres, Member of Eni Advisory Board

In 2015, the Paris Agreement marked a turning point in the global action to respond to climate change. Two years after the signing of the Agreement, can we make an initial assessment of the actions taken?

The Paris Agreement continues to move forward. From a political and legal perspective it has been adopted by all Countries of the world, with the single exception of the USA which has announced it will depart in 2020. The Agreement has further been ratified by 175 Countries, which means it has passed the parliamentary process to make it national law in those Countries. Other Countries continue their internal ratification process. From an economic transformation point of view, most Countries are pursuing decarbonization efforts in energy generation and use, transport, buildings, industry, forestry and agriculture because they have understood that such measures strengthen their economy, increase energy independence, provide jobs and improve air quality. Large economies such as China and India have already complied with the efforts they registered under the first tranche of the Paris Agreement and are getting ready to present their aspirations for the second tranche which is due in 2020.

By 2050, the world population will grow until 10 billion people and it will be essential to guarantee access to sustainable and low-cost energy in order to support a fair De velopment and limit the global warming below 2° C. What is your suggestion for this dilemma?

There is no doubt that much of the economic growth the world has seen over the past 100 years has been achieved thanks to the discovery and use of fossil fuels. For that, they deserve to be thanked. However, it is now abundantly clear that we can no longer continue to use fossil fuels as the backbone of our economy. We have reached planetary boundaries in many respects, and greenhouse gas concentrations in the atmosphere is the most urgent of these. In order to provide energy to the current and future citizens of this world, we need to quickly transition to clean energy sources. The global energy sector is already transitioning and will have to accelerate its transition out of fossil fuels, in the order of their carbon intensity. Coal is the first that must be substituted, due to its impact on the global environment and on local health conditions. In most jurisdictions coal has lost its social license, and in an increasing number of financial institutions it is losing its asset value as it is increasingly understood as a high risk investment.

On the basis of your experiences on climate change, you are part of Eni's Advisory Board, which recently met for the first time in order to support the Board of Directors. What do you think is the role of Oil & Gas in the decarbonization process and what are the main key levers on which Eni can aim to be a leader in the energy transition?

Ultimately, the restricted carbon budget demands that we reach a zero net emission global economy by 2050. This means peaking global emissions by 2020 and steadily descending afterward. The transition is not easy and must be done in an orderly fashion in order to reap the benefits of the transformation. While every Country needs to design its own transition path, from a sectoral perspective it is clear that energy generation and use is the most critical and urgent, and within the energy sector there is no doubt that coal needs to be quickly substituted. During the time it will take for energy storage technologies to be competitive so that they can reliably firm up intermittent renewable energy, coal can in most cases be quickly substituted by an intelligent combination of appropriate renewable energies backed up by natural gas, strengthened with energy efficiency and methane reduction measures. Eni is in a privileged position to not only lead this transition toward an integrated energy solution, but to do so quickly and particularly in Africa where energy provision needs are the most acute.

# **RISK MANAGEMENT**

# Integrated climate risk management model

The process for managing the risks and opportunities related to climate change is a part of the Integrated Risk Management (IRM) Model developed by Eni to ensure that management takes risk-informed decisions, by taking into full account current and potential future risks, including medium and long-term ones, in the frame of an integrated and comprehensive approach.

The IRM Model also aims to raise awareness, at all levels, that appropriate risk assessment and management can effect on the achievement of company objectives and values.



### INTEGRATED RISK MANAGEMENT MODEL

### FIRST LEVEL Line Managers Risk Owners

The **first level** is represented by risk owners, whose responsability lies in risk assumption and related treatment measures.

### SECOND LEVEL Risk&Control Functions\*

The **second level** concerns the risk control functions that cooperate in drafting the methodologies and risk management tools and perform control activities through structure that are independent from operating management.

### THIRD LEVEL Internal Audit

The **third level** is represented by the independent assurance provider that provides independent certifications on the planning and functioning of risk management processes.

### Relevant roles and responsibilities in the IRM process are as follows:

• The BoD defines the nature and the level of risk compatible with the strategic objectives also with the purpose of business sustainability from medium to long term, and it outlines the guidelines

and monitoring risks.

- The Control and Risk Committee supports the BoD in defining the guidelines for the management of risks. • The Risk Committee, composed of The Board of Statutory Auditors monitors the effectiveness of the IRM process.
- for identifying, assessing, managing The Chief Executive Officer executes the BoD's guidelines, using the IRM process to identify, assess, manage and monitor the main risks.
  - Eni top management, supports the CEO in identifying, assessing, managing and monitoring risks.



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### THE IRM MODEL IS APPLIED USING A TOP-DOWN, RISK-BASED APPROACH THROUGH A CYCLE OF ANNUAL ACTIVITIES:

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### INTERIM RISK ASSESSMENT (SECOND HALF OF THE YEAR)

### ANNUAL RISK ASSESSMENT (FIRST HALF OF THE YEAR)

→ Treatment actions review and update → Continuous monitoring of the risks trend → Analysis of the specific risk profile of the most relevant operations → THE IMPLEMENTATION OF THE STRATEGO

### During 2017:

- two assessment cycles were carried out: the Annual Risk Profile Assessment in the first half of the year and the Interim Top Risk Assessment in the second half;
- approximately 150 risks were identified, of which 20 top risks, grouped into strategic, external and operational risks; climate change is

one of Eni's top strategic risks and it is analysed, assessed and monitored by the CEO as part of the IRM process;

- three monitoring cycles were performed on the top risks in order to analyse the risks trends and the implementation status of treatment actions put in place by management;
- specific de-risking objectives were

identified with reference to the main risks, including climate change and were then, formalized in the 2018-2021 Guidelines issued by the CEO at the beginning of the Strategic Planning process.

The results of the assessment and monitoring cycles are presented to the Administrative and Supervisory Bodies on a quarterly basis.

### **RISK ASSESSMENT IN ENI MODEL**

- → It is carried out by adopting metrics that take into account the potential quantitative impacts (i.e. economic, financial or operational) as well as the potential qualitative impacts (i.e. on the environment, health and safety, social, reputation).
- → It is based on risk prioritization with the use of multi-

dimensional matrices so that the level of each risk is obtained by combining clusters of probability of occurrence and clusters of impact.

→ It includes assessments at inherent level and at residual level, respectively before and after the mitigation actions are implemented.

# Risks and opportunities related to climate change

Climate change risk is analysed, assessed and managed by considering 5 drivers referring to aspects related with energy transition (market scenario, regulatory and technological developments, reputational issues)

and physical aspects (extreme/ chronic weather and climate phenomena). The risk factors in a low carbon scenario, clustered in each of the 5 risk drivers above, are listed below

along with indications of the main mitigation actions implemented by Eni. These actions are described in detail in the section on the decarbonization strategy and in other sections of this document.

| RISK<br>DRIVER            | RISK<br>FACTORS  | MITIGATION<br>ACTIONS   |
|---------------------------|--|---|
| MARKET<br>SCENARIO DRIVER | <ul> <li>Decline in global hydrocarbon demand</li> <li>Loss of results and cash flow</li> <li>"Stranded asset" risk</li> <li>Impacts on shareholders' returns</li> </ul>       | <ul> <li>Assets resilience to low carbon scenarios</li> <li>Increasing role of natural gas in the portfolio</li> <li>Development of renewable energies and<br/>green business</li> </ul>  |
|                           | <ul> <li>Increase in operating and investment costs</li> <li>Reduction of oil demand</li> </ul>  | <ul> <li>Resilience of assets to low carbon scenarios</li> <li>Energy efficiency initiatives</li> <li>Commitment to the research on renewable technologies and green business</li> <li>Sustainable mobility initiatives</li> </ul>  |
|                           | <ul> <li>Reduction of hydrocarbon demand due to<br/>technological breakthrough in the field of<br/>electric vehicles or renewables and related<br/>economic impacts</li> </ul> | <ul> <li>Development of renewable energy and green<br/>business</li> <li>Energy efficiency initiatives</li> <li>Commitment in research and development</li> <li>Digital trasformation to support efficiency<br/>(e.g. fugitive methane monitoring and<br/>preventive maintenance)</li> <li>Partnership for the development of<br/>technological solutions</li> </ul>  |
| PHYSICAL<br>DRIVER        | <ul> <li>Interruptions of industrial operations</li> <li>Damage to plants and infrastructures</li> <li>Recovery and maintenance costs</li> </ul>                               | <ul> <li>Adoption of additional technical measures to<br/>protect wells, plants and structures in areas<br/>most exposed to extreme events</li> <li>Introduction of more stringent design and<br/>control criteria for new projects, which<br/>consider the effects of climate change<br/>scenarios</li> <li>Geographical diversification of the portfolio</li> </ul> |
|                           | <ul> <li>Impacts on stakeholders relations</li> <li>Impacts on stock price</li> </ul>  | <ul> <li>Well structured climate change governance</li> <li>Role and commitment of management</li> <li>Partnerships to address climate change</li> <li>Transparent communication of the decarbonization strategy</li> </ul>   |

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The risk analysis is carried out using an integrated and cross-cutting approach

which involves specialist departments and business lines and enables a full examination not just of the risks but also of the opportunities related to climate change.

# REFERENCE LOW-CARBON SCENARIO: SUSTAINABLE DEVELOPMENT SCENARIO

To analyse risks, Eni refers to the IEA's Sustainable Development Scenario (SDS)<sup>11</sup>, considered the most challenging for the path to decarbonization, since it is a "predefined objective" scenario which aims to contain emissions well below 2 °C in line with the objectives of the Paris Agreement, achieve universal access to energy and reduce local pollution<sup>12</sup>. In this scenario:

- energy demand grows at global level in the medium and long term, driven by non-OECD Countries where demand is expected to exceed 15% above the current level by 2040;
- low-carbon sources, including nuclear, double their share in the energy mix and meet approximately 40% of the energy demand by 2040;
- fossil fuels continue to play a central role in the world energy scenario, in particular, Oil & Gas will still represent 48% of global energy demand by 2040;
- oil demand reaches a peak around 2020 and falls a little below 75 Mb/d by 2040. While the petrochemical sector continues to grow, efficiency remains the main driver behind the fall in the oil demand. Moreover, greater spread of electric vehicles is expected, taking into account the increasing number of policies in favour (e.g. China, France, Netherlands, United Kingdom). The spread of electric cars remains a trend recorded only in OECD Countries and China, while many other Countries with still significant limitations to energy access will remain highly dependent on oil in the transportation sector (63% of transportation in non-OECD Countries will still depend on oil by 2040);
- gas becomes the first "single" source in the energy mix and the only fossil fuel growing in absolute terms and in its share of energy mix. Indeed gas consumptions grows over 15%

between 2016 and 2030 and then stabilizes.

The SDS offers considerable opportunities for Eni. More specifically:

- the need remains for significant investments in the upstream sector to meet demand and compensate for underlying declines in existing sources of production;
- significant growth in gas demand from 3.6 to 4.2 trillion cubic metres by 2040, opening important market opportunities;
- the possibility of implementing Carbon Capture & Sequestration (CCS) technology enables 10% of fossil production to be covered;
- development of renewable sources, excluding biomass which is often used in an unsustainable way, expands in all regions, in particular in Africa, a major region for Eni, where renewables will cover 26% of primary consumption compared to 2% today.

# REGULATORY DEVELOPMENTS

Eni is present in 71 Countries around the world with upstream and middownstream activities. Current or future regulations related to climate change in these Countries could have an impact on the business. Over 50% of Eni's direct emissions is already subject to carbon pricing schemes, mainly the European Emission Trading Scheme which covers all the major plants in the middownstream businesses. The remaining share is composed of upstream emissions from Countries that currently have not yet implemented **carbon pricing**<sup>13</sup> initiatives. However, these Countries have enforced other policies and regulations related to climate change, which could have impacts on Eni's activities, such as: reduction of emissions also by reforestation, development of renewable sources, energy efficiency, diversification of electricity production, biofuels, etc. Particular focus is given to the evolution of regulations on renewable energies, including the new European Renewable Energy Directive II (RED II, under definition and expected to be approved in 2018), which will come into effect in 2021 and which, among other things, will define which feedstock can be used to produce biofuels, gradually prioritizing those that are not in competition with the food chain. This could increase the risk of phasing-out of palm oil, which is used, along with other feedstock, in Eni's biorefineries today. In advance of

<sup>11)</sup> World Energy Outlook 2017.

<sup>12)</sup> For a description of the Eni and IEA NPS energy scenarios see page 16.

<sup>13)</sup> Eni portfolio resilience compared to the scenario of hydrocarbon prices and CO<sub>2</sub> costs is illustrated on page 23.

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regulations being brought into force, since the launch of the programme for developing biofuels (see page 26), Eni has focused on the diversification of the raw materials thanks to the use of the proprietary technology Ecofining which enables the processing of non-conventional feedstock (used vegetables oils and animal fats). The biorefinery in Venice is already able to process non-conventional materials up to 15%, while the Gela biorefinery will be technically able to do it limitless. Furthermore, still in the downstream sector, Eni will have the opportunity to further valorize proprietary patents,

such as the Eni Slurry Technology for the total conversion of the barrel into medium-light products, in response to the introduction of the IMO (International Maritime Organization) regulations which envisages the reduction of SOx emissions at global level, tightening the limit on the sulphur content of vessel fuel from 3.5% to 0.5% by 2020. This reduction in fuel oil will lead to a higher demand for diesel (which today represents approximately 80% of fuel demand in the maritime sector).

Lastly, a process of **sustainable finance** is being outlined which will take into

greater account the environmental and social aspects in investment management and capital movement activities, including:

- a strong component of green finance which aims to support investment and then reduce pressure on the environment, reduce GHG emissions and combat pollution;
- increased awareness of climate and environmental risks which could have an impact on the financial system sustainability and on the management of these risks by various financial and company actors.

# · C - TECHNOLOGICAL DEVELOPMENTS

The transformation process in the energy sector depends on the development of innovative technological solutions as well as investments in upgrading infrastructure. Despite the decreasing costs of renewables, the contribution of wind and solar to the energy mix (sources with the higher growth rate), remains below 15% by 2040. Some limits associated with their large-scale deployment still exist, therefore further technological progress and significant infrastructural investment are necessary in order to support these trends and make low-carbon technologies truly competitive<sup>14</sup>.

Technologies to capture and reduce

GHG emissions as well as leaks of natural gas along the Oil & Gas value chain will be fundamental for affirming the dominant role of gas in the global energy mix. On the other hand, technological development in the field of renewable energy production and storage and in the efficiency of electric vehicles could have impacts on the demand for hydrocarbons and therefore on the business. The capacity to rapidly intercept and integrate technological breakthroughs in the business will play a key role in business competitiveness. On this point, mention should be made of the collaboration with MIT in Boston to study and develop nuclear fusion using

high temperature superconductors. A key role will also be played by the ongoing digitalization process, which has the potential to accelerate the energy transition, generating significant benefits in terms of efficiency and environmental impact. Several years ago Eni started a digitalization process<sup>15</sup> through the launch of numerous projects that cover the entire value chain. A "digital twin" will be created for each physical asset by which it will be possible to predict and control operations in advance<sup>16</sup>. Through the widespread application of sensors and the use of advanced algorithms, Eni expects to improve the performances and reduce emissions of its activities.

# က္ခြဲ PHysical Risks

According to the Intergovernmental Panel on Climate Change (IPCC), the physical impacts of climate change (e.g. increase of the average global temperature and sea level, hurricanes, cyclones, floods, droughts) observed in recent decades could increase the intensity and frequency of occurrence in the future.

Eni has conducted an analysis of the impacts that the IPCC scenarios contained in the V Assessment Report could have on its assets, considering the intensification of extreme events (in the short term) and the occurrence of more gradual phenomena (in the medium-long term).

In particular, a technical analysis of the assets has been carried out in order to estimate damage scenarios in case of extreme/chronic weather events and the related quantitative assessment of the maximum exposure to risk associated with the event occurrence.

Considering that Eni assets are designed, in accordance with current regulations, to withstand extreme environmental conditions, the analysis conducted highlighted a minor increase in Eni's exposure to risk. As to the intensification of extreme events (e.g. hurricanes in the Gulf of Mexico), Eni's current asset portfolio has a geographical distribution that does not result in risks concentrations. For more gradual phenomena such as the rise in sea level, the vulnerability of Eni assets involved is limited and it is therefore possible to implement specific mitigation actions over the medium to long term.

# ] REPUTATION

Awareness raising campaigns by NGOs and other environmental organizations, media campaigns, shareholder resolutions at the shareholders' meeting, divestments by other investors, and class actions by groups of stakeholders are increasingly aimed at greater transparency on the actual commitment of Oil & Gas companies to energy transition.

Eni intends to play a leading role in

the energy transition and for years it has been committed to promoting constant, open and transparent dialogue on issues of climate change, which represent an integral part of the strategy and are therefore communicated to all stakeholders. This commitment is part of a broader relationship that Eni has been building and is committed to strengthen with its stakeholders on sustainability issues by adhering to initiatives such as the Chairman's roadshows on governance issues, dialogue with investors and targeted communication campaigns, collaboration with TCFD and Oil & Gas Preparers' Forum, participation and promotion of innovative initiatives (e.g. the Singularity University Summit<sup>17</sup> or Eni Digital transformation<sup>18</sup>) and sustainable mobility initiatives (page 26).



17) Held for the first time in Italy on 27 and 28 September 2017 in Milan, the event gathers influencers and innovators from all over the world, enabling them to learn, network and innovate using accelerator solutions and simplified technologies.

18) "Imagine Energy. Stories of data, people and new horizons" event organized at Eni's Green Data Center in Ferrera Erbognone (in Pavia) to illustrate the digital transformation model adopted by Eni to members of the scientific community.



# CLIMATE STRATEGY

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# Eni's reference scenario

The energy sector is expected to respond to a dual challenge: meeting the rising energy needs of a growing population, ensuring adequate access to energy, and limiting its air emissions, in order to contribute to the decarbonization process. Eni scenarios foresee an increased energy demand at global level driven by economy and population growth.

By 2040, oil and gas will continue to meet over 50% of energy needs; gas and renewables are the sources with the highest growth rate in the next decades.

According to the Eni scenario, world oil demand continues to grow above one million barrels/day (bl/d) per year in the medium term, while after it slows down until plateauing around 110 million bl/d by 2035. The improvement in efficiency of internal combustion engines and, to a lesser extent, their substitution with alternatives including electric vehicles, will lead to a drop in consumption for transport by 2040. The growth in demand by 2040 remains driven by petrochemicals, heavy transport, aviation and shipping where alternatives to oil products are limited. In this context, new discoveries and new upstream developments will be necessary in the medium and long term to meet growing needs and counteract the decline in existing production (5-6% a year). Therefore,

it will be necessary to bring new fields into production for 60 million bl/d by 2040 to compensate the fall in existing production and meet expected demand.

Gas, supported by high efficiencies and low emission coefficients of power plants, is the only fossil fuel that is growing in absolute terms in all scenarios envisaged by the IEA, stabilizing after 2030 only in the SDS scenario. Growth in gas consumption will be driven by industry and power, where gas replaces fuels with greater environmental impact, and by non-OECD Countries, for many of which, gas represents an immediate response to increasing energy needs.

### EVOLUTION OF THE ENERGY AND ELECTRICITY MIX TO 2040



Oil & Gas Wind and solar Coal Other (nuclear and other renewables) Source IEA, New Policies Scenario (NPS)

# | Eni strategy

Eni has defined a clear decarbonization strategy even in response to the potential risks described previously, which is based on the following pillars:

reduction in direct GHG emissions: the goal is to reduce upstream emission intensity by 43% in 2025 compared to 2014 through projects to eliminate process flaring, reduce fugitive emissions of methane and energy efficiency projects; the investments to support these targets amount to over €0.55 billion in 2018-2021, at 100% and with reference only to upstream operated activities;

### 2 low carbon Oil & Gas portfolio

characterized by conventional and low CO<sub>2</sub> intensity projects, which are developed in stages to limit the upfront cash out. The new upstream projects in execution, which represent about 65% of the total development investments in the sector in 20182021, have Brent break-even price below 30 \$/bl, and are therefore resilient even to low-carbon scenarios. In general, Eni's portfolio has hydrocarbon resources with a high natural gas incidence, a bridge towards a low emission future;

3 green business development through i) a growing commitment to renewable energy (approx. 1 GW power capacity installed by 2021) based on a distinctive model founded on the integration with existing assets, generating extra value due to industrial, logistic, contractual and commercial synergies; ii) development of the second phase of the Venice biorefinery (with a capacity of 560 kton/y from 2021) and the completion of the Gela biorefinery (with a capacity of 720 kton/y) by 2018, which will enable Eni to become one of Europe's major producers of biodiesel; iii)

strengthening of Green Chemistry, with production of bio-intermediates from vegetable oil at Porto Torres (capacity of 70 kton/y) and with studies on the development of industrial application for the biochemicals production through the metathesis of vegetable oils in Porto Marghera. The total investments in 2018-2021 amount to more than €1.55 billion and above €1.8 billion including research and development activities related to the path to decarbonization;

4 commitment to scientific and technological research (R&D) in order to achieve maximum efficiency in the decarbonization process and find innovative solutions to promote energy transition, with specific expenditure in 2018-2021 of €280 million, plus the partnerships with OGCI and MIT for a total amount of approximately €80 million.



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# REDUCTION OF GHG EMISSIONS

### **Direct GHG emissions**

Since 2010, 100% operated GHG direct emissions have decreased by 27%, amounting in 2017 to 42.52 million ton  $CO_2$ eq. However, last year an increase of 2.5% compared to 2016 occured due to the rise in combustion

DIRECT GHG EMISSIONS

(MtCO<sub>2</sub>eq)

and process emissions as a result of increased production in the Exploration & Production sectors (in particular activities in Libya and start-ups in Ghana, Angola and Indonesia) and Gas & Power (where both electricity production and volumes of natural gas transported have increased). In line with its decarbonization strategy, around half of the increase recorded has been compensated through the use of forestry carbon offset credits (page 21).



Currently over half of Eni's direct GHG emissions of 23 million ton CO<sub>2</sub>eq are covered by a GHG reduction target. Approximately 55% of 2017 GHG emissions comes from the Exploration & Production business, under which Eni is committed to reducing its emission intensity by 43% by 2025 compared to 2014 values. Compared to these targets, in 2017 emission intensity of 0.162 tons of  $CO_2 eq/toe$  fell by 2.5% compared to 2016, and by 15% compared to 2014, in line with the target for 2025.





### UPSTREAM GHG EMISSION INTENSITY (tCO,eq/toe)

# **Process flaring**

For years, Eni has implemented programs to reduce gas sent to flaring, through an emphasis on the production of electricity for local populations, distribution for domestic



consumption or export.

Where these practices were not possible, Eni created re-injection systems in natural gas reservoirs. In 2014, after having consolidated a 75% reduction of volumes compared with 2007, most of the residual process flaring is today concentrated in Countries with difficult environments, such as Libya and Nigeria. Despite this, Eni confirms its commitment to zeroing volumes sent to process flaring by 2025, 5 years earlier than the timescale laid down by the Global Gas Flaring Reduction (GGFR) initiative promoted by the World Bank, of which Eni is a partner. To achieve this objective, an expenditure of €0.55 billion (referred to 100% operated activities) has been budgeted for 2018-2021, to which further investment will be added in the 2022-2025 period.



# Fugitive methane emissions



Eni is committed to reducing methane emissions that are essentially concentrated in the upstream chain, where fugitive methane emissions today cover around half of the total. In upstream operations, Eni has achieved a reduction of almost 2 MtCO<sub>2</sub>eq compared to the estimated 2014 value, thanks to the gradual implementation of on-site campaigns, resulting in improved reporting methods, and the related maintenance work. Furthermore, through the Climate and Clean Air Coalition (CACC) Oil & Gas Methane Partnership, Eni presented a methane emissions control programme which involves establishing monitoring campaigns to gradually cover the most important upstream operating sites.

### FUGITIVE EMISSIONS MONITORING CAMPAIGNS - LEAK DETECTION AND REPAIR (LDAR)

LDAR programmes foresee campaigns to monitor the plant components in order to identify methane leaks and plan maintenance works. It is possible to control almost entirely fugitive

in operations.

# LDAR CAMPAIGN STAGES

### MONITORING

- Analysis of the technical documentation (P&ID, process diagrams, activity
- parameters, etc.) Identification of potential sources
- Planning field activities

SOURCE INVENTORY

- · On-site monitoring and identification of methane leaks The technology used – Optical Gas
- Imaging requires the use of an infrared thermal camera to detect leaks

emissions enabling product savings and improving safety

### MAINTENANCE

- Immediate repair of leaks where possible
- · Prioritization of works and definition of the annual maintenance plan
- Regular checks

### FUGITIVE EMISSIONS MONITORING CAMPAIGNS

M'BOUNDI, CONGO; SINCE 1968



### BACKGROUND

Eni has been present in Congo since 1968 in conventional offshore operations opposite to Pointe-Noire and onshore operations in the M'Boundi field acquired in 2006. Congo is one of the first Countries where Eni has launched the fugitive emissions monitoring project and almost all the operating assets will be covered by periodic surveys by the end of 2018.

### PROJECT RESULTS

In 2017, monitoring campaigns concerned

part of the offshore platforms, the onshore plant in Litchendjili and the M'Boundi field, which had already been monitored in 2015. In particular, the M'Boundi campaign covered all the plant components (numbering over 6,200) that are potential leakers. This monitoring detected 40 leaks, over half of which were repaired immediately. As a result of this work, emissions were halved and further works are planned for 2018, which will lead to an effective reduction of over 85% of fugitive emissions in M'Boundi.

After zeroing onshore process flaring in 2014, since 2015 Eni has reduced fugitive emissions in Congo by over 80%, due to both maintenance works and a detailed and more representative quantification

methodology.

### Commitment to energy efficiency

Eni's commitment in the efficiency of its production assets continued in 2017. In the upstream sector, structural interventions have been carried out to make production activities more energy efficient, thus resulting in further energy savings of 46 ktoe equivalent

to 117 ktons of CO<sub>2</sub>eq compared to those recorded the previous year (453 ktons of CO<sub>2</sub>eq compared to the 2014 baseline). If we add managerial and operational actions to these, we reach a performance of 728 ktons of CO, eq avoided (compared to 2014) is reached. For the other industrial sectors, works were carried out in 2017 which, at full operation, will achieve a further saving compared to that recorded in the past of around 18 ktoe, or 55 ktons of CO<sub>2</sub>eq of direct emissions avoided, which is in line with planned savings.

# Offset credits

Eni started to use offset credits to compensate part of its own direct emissions in 2017. Among the various offset categories, Eni focuses on those relating to the forests and land use management and preservation. Eni's strategy for offset credit procurement is developed along three directions:





Among the three levers, developing a portfolio of projects that are capable of meeting Eni's needs will require several years, therefore credits will initially be purchased from third parties.

# 2 LOW-CARBON OIL & GAS PORTFOLIO

One of the drivers used by Eni to pursue its decarbonization strategy is the Oil & Gas portfolio characterized by conventional projects developed in stages and with low  $CO_2$  intensity. The new upstream projects in execution, which represent about 65% of the total development investments in the sector in 2018-2021, break-even at Brent price below 30 \$/bl and are therefore resilient even in lowcarbon scenarios. Eni projects an internal rate of return (IRR) of 13% and 18% at Brent prices of 50 \$/bl and 70 \$/bl respectively (flat since 2018). Furthermore, these projects have a positive cumulative Free Cash Flow as early as 2019, due to the cash in from the application of the Dual Exploration Model, which is the early monetization of exploration successes through the sale of minority stakes. The equity resources of 3P+Contingent hydrocarbons at 31/12/2017 show an over 50% of natural gas, a bridge towards a low carbon future.



The mid-downstream segment is less exposed to climate change risk, as the net book value of traditional refineries and petrochemical plants is negligible compared to the total assets of Eni, while the green component of these businesses is being developed. In addition, in terms of future cash generation, the contribution of these businesses will be lower than the upstream one. The flexibility and adaptability of



Eni's capital expenditures, below €32 billion in 2018-2021, is confirmed in the uncommitted portion of 36%, namely around 50% with reference to the last two-year period 2020-2021.

### Portfolio resilience

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Portfolio resilience is ensured by the regular review of the assets portfolio and new investments in order to identify and assess potential emerging risks associated with changes in emissions regulations and in the physical conditions of operations. The return on the main investment projects is tested using a sensitivity to carbon pricing of 40 \$/ton CO<sub>2</sub>eq in actual terms in 2015, when the Final Investment Decisions (FID) is made and later during the six-monthly

monitoring of projects, based on the following assumptions:

- Eni's scenario of hydrocarbon prices and cost of CO<sub>2</sub><sup>20</sup>;
- IEA SDS low-carbon scenario of hydrocarbon prices and cost of CO<sub>2</sub>.

The results of the most recent monitoring have highlighted marginal impacts (-0.8 percentage points) on internal return rates. In addition, the portfolio composition and Eni's decarbonization strategy minimises the risk of stranded assets in the upstream sector, since the breakeven price of Oil & Gas projects have been gradually reduced through the optimization of the asset portfolio with the high incidence of conventional gas, near-field exploration and efficiency improvements in development projects. In this regard, the management has subjected to a sensitivity analysis the book value of all CGUs (Cash Generating Units) in the upstream sector, adopting the IEA SDS scenario; this stress test highlighted the substantial retention of the asset book values, with a reduction of about 4% of the fair value.



Having tested its resilience, Eni's flexibility and adaptability are confirmed in the fact that the uncommitted portion of the capital expenditures is 36% in 2018-2021 and equal to approximately 50% with reference to the last two-year period 2020-2021.

### DISCOVERIES OF HYDROCARBON RESOURCES

Countries with new hydrocarbon discoveries in the 2014-2017 period



# Gas for access to energy

Another important element of the portfolio resilience is associated with the development of gas projects near growing markets in emerging economies with increasing energy needs, particularly in Africa. According to the IEA, 1.1 billion people in the world do not have access to electricity, half of them in Sub-Saharan Africa. This has decreased since 2000s, when the number was around 1.7 billion people. In particular, from 2000 to 2016, most people who have had access to energy have used energy produced by fossil fuels. In Sub-Saharan Africa, the situation is not expected to change by 2030, despite the enormous availability of energy sources (enough gas resources to cover actual consumption for 800 years). Moreover, in Africa 50% of the energy mix is based on the use of biomass. Eni has always been committed to researching and developing resources for local development and is committed to projects aimed at access to energy and energy mix diversification, towards low impact sources such as gas and renewables (for more information, see Eni for 2017 Sustainability Report, pages 42-43).

IN 14 COUNTRIES ENI PROVIDES GAS TO DOMESTIC MARKETS

# Gas advocacy

Gas is the ideal partner for the development of renewables, which still have some economic and technological limits when deployed on a large scale.

Use of the gas-renewables mix will also enable coal consumption to be reduced. Currently, coal contributes less than 40% to global power generation and is responsible for over 70% of CO<sub>2</sub> emissions in the electricity sector. In order to stimulate this transition, the technologies and measures related to energy policy will have an important role. In particular, in the electricity sector, a high penetration rate of renewables requires additional auxiliary services to offset the variability and intermittency of wind and solar power and to guarantee continuity and stability in production. These services can be provided by the combined-cycle gas power stations which have the appropriate characteristics to perform this role (e.g. programmability, rapid start-up).

### CHARACTERISTICS OF GAS AS THE CHOSEN FUEL IN A DECARBONIZATION SCENARIO

| CLEAN FUEL  | ABUNDANT AVAILABILITY  | SECURE PROCUREMENT  |  |  |
|---|--|---|--|--|
| Authorithative studies <sup>21</sup> have shown that,<br>in the power sector, natural gas is the fossil<br>fuel with the lowest GHG emissions, if<br>considered over the entire life cycle.   | Proven worldwide reserves ensure around 60 years' coverage of current production levels, while the resources that can technically be recovered can guarantee a current level of production for over 220 years.                                 | Europe is developing an interconnected<br>infrastructure which will enable to be<br>supplied by multiple sources, guaranteeing<br>greater resilience against any emergencies.   |  |  |
| Eni intends to maximize the use of<br>gas as a fuel bridge, particularly in<br>electricity generation, but also to<br>promote its use in the transportation<br>sector. For this purpose, Eni supports<br>important gas advocacy initiatives<br>at national and international level, | as highlighted in the section of this<br>document on the climate change<br>partnerships (page 30).<br>In particular, Eni is highly committed to:<br>• implementing voluntary actions<br>aimed at reducing methane<br>emissions along the whole | <ul> <li>production process of natural gas;</li> <li>promoting mechanisms (e.g.<br/>Emissions Performance Standard</li> <li>EPS - at European level) which<br/>prioritize the use of low emission-<br/>intensive fuels and encourage<br/>consumption of natural gas.</li> </ul> |  |  |

<image>

Eni pays particular attention on the emissions impact associated with its activities along the entire value chain (indirect emissions), starting from the supply chain of goods and services for the production process up to the environmental impact connected with the disposal of the finished products.

As regards the emissions resulting from purchases of electricity,

steam and heat from third parties (Scope 2) are negligible for Eni (approximately 0.65 MtCO<sub>2</sub>eq), since electricity is generated inside its plants and the related GHG emissions are included among direct emissions. With regard to the other emissions in the chain (Scope 3), Eni reports them using internationally recognized methods (IPIECA).



The higher impact, in terms of emissions, of the Oil & Gas sector is associated with the final use of the products sold (natural gas and oil products, such as petrol, diesel and kerosene), that Eni quantifies according to equity hydrocarbon production. In line with Eni's climate strategy, promoting a low-carbon energy portfolio, focused on natural gas and on increased energy production from renewables, together with a strong commitment to R&D aimed at developing technologies and fuels with low environmental impact, will lead to a gradual reduction of the GHG emission intensity associated with Eni products. Further initiatives aimed at promoting a culture focused on energy savings and minimizing the indirect emissions associated with Eni activities are in progress: optimization of the processes associated with product logistics (e.g. optimization of loads and routes), adoption of green procurement criteria for goods and services, sustainable mobility initiatives (see page 26) and the adoption of energy saving initiatives involving employees (company shuttles fueled by methane, special discounts arranged for public transport, smart working and use of videoconferencing for meetings) are just some of the current initiatives that contribute to reducing Eni's carbon footprint.

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### **DEVELOPMENT OF GREEN INVESTMENTS** 3

### Industrial scale renewable energy projects

Increased commitment on renewables is expected in 2018-2021, with an investment in profitable projects of around €1.2 billion and a potential installed capacity of around 1 GW by 2021 (doubling the investments compared to the previous 2017-2020 plan). This capacity is expected to reach 5 GW by 2025. With the set up of the Energy Solution Division (DES) in 2015, which reports to the CEO, Eni has boosted its development strategy for the renewable energy business, through a distinctive model based on:

integration with the other business

- lines and existing assets, generating extra value due to the industrial, logistic, contractual and commercial synergies that may also enable own consumption from fossil fuels to be replaced with solar and wind power;
- a gradual geographical balance with an initial focus on the Countries in which Eni has a consolidated presence, solid commercial relations, knowledge of the energy markets and local needs;
- · capability to implement and manage projects, including complex projects (whether linked to existing assets or not);

- · integrated organic growth, with the development of projects that are already operational or currently in the start up phase in Italy and abroad;
- a technology neutral approach due to the close cooperation with Eni's Research and Development function, which will enable the introduction of innovative technological solutions that are currently being studied. The already identified projects as projects that Eni intends to develop over the medium term will be able to ensure around 400 MW of new installed capacity over the next two years.

RENEWABLES: INTEREST AREAS OF THE 2018-2021 STRATEGIC PLAN



g.

Green refinery, biofuels and sustainable mobility

In line with the decarbonization strategy and development of renewables, since several years Eni has paired its traditional business with the production of green fuels by converting the traditional refineries of Porto Marghera and Gela into biorefineries, using the Ecofining proprietary technology which enables the production of biodiesel with a high level of performance through a flexible hydrogenation process with all types of biological raw materials (vegetable oils, waste oils, animal fats, by-products from the food industry, etc.). In particular, in the biorefinery of

Venice, started-up in 2014, with a capacity of 360 kton/y, a new vegetable oil treatment plant will start by 2018 designed to process raw loads enabling greater feedstock flexibility. Moreover, the start up of a methane steam reformer to produce hydrogen will allow the production to grow up to 560 kton/y by 2021. The project converting the Gela refinery into a biorefinery is still ongoing and plant completion is expected by the end of 2018. Production is expected to start in 2019. The plant will have a capacity of 720 kton/y and will be flexible in terms of raw materials, enabling the processing of unconventional feedstocks (like used vegetable oils and animal fats).

These initiatives implemented in Gela and Venice are expected to reach a total production of biofuels of over 1 million ton by 2021. In 2017, 241 thousand ton of biomass were transformed into 166 thousand ton of green diesel, 34 thousand ton of green naphtha and 10 thousand ton of green LPG with an emissions saving of 440 thousand ton of  $CO_2$ compared to traditional processes. Focus on the sustainability of used biomass has always been a priority and has led to the definition of a specific policy<sup>22</sup>.

### IN 2017 **241** THOUSAND OF FIONS OF BIOMASS WERE TRANSFORMED INTO

166 THOUSAND TONS OF GREEN DIESEL 34 THOUSAND TONS OF GREEN NAPHTHA 10 THOUSAND TONS OF GREEN LPG

### SUSTAINABLE MOBILITY

### → CAR SHARING

The Enjoy car sharing initiative was extended to 5 cities in Italy. It is expected to be launched in another Italian city and, from 2019, it will gradually be developed abroad.

### $\rightarrow$ DIESEL +

An agreement was signed with a local transport company in Turin, GTT, which manages a fleet of around 650 diesel buses, for the large scale trial of the new Eni Diesel+ instead of traditional diesel. Tests conducted on a bus (EURO III) made available by GTT, have highlighted that the use of Eni's Diesel+ significantly reduces ultrafine particulate < 1  $\mu$  (-40%) and NOx (-10%), as well as consumption and CO<sub>2</sub>.

Moreover, an agreement was signed between the Municipality of Venice, AVM Group, Veritas and Eni to trial Eni Diesel+ on all public transport in the maritime fleet. Used food oil collected by citizens will be transformed into green diesel in Eni's Venice Biorefinery.

### $\rightarrow$ CONVERSION OF NATURAL GAS INTO METHANOL

A MoU was signed in 2017 by Eni and FCA for the joint development of research projects and technological applications to reduce  $CO_2$  emissions in road transport. In accordance with the National Energy Strategy, the agreement

concerns new applications for sustainable mobility, including the use of methanol in transport. For this reason, Eni has already developed a new gasoline with 20% of alternative fuels (15% of methanol and 5% of bioethanol) able to ensure a reduction of at least 4% in  $CO_2$  emissions. The possible future replacement of methanol with bio-methanol from renewable sources, which is currently being studied, could reduce  $CO_2$ emissions by around 10%. As part of the agreement between Eni and FCA, in cooperation with MIT, a system is being developed for the on-board capture of  $CO_2$  emissions from vehicles.

### → NATURAL GAS IN TRANSPORT

The four-year period is expected to see the realization of 50 new methane outlets (of which 40 in partnership with Snam Rete Gas) and 8 new LNG outlets (for development in the heavy transport sector). Infrastructure for storing LNG is expected to be realized in Livorno (through Costiero Gas Livorno SpA, in which Eni holds a share of 65%).

### → HYDROGEN IN TRANSPORT

A pilot project has been launched for the distribution of hydrogen in one/two outlets in Italy. Hydrogen distribution is already available in some service stations abroad (Germany).

## Green chemistry

To support the traditional chemical business, Eni has developed the green chemistry business. Through its subsidiary Versalis, Eni offers a product portfolio deriving from renewable feedstock, which targets high value added segments and aims to strengthen the weight of renewables in the product mix. Since 2014, Versalis in collaboration with a partner of high technological standing has converted its production hub at Porto Torres (Sardinia) into a facility for the production of bio-intermediates utilizing vegetable oils as feedstock. In 2017 management's efforts were focused on optimizing yields of products with higher value added and valorising certain by-products as feedstock for the production of greendiesel or biofuels. At the same time,

at the Porto Marghera hub, Versalis has started in 2014 and has been progressing a case to study and develop at industrial scale the application of the metathesis process of vegetable oils, based on a technology patented by Elevance Renewables Sciences, aimed at producing bio-chemicals from renewable feedstock, replacing fossil products, with applications in high value-added segments such as cosmetics, detergents, highperformance lubricants and additives for oil fields.

Versalis is also planning to complement the metathesis process by integrating downstream along the product chain, marking the first example of this kind in the world, to achieve the full valorisation of intermediates and co-products from bio-chemicals, targeting high valueadded applications (such as drilling, detergents, etc.).

Furthermore, in 2017 as part of its commitment to green chemistry Versalis signed a cooperation agreement with Bridgestone, an international partner operating in traditional chemistry, to develop an integrated platform for guayule dedicated not just to the production of natural rubber, but also to exploiting the resin and lignocellulosic material provided by the plant. The platform includes the development of an agronomic study aimed at promoting an integration and enhancement model for the territory, particularly agricultural and arid territories, in line with initiatives to support local communities.

# $\rightarrow$ USED OILS FOR FUELLING BIOREFINERIES

Pilot initiatives to collect used vegetable oils in the domestic chain in Italy have been promoted with specialized partners. The aim is to develop innovative recovery methods and campaigns to raise awareness which will be tested in particular cities. Depending on the results, the system could later be rolled out at national level. In 2017, Eni signed several agreements with trade associations, such as Conoe and Utilitalia, to promote the collection of used vegetable oils (from households) and then re-use them as raw material feedstock in biorefineries.

### → BIO OIL FROM ALGAE

A new generation biofixation plant for the  $CO_2$  produced by the upstream plants, through the production of "algae flour" and algae bio-oil was started in Ragusa. It marks the first application in the Oil & Gas sector.



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# 4 RESEARCH AND DEVELOPMENT FOR ENERGY TRANSITION

Research and Development is a key element for Eni's transformation into an integrated energy company for a low-carbon future and, in fact, the activities related to decarbonization account for around 40% of the total research spending. In this field, Eni spent over €72 million in 2017 and expects to spend €280 million in 2018-2021, other than the partnerships with OGCI Climate Investment and MIT for a total of approximately €80 million.

# 2017 EXPENDITURES IN RESEARCH AND DEVELOPMENT $(\in \mathsf{MIn})$



2018-2021 R&D SPENDING

€ 280 MILLION RESEARCH PROJECTS ON DECARBONIZATION

€ **OU** MILLION OGCI AND MIT COMMITMENTS

**TECHNOLOGICAL RESEARCH PLATFORMS FOR DECARBONIZATION** 



### → ENERGY TRANSITION

Promote the widespread use of natural gas, facilitating its production and transport and extending its use in order to decarbonize the whole production chain.

The Energy Transition Programme was set up in 2016 with the aim of developing new technologies to support the transition towards a low-carbon energy company, promoting the use of natural gas, with particular regard to its conversion into methanol and CO<sub>2</sub> capture and use.

### → RENEWABLE ENERGY

Develop low cost production technologies from renewable sources that can be integrated in the Oil & Gas activities.

A programme has been ongoing for several years to develop lowcost technologies for the production of energy from renewables, with particular reference to solar and the integration of new systems for the production of renewable energy in Oil & Gas operations.

### → GREEN REFINERY AND GREEN CHEMISTRY

Redefining industrial cycles to direct them towards bio-based products with a lower environmental impact. The programme is aimed at redefining the refining cycle, directing it towards products and processes with lower environmental impacts also with regard to the use of technologies in line with the Circular Economy (waste to fuel and use of lignocellulosic biomass).

# ENI and MIT: 10 years of collaboration for the energy of the future

**Robert C. Armstrong – Director, MIT Energy Initiative** 

The cooperation between Eni and MIT has been continuing for 10 years and has involved many professors and researchers. What is a distinctive feature of Eni that has helped make this particular collaboration so successful? The breadth and depth of engagement between Eni and MIT has been unparalleled - from the senior leadership at both Eni and MIT to researchers on individual projects. Regular, personal contact between the two organizations has been vital in ensuring the selection of high impact projects, the two-way transfer of knowledge and ideas to accelerate progress, and the progression of projects from the laboratory towards commercialization. We hold an annual symposium in Milan to bring MIT and Eni researchers together to help diffusion of ideas across research groups and organizations. At the same time, we host regular visits by Eni researchers to MIT laboratories both to learn about and to participate in the research. Finally, Eni has a senior representative embedded at the MIT Energy Initiative, who greatly facilitates interactions and identification of new opportunities. The latter is particularly important in the rapidly advancing intellectual landscape at MIT. The broad research portfolio that we have facilitates engagement of multiple, diverse teams at both Eni and MIT; and this leads to an overall richer relationship.

What were the most important results, from a technological point of view, achieved by this partnership? One major focal point of the collaboration has been the Eni-MIT Solar Frontiers Center. By focusing on advanced solar technologies, this center has (among other accomplishments) pioneered the development ultrathin film nanostructured PV materials and methods for depositing these materials on flexible, lightweight substrates and has profoundly advanced the understanding and development of both quantum dot and polymeric luminescent solar concentrators. In this past year, our collaboration with Eni has yielded an advanced technique for keeping PV panels free of dust by using nano-engineered electrified surfaces to repel dust. This technology has the potential to avoid efficiency degradation while eliminating water consumption from traditional cleaning methods. Other researchers have developed advanced methods for accurate and effective assessment of soils and groundwater to evaluate environmental risks and to support decisions regarding remedial action. Additional work has investigated electrochemically-mediated CO<sub>2</sub> capture, which has the interesting possibility of being deployed for on-board capture as well as stationary capture applications.

Which are the most important projects related to sustainable energy production we have carried out together? In addition to the solar projects mentioned above (by the way, there are prototypes of luminescent solar concentrator windows currently installed in the R&D center of Eni in San Donato), there has been a very interesting project on concentrated solar power going back to the beginning of the Eni-MIT alliance. This project focuses on how to manufacture solar troughs at a significantly lower price point and in a format to allow lower cost of transportation to site. This project has gone from concept to detailed design to prototype manufacturing and is now ready for testing at an Eni facility. Design software developed as part of the collaboration aimed at process intensification in biomass to chemicals manufacturing has been incorporated into Eni design packages. Finally, although it has just started, I have to mention the new initiative of Eni with MIT on fusion power. This first-of-its-kind collaboration by Eni, MIT, and a new start-up, Commonwealth Fusion Systems, aims to bring fusion power to reality for electricity production over the next 15 years. This is a truly game changing sustainable energy production technology.

# **CLIMATE CHANGE PARTNERSHIPS**

Eni is one of the five companies that founded the Oil & Gas Climate Initiative (OGCI) in 2015, a voluntary CEO-led initiative, in response to the climate change challenge, that now counts 10 of the major Oil & Gas companies, which represent more than 25% of the world hydrocarbons production. OGCI's mission is to catalyze actions and investments to mitigate the GHG emissions of the Oil & Gas sector and to explore new business and new technologies compatible with the energy demand growth. OGCI is investing up to 1 billion dollars in 10 years for low carbon technologies, through the OGCI Climate Investment (OGCI CI) vehicle. These are additional investments compared to the commitments of the individual companies and a multiplier effect is

expected thanks to the development of low carbon technologies. In addition to investments in technologies, OGCI is promoting scientific studies to fill the knowledge gap on methane emissions along the Oil & Gas supply chain, in partnership with UN Environment. Leveraging on the skills of Environment Defense Fund and Imperial College, measuring campaigns on Oil & Gas assets and LCA studies on the entire natural gas supply chain are being implemented. OGCI is committed to setting a target of methane emission reduction by 2018 to enhance the role of natural gas as a transition fuel for a low carbon future. Eni was also a forerunner in joining:

Global Gas Flaring Reduction
 initiative, a public-private partnership
 coordinated by the World Bank aimed

at the progressive elimination of gas flaring and

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 Climate and Clean Air Coalition -Oil & Gas Methane Partnership, a public-private initiative coordinated by the UNEP and the US-EPA aimed at enhancing the monitoring of methane emissions in the Oil & Gas sector and the implementation of reduction plans.

Eni is the only company among the Peers to be part of the **Task on Climate**related Financial Disclosures (TCFD) of the Financial Stability Board and is nowadays active in the TCFD Oil & Gas Preparers' Forum for the development of specific guidelines for the sector. Moreover, Eni, within all the trade associations it adheres to, ensures consistency of the position expressed with its own decarbonization strategy.

| PARTNERSHIP  | OBJECTIVE AND MAIN ACTIONS  |
|--|---|
| OIL & GAS CLIMATE<br>INITIATIVE (OGCI)   | Business Partnership of 10 major Oil & Gas companies with the aim of demonstrating industry leadership<br>in the fight against climate change, investing in technologies to reduce GHG emissions in the Oil & Gas<br>value chain.   |
| CLIMATE AND CLEAN AIR<br>COALITION - OIL & GAS<br>METHANE PARTNERSHIP<br>(CCAC OGMP) | Public-Private Partnership led by UN Environment and focused on reducing methane emissions along the Oil & Gas supply chain through the voluntary commitment to the implementation of projects of monitoring, reducing and reporting of the main sources of methane.            |
| GLOBAL GAS FLARING<br>REDUCTION (GGFR)   | Public-Private Partnership led by the World Bank which aims at reducing the practice of flaring at a global level also through the launch of the zero routines flaring initiative, which commits the adherents to eliminate the volumes of gas sent to process flaring by 2030. |
| INTERNATIONAL EMISSIONS<br>TRADING ASSOCIATION                                       | IETA is the main association supporting the implementation of market-based trading schemes for GHG emissions, involving businesses in the pursuit of climate actions in line with the objectives supported by the UNFCCC.   |
| METHANE GUIDING<br>PRINCIPLES  | Initiative that gathers 8 Oil & Gas companies with the aim of reducing methane emissions along the Oil & Gas supply chain, through the involvement of the main supply chain stakeholders.   |
| TASK FORCE ON CLIMATE-<br>RELATED FINANCIAL<br>DISCLOSURES                           | Task Force launched by the Financial Stability Board with the aim of establishing recommendations and guidelines to improve the companies disclosure on the financial aspects related to climate change.  |
| IPIECA   | IPIECA is the main association of the Oil & Gas industry active on the main environmental and social issues.  |
| WBCSD  | Association of companies active on sustainability issues. The WBCSD coordinates the Oil & Gas focus group for the implementation of the TCFD recommendations.   |
| MIT CSF  | Partnership with the Massachusetts Institute of Technology and Commonwealth Fusion Systems for the industrial development of technologies for the production of nuclear fusion energy.  |

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# **CLIMATE DISCLOSURE**

Eni has communicated its decarbonization strategy and its vision of the risks and opportunities associated with climate change since its participation in the first CDP assessment in 2003 and it was one of the first company in the industry to publicly report on its GHG emissions. Since then, its commitment to disclosing its decarbonization strategy has gradually broadened. Ten years ago, Eni started to communicate its goal to reduce emissions from flaring. The goal of reducing emissions has been one of the targets highlighted in the strategy presentation to the financial community since 2016. Targeted communication initiatives have been launched, to shareholders

convened for the annual general meeting and during meeting dedicated to SRI investors (Socially Responsible Investment), in which the CEO outlined the decarbonization strategy, the cooperation model with Countries and the integration of projects to develop renewables into the business. Continuing this commitment, Eni's leadership in the fight against climate change has been recognized also by independent assessments which represent a source of information on climate issues for the financial community. In 2017, Eni was confirmed as one of the leaders in CDP assessment, with a score of A-, and was ranked among the few companies in the Oil and Gas sector with the

highest level (level 4) in the assessment of Management Quality, according to the London School of Economics method. This method was developed on the initiative of a group of investors, grouped into the Transition Pathway Initiative, with the aim of making public assessments and promoting conscious decision making.

Furthermore, the Global Investor Coalition on Climate Change (GIC), representing five investor organizations active on issues of climate change, awarded Eni second place among the main Oil & Gas companies (5 European and 5 American) in the assessment of the decarbonization strategy based on targeted feedback from investors and 2016 CDP data.



# METRICS & TARGETS

### Below the metrics and targets used to evaluate and manage the risks and opportunities related to climate change.

|   |                             | 2015   | 2016   | 2017   | Targets  |
|---|-----------------------------|--------|--------|--------|--|
| Direct GHG emissions (Scope 1) <sup>(a)</sup>                                 | (Mtons CO <sub>2</sub> eq)  | 42.32  | 41.46  | 42.52  | -  |
| of which CO <sub>2</sub> eq from combustion and process                       |                             | 32.22  | 31.99  | 32.65  | -  |
| of which CO <sub>2</sub> eq from non-combusted methane and fugitive emissions |                             | 2.79   | 2.40   | 1.46   | -  |
| of which CO <sub>2</sub> eq from flaring                                      |                             | 5.51   | 5.40   | 6.83   | -  |
| of which CO <sub>2</sub> eq from venting                                      |                             | 1.80   | 1.67   | 1.58   | -  |
| Indirect GHG Emissions (scope 2)  |                             | 0.62   | 0.71   | 0.65   | -  |
| Indirect GHG Emissions (scope 3) <sup>(b)</sup>                               |                             | 248.04 | 246.38 | 249.06 | -  |
| of which use of sold products   |                             | 229.14 | 225.62 | 228.62 | -  |
| GHG emissions/100% operated hydrocarbon gross<br>production (E&P)             | (tCO <sub>2</sub> eq/toe)   | 0.177  | 0.166  | 0.162  | -43% by 2025                                     |
| GHG emissions/Refinery throughputs  | (tCO <sub>2</sub> eq/kt)    | 253    | 278    | 258    | -  |
| GHG emissions/kWheq (EniPower)  | (gCO <sub>2</sub> eq/kWheq) | 409    | 398    | 395    | -  |
| Non-combusted methane and fugitive emissions (E&P)                            | (tCH <sub>4</sub> )         | 91,416 | 72,644 | 38,819 | -80% by 2025                                     |
| Volumes of hydrocarban sent to flaring  | (MSm <sup>3</sup> )         | 1,989  | 1,950  | 2,283  | -  |
| of which sent to process flaring  |                             | 1,564  | 1,530  | 1,556  | 0 by 2025  |
| Equity hydrocarbon production <sup>(c)</sup>                                  | (kboe/day)                  | 1,760  | 1,759  | 1,816  | -  |
| Renwable installed capacity   | (GW)                        | 0      | 0      | 0      | 1 GW installed by 2021<br>5 GW installed by 2025 |
| Biorefinery capacity  | (Kt/y)                      | 360    | 360    | 360    | 1,280 kt from 2021                               |
| of which Venice   | (Kt/y)                      | 360    | 360    | 360    | 560 kt/y from 2021                               |
| of which Gela   | (Kt/y)                      | 0      | 0      | 0      | 720 kton/y from end 2018                         |
| Green Investments   | (€ Bln)                     | 0.03   | 0.05   | 0.11   | 2018-2021 equal to 1.55                          |
| R&D total expenditures  | (€ Bln)                     | 0.18   | 0.16   | 0.19   | 2018-2021 € 0.77 Bln                             |
| of which related to decarbonization   | (€ Bln)                     | 0      | 0.06   | 0.07   | 2018-2021 € 0.28 Bln                             |

a) Direct emissions (scope 1) are 100% on operatorship basis.

b) Indirect emissions scope 3 are estimated on the basis of Eni equity production.

c) Hydrocarbon production from fields fully operated by Eni (Eni's interest 100%) amounting to 137 mln toe, 122 mln toe and 125 mln toe in 2017, 2016 and 2015, respectively.

### **Other Metrics**

| Hydrocarbon resources (3P+Contingent) @31/12/2017: % of natural gas   | (%)      | >50%   |
|---|----------|--|
| Break-even price of overall new upstream projects in execution  |          | Brent <30\$/bl   |
| Internal Rate of Return (IRR) of new upstream projects in execution   |          | 13% @ Brent 50\$/bl flat from 2018<br>18% @ Brent 70\$/bl flat from 2018             |
| Percentage of uncommitted investments: 2018-2021 Strategic Plan   | (%)      | 2018-2021 equal to 36%<br>2020-2021 equal to 49%                                     |
| Carbon pricing - Eni scenario   | (\$/ton) | 40 \$ at 2015 inflated   |
| Stress test: upstream portfolio resilience (100% cash generating unit) based on IEA SDS low carbon scenario |          | Impact on asset fair value: -4%  |
| 2018 Sensitivity: Brent (-1 \$/bl)  | (€ MIn)  | Adjusted operating profit: -310<br>Adjusted net profit: -175<br>Free cash flow: -205 |
| Cash neutrality (investments and dividends): Brent price  | (\$/ы)   | 2017: 57<br>2018: 55<br>2021: 50   |



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