Toward a low-emissions future

Repsol climate roadmap





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The aspiration to improve social well-being throughout the world and preserve the health of the planet is embodied in the Sustainable Development Goals developed by the United Nations. The energy sector must play a leading role in achieving these goals and, among all of them, the fight against climate change introduces a paradigm shift that we call the energy transition.

Having safe, affordable and clean energy is key to the development of our society and these factors must be taken into account in order to carry out a structured energy transition toward a lower carbon intensity that mitigates climate change. All of us, companies, public administrations and final consumers, must collaborate to tackle a challenge of this scale.

At Repsol, we share society's concern about the effects that human action causes on the climate and we work every day to be part of the solution. We are convinced that a new energy model based on innovation and technology is necessary and

Message from the CEO

Josu Jon Imaz Chief Executive Officer

we are committed to an energy transition toward a lowemissions future. This transition will take decades and will require different technologies that are still emerging today, themselves not exempt of uncertainties surrounding their pace of evolution and use.

The Oil & Gas sector has an important role to play in responding to this challenge. All its products, responsibly developed, will be necessary to advance toward a lowemissions society, from new materials from the chemicals industry that we use in every activity of our daily life to advanced fuels necessary for more efficient mobility or natural gas, crucial to managing the intermittency of renewable power generation.

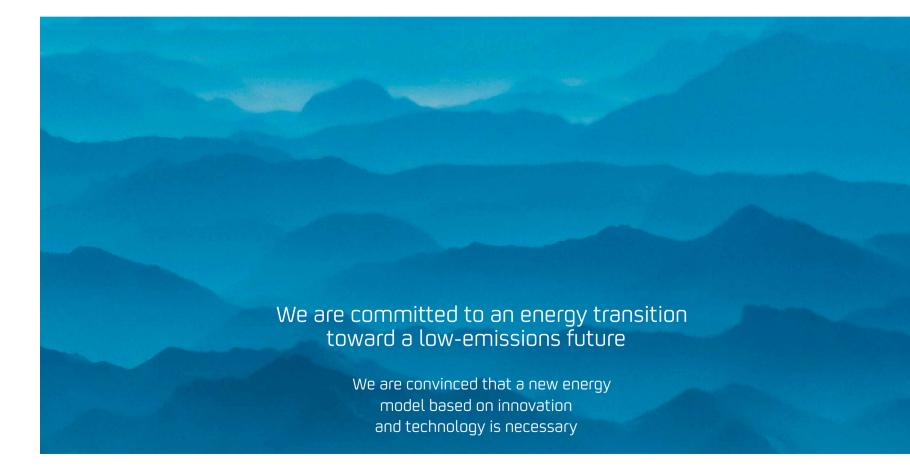
At Repsol, we are steadily advancing on the road to the energy transition, deploying ambitious programs to improve the energy efficiency of our operations, being present in sustainable mobility and low-emissions power generation businesses, manufacturing advanced chemical products, and always putting our clients at the heart of our decisions. To guarantee our success we rely on the most important capital, the human one. Our more than 25,000 employees worldwide form a diverse and expert team that shares the firm commitment to achieve a sustainable and low-emissions future.







The O&G sector can play a fundamental



Our company

We are a global energy company that uses innovation, efficiency and respect to create sustainable value in the service of societal progress.





+25,000 employees

> +10 million countries costumers

Upstream



2,340 Mboe

net proven reserves

Downstream

1,013

kbbl/d

refining capacity

715

kboe/d

net production of hydrocarbons

2952

MW installed capacity



qas of our production (and 3/4 of our reserves

4,849 service stations

E&P

Net hydrocarbon production of 715 kboe/d in key areas: America, Europe, North Africa and Southeast Asia with 2,340 Mboe of net proven reserves.

Trading

Crude supply, bunkering, ship chartering and marketing of surplus for export.

LPG

Processing and distribution of LPG (butane and propane): bulk packaging and AutoGas.

Refining

Transformation of crude oil and other raw materials in our six refineries, five in Spain and one in Peru, with a refining capacity of 1,013 kbbl/d.

Chemicals

Production and commercialization of a wide variety of petrochemical products necessary in our everyday life, leading the market in the Iberian Peninsula.

Supply and marketing

Transportation, commercialization, trading and regasification of liquefied natural gas.

of wholesale gas

Marketing, lubricants, asphalts and specialties

Value-added services to our customers in our 4,849 service stations in the world. Marketing of lubricants in more than 90 countries.

Electricity and Gas

Our facilities in Spain have an installed capacity of 2,952 MW, providing electricity to more than 830,000 customers

Global Sustainability Plan

Sustainable Development Goals (SDG)

At Repsol, we integrate sustainability into the company's strategy with the leadership and involvement of senior management. We have a Sustainability Model around six axes, which frame our Global Sustainability Plan: ethics and transparency, people, safe operation, environment, climate change and innovation and technology.

Each year we set short and mediumterm actions for the sustainability targets in our Global Sustainability Plan, which also serves as a roadmap for deploying local plans in each country or industrial complex, taking into account the specific circumstances and needs of each place in which we operate.

We support the United Nations Agenda 2030 and its Sustainable Development Goals (SDG), taking them as a reference to define our sustainability priorities. We have prioritized seven SDG to which we can contribute most as a company, highlighting in this document the actions related to two of them that are key to us as an energy company: SDG 7, Affordable and clean energy and SDG 13, Climate action.



Ethics and transparency

Act responsibly and with integrity wherever the company is present



People

Commit to people and promote their development and social environment



Safe operation

Ensure the safety of our employees, contractors, partners and the local community



Environment

Consume the resources needed to generate energy more efficiently and with the least possible impact



Climate change

Be a part of the solution to climate change



Innovation and technology

Foster innovation and incorporate new technology to improve and grow



climate change.



Level 1

Decent work and economic growth

Climate Partner for the goals

Partnership for the goals Clean water and sanitation

Level 2

Industry, Responsible innovation consumption and infrastructure and production

to the optimization of water management, support for innovation and technology and focus on

Commitment



25 years facing climate change

Repsol's commitment to sustainability has been constant over the years. It was communicate its ambition to reduce its the first company in the Oil & Gas sector carbon intensity by 40% by 2040.

to support the Kyoto Protocol and to

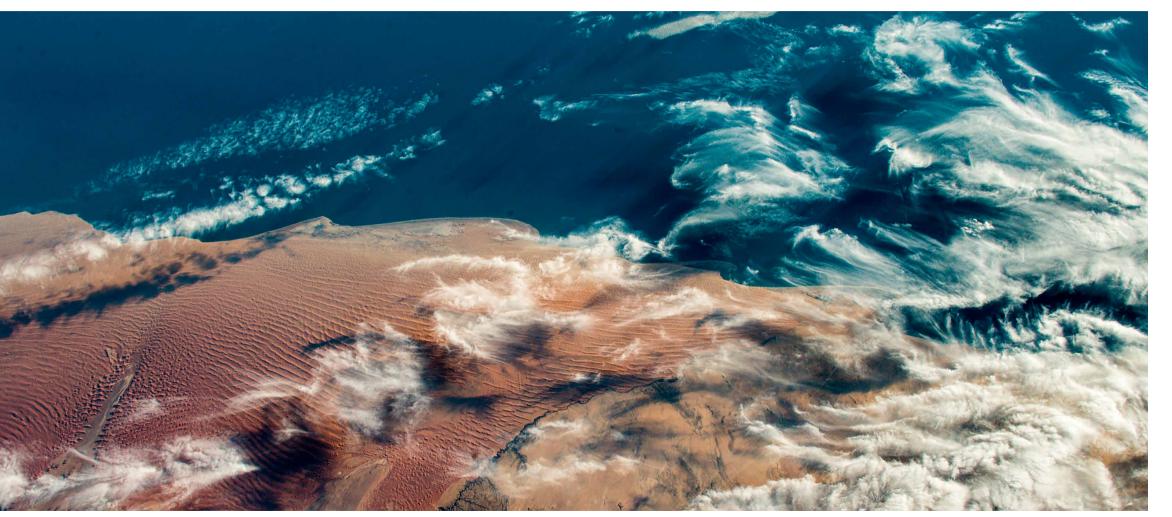












Environment

We are a key player in the transition toward a low-emissions future.



Mariano Marzo Independent Outside Director Lead Independent Director Chairman of the Sustainability Committee

"Oil and gas will continue to play a key role in the future, overcoming the double challenge of ensuring the well-being demanded by a growing number of people around the world and, at the same time, making possible the ambition set out in the Paris Agreement."



The energy sector is responsible for just over 75% of global CO2 emissions and more than two-thirds of all Greenhouse Gas (GHG) emissions. All efforts and actions in this sector are key to achieving the objectives set out in the Paris Agreement, while guaranteeing universal access to energy and the security of a reliable, affordable and competitive supply.

In its Sustainable Development Scenario (SDS), the International Energy Agency (IEA) sets out a roadmap compatible with the objective established in the Paris Agreement of not exceeding the increase in the average temperature of the planet compared to that of the pre-industrial era by 2°C by the end of this century. According to this scenario, global emissions

from the energy sector and the industrial sector should peak by 2020, and by 2040 should be reduced by half of what countries set out in their NDCs (National Determined Contributions)¹.

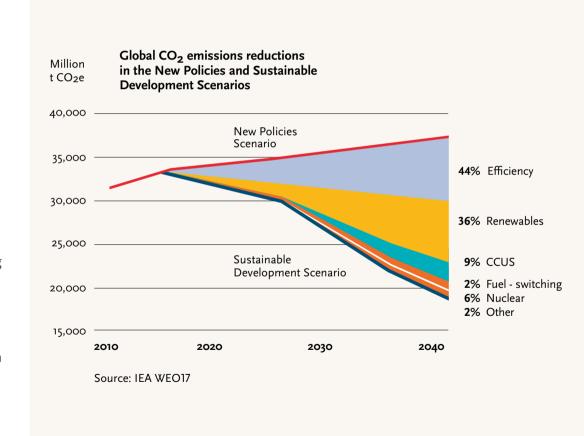
Measures focusing on energy efficiency and renewable energy contribute 80% of the total emissions reduction and the remaining 20% will be achieved through measures such as the substitution of coal for natural gas in electricity generation and the development of Carbon Capture, Use and Storage (CCUS) technologies. By sector, electricity will grow and cover 60% of the global emissions reduction, although all sectors will have to make great efforts to reach the target.

In addition, it must be kept in mind that global energy consumption and its development in any scenario will vary considerably from region to region: the demand for energy will be reduced

in the already developed economies, but will rise significantly in the emerging economies, due to the economic and demographic development of these countries and the need to cover their current energy shortages.

All climate scenarios show that the use of fossil fuels will continue to be necessary in a low-emissions future and that these energy sources will face challenges and opportunities that will modify their intensity of use and their applications.

The Oil & Gas sector will therefore be a key player in the transition toward a low-emissions future, increasing the efficiency of its operations, reducing its direct GHG emissions and evolving toward a lower carbon intensity energy mix, with a greater presence of natural gas and commitment to new forms of energy according to its strategies. The sector's strong focus on innovation and technology will be key to playing a leading role in the energy transition and being part of the solution in the fight against climate change.



¹ The IEA's New Policies scenario is based on existing regulation and future regulation in the NDCs provided by countries for the Paris Agreement.

OGCI, a window to collaboration

In order to tackle these challenges, which in many areas exceed the individual capacities of each company, the sector collaborates in various initiatives, including the OGCI (Oil & Gas Climate Initiative). A voluntary initiative, led by the CEOs of the member companies, which aims to lead the sector's response to the challenge posed by climate

change. Created in 2014, it is currently made up of thirteen leading companies that contribute and share their knowledge and experience to reduce GHG emissions. Its main focus is on the reduction of methane emissions, the reduction of emissions in transport, the improvement of energy efficiency in industry and the implementation of CCUS technology.

In November 2016, OGCI member companies launched a billion-dollar investment fund called OGCI Climate Investments to invest in promising technologies and business models with the potential to significantly reduce GHG emissions in the areas mentioned.









Governance

We have the leadership and commitment of senior management, which defines the company's objectives, action plans and practices in terms of sustainability and climate change.



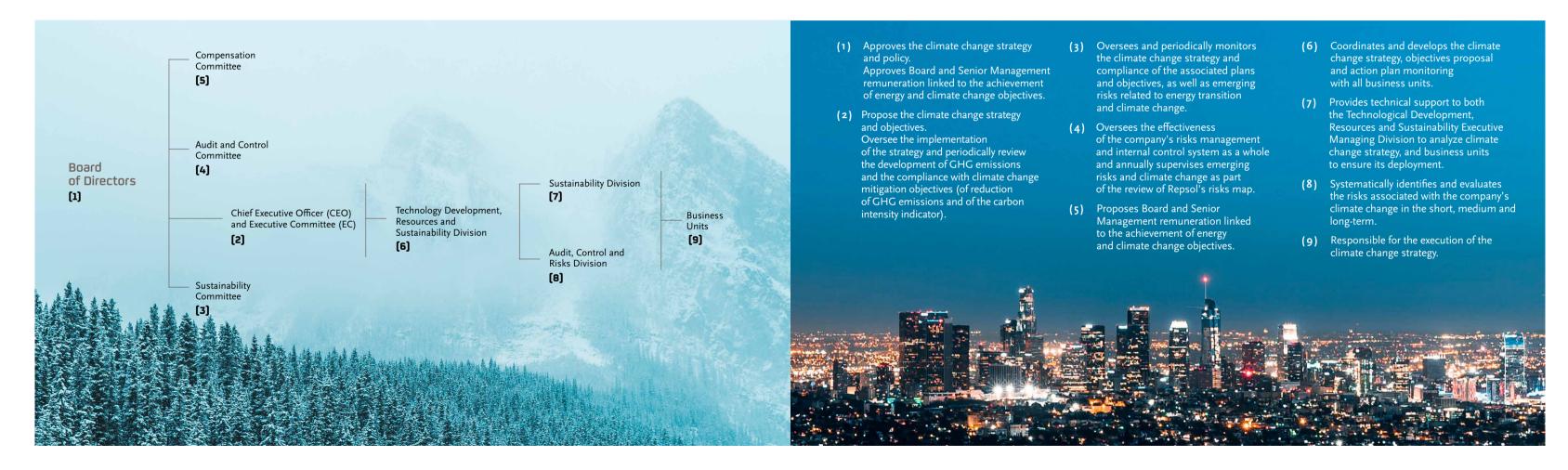
Luis Suárez de Lezo

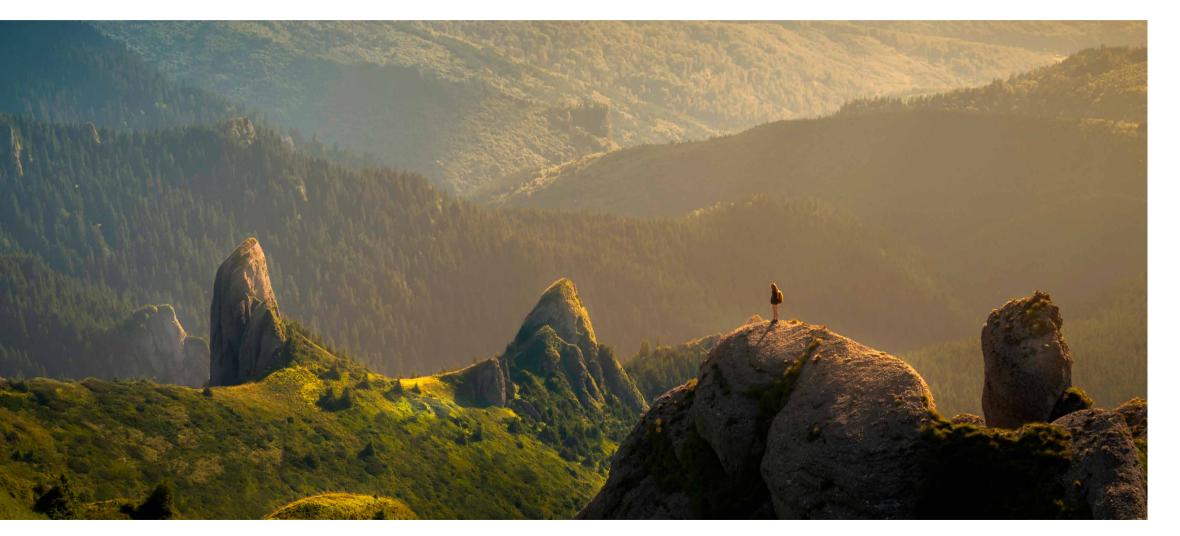
Board Director and General Counsel "All of us who form part of Repsol are fully committed not only to good business management but also to ethical behavior."

A common objective

The involvement of the entire company in achieving the strategy is also reflected in the annual GHG emissions reduction targets, which have a direct impact on the variable pay of all employees.

In addition, the long-term incentives of the CEO and a large number of the company's leaders are linked to compliance with the GHG emissions reduction plan.





Risk and opportunity management

We integrate energy and carbon management in our business model and the risk management system, given that climate change is a key factor for the strategic decision-making process.



Fernando Ruiz
Sustainability Director
"Only a company that has sustainability in mind for each of its actions and decisions will be able to guarantee its future."

We have an Integrated Risk Management System enabling the company to identify, analyze and control risks arising from climate change. In this regard, Repsol has in place the necessary processes for managing emerging and climate change risks in the medium and long-term, that include:

- The establishment of future scenarios for the development of the energy mix, taking as a reference those of the IEA, which are assigned on the basis of an expert judgement of the probability of their materialization.
- The identification of the most important relevant emerging and climate change risks in the medium and long-term (2025, 2030 and 2040).
- The quantification of the impact of these risks on the company's results in each of the scenarios.

In order to determine exposure to these risks and in the absence of a standard in the sector, Repsol has developed its own risk analysis methodology, extending the typical five-year horizon of a strategic planning cycle, to cover the longer-term risks with greater levels of uncertainty.

A panel of the company's experts in strategy, markets, technology and sustainability conducts the probabilistic analysis of scenarios and assessment of emerging and climate change risks identified. These risks can affect our activity both positively and negatively, depending on the risk mitigation and climate scenario adaptation strategies we adopt as a company.

Repsol is taking measures to reduce the risks described above, as well as the magnitude of the impacts that climate change may have on natural resources, the weather phenomena to which we and our facilities are exposed to. To cite an example, Repsol operates in areas that may be affected by the water stress, which would affect the correct operation of its facilities. In these areas, the company develops plans to reduce water consumption and increase reuse.

The management of all these risks represents business opportunities for Repsol, which are described in the Strategy section.



Carbon Budget

Repsol pays special attention to the so-called carbon budget or maximum amount of emissions allowed before reaching GHG concentrations that produce an unacceptable increase in the average temperature of the planet compared to pre-industrial levels.

Coal is the source of energy that faces a carbon budget problem first, both because of the volume of reserves still to be exploited and because of the rapid development of alternative sources for electricity generation. For the Oil & Gas sector, the most costly and carbon-intensive resources will be the first to see reductions as the century progresses, although technological progress will cause their costs to be reduced. Two thirds of Repsol's production and three quarters of its reserves are natural gas, which we consider to be the most cost-effective energy source in the short-term for promoting an orderly energy transition, due to lower emissions than coal in electricity generation.



Emerging and climate change risks and Repsol responses

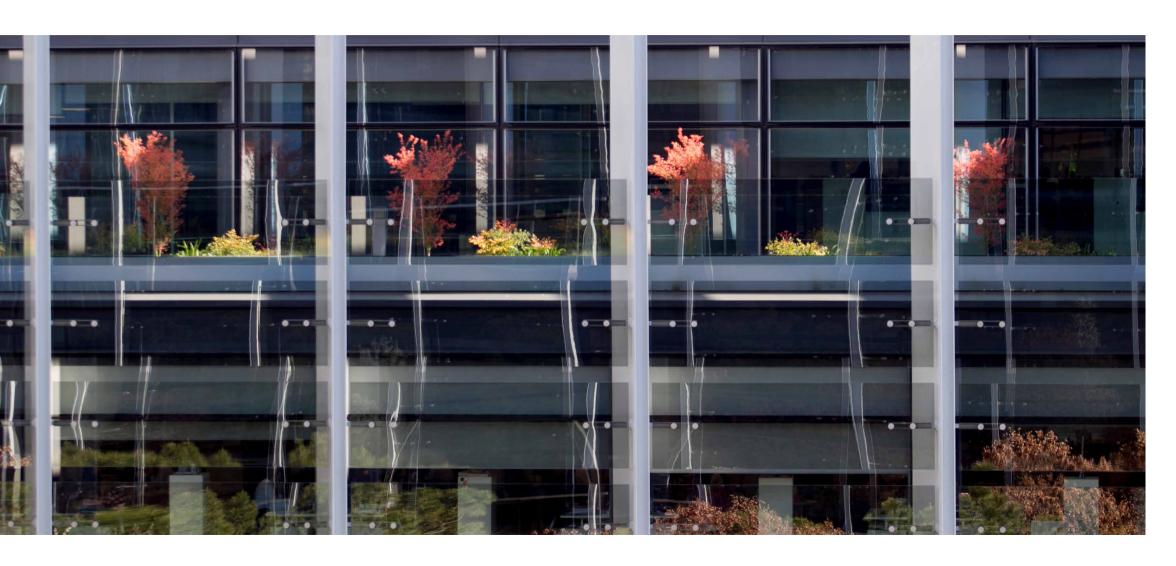
- Changes in the end use of energy, either as a result of natural market dynamics, those driven by regulation or by a greater awareness of society of climate change.
- Repsol has a wide-ranging mobility offer that includes alternative fuels such as AutoGas and high-octane gasolines, incorporates sustainable biofuels into its products, leads in recharging for electric mobility in Spain and participates in the carsharing initiative WiBLE with hybrid vehicles.
- Changes in primary energy sources toward alternatives that are less carbon intensive.

The company is committed to natural gas, biofuels and new low-emissions businesses, such as renewable electricity generation.

- Late or inadequate adoption of practices / processes / technologies not very developed to date, oriented:
- to energy production, distribution and storage.
- Repsol invests in innovative projects such as the floating wind energy project Winfloat Atlantic, actively monitors technology in its Technology Lab and participates with its Corporate Ventures fund in companies that offer innovative solutions for the energy transition such as Ample, Ampere Power Energy or Wattio among others.
- to the development of new non-energy products, new materials allowing the use of oil decoupled from CO2 emissions. Repsol invests in the development of advanced materials from petrochemicals and in the use of CO2 as raw material.

- **Regulatory changes** that affect operations or future investments, whether arising from the adoption of measures to mitigate climate change, whether environmental, fiscal, etc.
- **Fundraising** to finance the development of certain energy projects, derived from the position that the financial sector or the investor may adopt in relation to the energy sector.

Repsol has issued a 500 million-euro green bond applied to energy efficiency projects at its refining and chemical facilities in Europe and has a large base of ESG (Environmental, Social and Governance) investors among its shareholders.



Strategy

We integrate climate change into our strategy.



Alejandro Oliva Strategy and Planning Director

"Our strategy is clear, we are becoming a global multi-energy company capable of providing sustainable products and services to all our customers."

At Repsol we share society's concerns regarding the effect of human activity on the climate and we are firmly committed to the ambition of limiting the average global temperature rise to below 2°C above pre-industrial levels by the end of the century. As a signatory of the Paris Pledge for Action document, we support the agreement and we work toward being part of the climate change solution.

In this transition to a low-emissions future a holistic approach is needed that takes into account all available and emerging technologies, their costs and their degree of maturity, without prejudging which of them will ultimately succeed.

Repsol's strategy is embodied in detailed five-year plans that are periodically reviewed and complemented by longer-term environmental and business projections. To define it, the risks and opportunities of climate change and its impact on strategic lines and on competitiveness are taken into account. In this sense, following the 2018 update

to the 2016-2020 Strategic Plan, Repsol anticipates large trends, such as the increase in demand for electricity and the key role of natural gas in the energy transition.

In the short-medium-term we take into consideration aspects that are more closely related to competitiveness, such as the costs of energy and CO₂, as well as the regulatory framework of our activities. Repsol operates in areas with strict legislative requirements for energy and carbon (approximately 65% of our direct emissions of CO₂ come from our units in Europe, the US and Canada). Pursuant to the Paris Agreement, countries' commitments will have a significant impact on climate policies. Specifically, the following stands out:

 In Europe, the 2020 and 2030 Energy and Climate packages, include key directives such as the Directive that regulates the Emissions Trading System, the Energy Efficiency Directive and the Renewable Energies Directive. To respond to this regulation, Repsol is reducing its CO₂ emissions through energy efficiency actions, not only in its production processes, but also in the way in which it produces energy. Accordingly, the company is generating the electrical energy and the steam needed by its industrial processes through cogeneration facilities, which are more efficient than conventional combined cycles.

Repsol also incorporates biofuels into its automotive fuels, efficiently integrating biofuel production processes in its refineries, such as HVO (Hydrogenated Vegetable Oil).

 Regulations on the promotion of clean and efficient energy in road transport vehicles set a specific average emissions target for the fleet of vehicles marketed by automotive companies (in g of CO₂ / km).

Therefore, Repsol has made an effort to adopt an advanced scheme in terms of complexity and flexibility to enable it to compete





in future fuel changing demand scenarios. The company also identifies opportunities, supports projects and implements initiatives in renewable energy for transport, biofuels or use of automotive LPG, among others.

• In Canada, the company is considering the implementation of the Pan-Canadian Framework on Clean Growth and Climate Change, in which the federal government has set a carbon pricing pathway that will reach CAD\$50/ton in 2022, a cost that Repsol takes into account for the approval of its investments.

In the longer-term, there are legislative developments at the international level, such as the energy and climate roadmap from the EU to 2050, sustainable finance at the EU level or national contributions from other countries to the Paris Agreement, which will be transposed into future regulations over the years.

In all cases, Repsol adopts the regulatory objectives established wherever it operates and advocates the adoption of cost-efficient measures as well as technological neutrality in order to successfully face the energy transition.

Repsol's strategy focuses on increasing the company's resilience to these regulatory frameworks, adapting its products and services to the development of the use of different energy sources that is necessary to mitigate the impact of climate change.

At the same time, Repsol advocates for carbon pricing as a critical element of climate policies aimed at carrying out the transition to a low-emissions future.

The company analyzes different climate scenarios in the medium and long-term. The analysis of these scenarios is the tool that must anticipate how the energy sector must be adapted to be able to sustainably

supply the energy that society will need in the future. Repsol considers today as central scenarios those that are compatible with a 2°C future in order to identify new risks and opportunities in this transition and analyze the key pillars and technologies that will contribute to achieving a low-emissions future for the company.

The analysis of scenarios is complex as, when starting with a global approach, it is necessary to drill down to a regional study that makes it possible to understand the deployment of energy sources and the type of products required.

Repsol believes that these new scenarios offer a significant opportunity for innovation and investment in new low GHG emission solutions. To this end the company works both individually and in collaboration with other companies directly and through various international initiatives, among which the OGCI stands out.

Carbon intensity indicator

Energy plays a fundamental role in improving society's quality of life. The challenge is ambitious: ensuring a universal, secure, accessible and sustainable energy supply and making it compatible with the solution to climate change.

This goal presents both great challenges and the opportunity to

strengthen our role as a global energy supplier.

To make progress in this area Repsol has developed a carbon intensity indicator with which the company measures CO_2 emissions for every unit of energy that we put at society's disposal (t CO_2/GJ), which allows us to set reduction targets, support strategic

and investment decision making and monitor their progress.

We have the ambition to reduce our carbon intensity in line with climate change mitigation needs, which we represent today through the IEA's SDS scenario, without forgetting that at the same time we must provide the energy society needs for its development and well-being.

In order to achieve both the long-term ambition and short-term objectives, we define pillars of action on our indicator that will enable us as a company to move forward in a scenario compatible with a low-emissions future.

We evaluate which levers we will have to apply and with what intensity to meet our long-term commitments and measure the progress of the indicator each year. Although in order to reach the ambition of 2040 we will need technologies and solutions that have not yet been developed, the short-term objectives are set using the levers we have today.



(1)

- The direct and indirect emissions of the Exploration and Production, Refining and Chemical businesses of our industrial complexes in Spain, Portugal and Peru and of the low-emission electricity generation of the Repsol Electricidad & Gas subsidiary are included.
- The emissions associated with the use of our products corresponding to our production of oil and gas from the Exploration and Production business are also included. Oil production includes the emissions associated with the biofuels used.

(2)

- Energy corresponding to our oil and gas production from the Exploration & Production businesses is included. Oil production includes the energy associated with the biofuels used.
- Chemical products are considered carbon sinks and, although they are not strictly energy products, the oil energy needed for their production is accounted for.
- Energy from renewable and non-renewable electricity generation sources (through natural gas) is included.

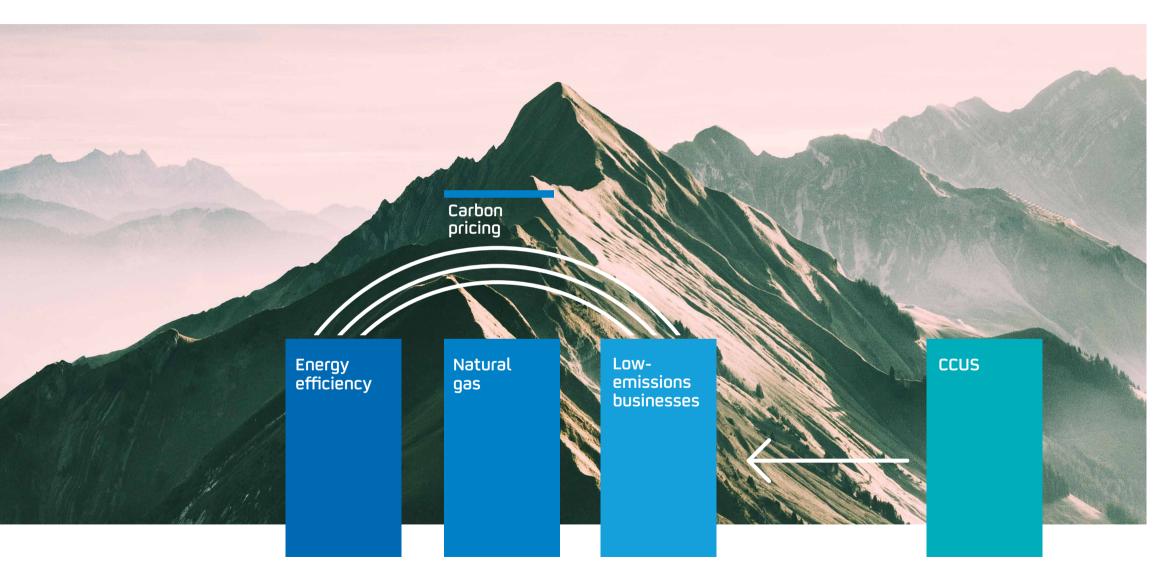
Main levers to mitigate risks

The levers identified allow us to efficiently manage risks and transform them into opportunities to continue with the evolution of the company toward a lower carbon intensity.



Note: This figure is a schematic illustration.

- Carbon pricing
- · Ratio oil to gas
- Energy efficiency
- Methane emissions
- Flaring
- Non-fuel uses (chemical products)
- Biofuels
- Renewables
- · CCUS
- Hydrogen
- Natural carbon sinks



Pillars of the carbon strategy

Based both on the different possible ways of achieving a low-emissions future and on our analysis of the different climate scenarios, at Repsol we have defined five lines of action that we integrate into our strategy:

- 1. Internal carbon pricing
- 2. Energy efficiency
- 3. Key role of natural gas
- 4.Low-emissions businesses
- 5. CCUS

We also explore the role that new zero-emissions or even negative-emissions technologies such as e-fuels, green hydrogen and natural carbon sinks can play.

sinks can play.

The following is a detailed analysis of each of the five lines of action mentioned.



Antonio Lorenzo

"At Repsol we believe that putting a price on carbon is the best tool to help us make decisions. We believe in it and implement it, thereby demonstrating our firm commitment to the Paris Agreement."

Carbon pricing

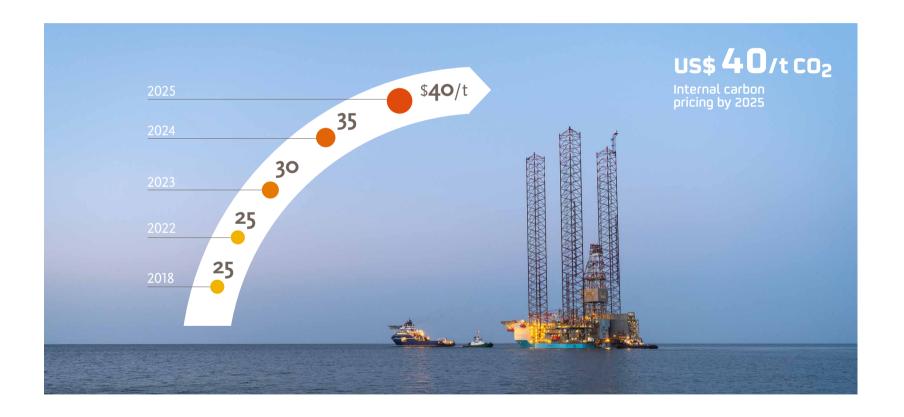
As an energy company we are convinced that setting a global carbon pricing and applying it homogeneously to all sectors is the best tool to move toward a lowemissions future. In this way, each ton of CO₂ would have an associated price that everyone, from the industry to the final consumer, would see reflected in their activity and that would allow them to become aware and modify their habits toward a production and consumption of energy that is efficient as possible. This would also be reinforced by clear and transparent information on costs and their impact on each party involved.

The global application of this measure would promote a model in which sustainability and competitiveness would reinforce each other.

Furthermore, the homogeneous application at a global level would eliminate the risk of delocalization of industry and would avoid overlap

with other environmental policies currently in force, aimed at incentivizing or penalizing specific sectors or technologies, which undermine the effectiveness of this tool and whose cost per ton of CO_2 avoided is much greater than the result of putting the same price on each ton of CO_2 . This system would also make it possible to address the transition to a low-emissions future in an orderly manner and at the lowest cost to the consumer.

In accordance with this position, and in the absence of global measures, Repsol has established an internal carbon pricing that we apply to every new investment we make. The values we have set are US\$25/t in 2018, reaching US\$40/t from 2025.





Juan Antonio Carrillo de Albornoz

ED Industrial Business and Trading

"Energy efficiency is the pillar that is allowing us to transform the company and be excellent in everything we do."

Energy efficiency

We see energy efficiency as one of the key pillars in our ambition to reduce our emissions and our energy intensity.

Energy management is an integral part of our history and has been in our DNA since the company's inception. In 1992 we created the first working group between refineries with the aim of identifying and reducing our energy consumption, convinced that we could carry out our activity more efficiently. Currently, more than 1,400 people from across the company with different professional profiles (plant operators, process engineers, equipment specialists, purchasing and recruitment technicians and researchers) share their best practices, experiences and knowledge in our Energy Management Community.

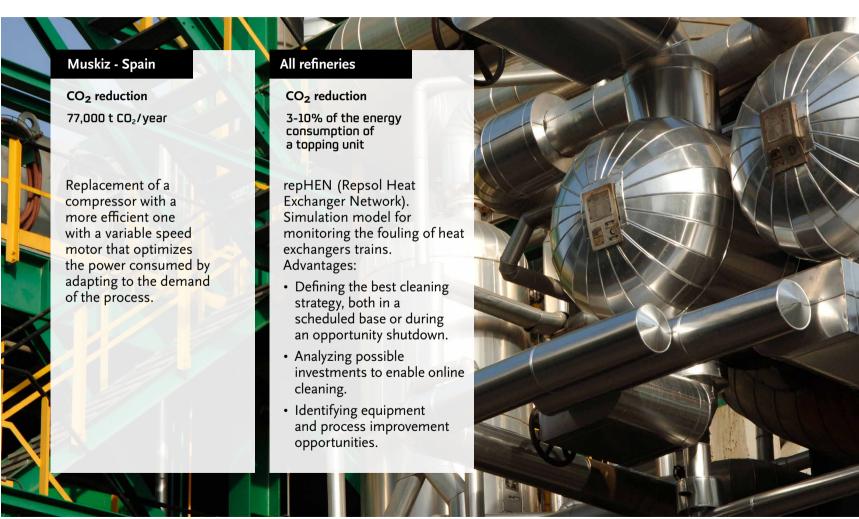
As an example of this commitment, in 2011 our industrial complex in A Coruña became the first refinery in the world to certify its energy management system in accordance with the ISO 50001 standard. In the following years, the rest of our industrial complexes achieved the same certification and our lubricant and asphalt production plants also have the same international standard.

The design and implementation of energy efficiency plans are key to our strategy to reduce GHG emissions and also to improve the competitiveness of our businesses. These plans include improving the energy efficiency of our processes, as well as reducing methane emissions and hydrocarbon routine flaring.

Our internal energy audit plan at downstream facilities allows us to identify new opportunities to reduce energy intensity as well as associated CO₂ and methane emissions. In the case of our Exploration & Production activity, we carry out ORE (Operational Review Energy) studies to find new emissions reduction opportunities in installations associated with hydrocarbon deposits.

The improvement of energy efficiency implies a continuous process of searching for opportunities in the fields of technology, design and operation and maintenance procedures, for which we have an energy gap analysis program that evaluates our energy consumption and compares it with the best technical benchmarks in the sector.

Case studies



Green bond



Repsol was the first company in the Oil & Gas sector to issue a green bond amounting to €500 million, to finance energy efficiency projects and low-emissions technologies according to the technical specifications defined in the table below.

The bond allows refinancing in the period 2014-2016 and financing total bonus targets, respectively). in the period 2017-2022 of more than A committee has also been set up 300 energy efficiency projects in our refining and chemicals facilities in Europe that meet the requirements incorporated to ensure compliance. established by the Green Bond Principles from the International Capital Market Association (ICMA).

Our commitment is to report and annually verify the projects associated with the green bond in financial terms and those of avoided emissions. In June 2018, the first external verification was carried out, in which €252.3 M available and 663.3 kt CO2 avoided were recorded (51% and 55% of the which, every six months, reviews and validates the actions to be In addition, it approves the bond monitoring report that is published annually.

Energy efficiency

Upgrade of equipment: Heat Upgrade of equipment: Dynamic equipment Improvements of operating criteria Energy integration New units / Process scheme modification Network optimization

Low-emissions technologies

Methane emissions mitigation Reduction of flaring and venting Alternative power generation

Repsol first company in the Oil & Gas sector to issue a green bond



Natural gas in the energy transition



Tomás García Blanco EMD E&P

"Natural gas is the fuel that will make the energy transition possible, and ensure our company is in an unbeatable position to deliver it to society."



of production

+70%



of reserves





2025 target

15%

gas wholesale market share in Spain



Natural gas is an abundant, clean, flexible, safe and accessible energy source that will undoubtedly play a key role in the energy transition. According to the IEA's SDS scenario, demand for natural gas will grow by an average of 0.6% per year until 2040, at which time it will represent 25% of the primary energy mix, compared to 22% currently.

Natural gas is part of the solution in the fight against climate change and also in improving air quality. In the power generation sector, natural gas is the most cost-effective solution

to promote an orderly transition to a low-emissions future and has numerous advantages over coal: it emits half of the CO₂ per unit of energy generated and also produces less SO₂ and particulates, not forgetting the higher efficiency of combined gas cycles compared to conventional coal-based generation. According to the IEA, the substitution of coal by natural gas in the electricity sector would see an annual reduction of more than 4.8 Gt of CO₂, an amount equal to the entire amount emitted by the United States in a year.

In the short and medium-term, replacing coal with natural gas in the electricity sector is the measure with the greatest impact on developing economies because it will facilitate their universal access to energy and supply the growing demand in these countries. In the case of developed economies, natural gas can play two differentiated roles:

- Replace large coal-fired power plants.
- Allow the integration of renewable energy, the intermittence of which requires reserve capacity. Combined gas cycles are currently

a programmable technology that translates into both lower costs for the electrical system and stability for the grid.

At Repsol, we are well positioned, given that our Exploration & Production portfolio is evolving toward a higher percentage of gas versus oil: more than 60% of our production and more than 70% of our reserves are natural gas. In addition, we require our investments to be economically viable at low oil prices.

In addition, we are committed to producing gas in areas close to consumer markets, such as most

of our assets in Latin America, North America and Southeast Asia, therefore favoring its transport by pipeline over other more energy-intensive expensive forms

Finally, it should be noted that currently around 95% of the energy consumed by our industrial facilities comes from natural gas and plant gas, which have replaced traditional liquid fuels.

As part of the acquisition of low-emissions assets from Viesgo in 2018, we incorporated two combined cycle gas plants in Algeciras (Cádiz)

and Escatrón (Zaragoza) with an installed capacity of 1,650 MW. This allows us to be part of the wholesale gas chain, as the volume of natural gas we use in our industrial complexes accounts for 12% of all natural gas consumed in Spain, and we aim to exceed 15% by 2025.

Low-emissions businesses



María Victoria Zingoni
EMD Commercial
Business and Chemicals

"The customer is at the heart of our decisions, providing the products and services they need at any time. In fact, the customer has become part of Repsol."





2025 targets

5%

gas and electricity retail market share [Spain]

4,500_{MW}

low-emissions electricity generation capacity



To lower our carbon intensity indicator, in addition to continuing to implement energy efficiency measures, we increased holdings in our portfolio of lower-emission products and incorporated renewable electricity generation.

Biofuels

The use of biofuels in transport provides an immediate opportunity to reduce emissions, which can be extended in the longer-term with the development of the next generations of biofuels.

Repsol has been adding biofuels to its automotive fuels for more than 20 years. Therefore, in Spain our gasoline and diesel contain on average 6% in energy content of biofuels and in 2020 this figure will increase

to 8.5% in line with EU regulatory requirements.

Since 1998, we have invested in the transformation of MTBE plants, a component of mineral origin used in the preparation of gasoline, into Bio-ETBE plants using bio-ethanol as the component, with a renewable origin content of 37% in energy. Since then, we have incorporated more than 4.5 million tons of Bio-ETBE into our gasolines.

In addition, in 2006 we started a line of technological development that has allowed us to produce HVO in our refineries from vegetable biomass, with a production of 380,000 tons per year, an amount which we expect to increase.

Chemicals

Our production in Europe is centralized in three large petrochemical complexes: two in Spain, in Puertollano and Tarragona and a third in Sines, Portugal. Furthermore, through the Dynasol Group, a company in which Repsol and the KUO Group have a stake, we are present in Santander (Spain), Altamira (Mexico) and Liaoning (China).

The chemicals business develops high value-added products aimed at improving people's quality of life, well-being and safety. These materials are used in non-energy applications and therefore their use is decoupled from the emissions of CO₂ into the atmosphere.

In the update of our strategic plan we have foreseen investments of €1,500 million in the 2018-2020 period for the growth of the Downstream businesses, part of which will be dedicated to boosting the Chemicals business

Renewable energy

In renewable energy, the incorporation of assets acquired from Viesgo included three hydroelectric plants in the north of Spain with an installed capacity of 700 MW to Repsol's asset portfolio.

Our company, through its new subsidiary Repsol Electricity and Gas, has become a significant player in the Spanish electricity market, with a total installed capacity of 2,952 MW (2,352 MW from the Viesgo hydroelectric and gas combined cycle acquired facilities, plus 600 MW from our cogeneration plants), a market share of over 2% in the electricity and gas retail sector in Spain and a portfolio of 830,000 customers.

In addition, we have expanded our presence in the renewable sector with the entrance into the Valdesolar Hive project, which is being developed in Valdecaballeros (Badajoz) one of the largest solar photovoltaic farms in Spain, with a capacity of 264 MW.

These actions will contribute to the reduction of our carbon intensity and to the objectives set for 2025

in our Strategic Plan, thus combining the management of climate change risks with taking advantage of opportunities.

We also have a stake in Principle Power Inc. (PPI), provider of technology and services for the offshore wind energy market in deep water. One of its floating prototypes, located offshore Portugal, generated 17,000 MWh between December 2011 and July 2016. This technology is already being developed on a commercial scale with the Windfloat Atlantic project (with three 8 MW turbines) that we are carrying out in partnership with EDP Renovables and Engie. It is scheduled to start up in December 2019.

Carbon Capture, Use and Storage (CCUS)

Part of the solution in the fight against climate change will have to come from new developments, which undoubtedly include the capture, use and storage of CO₂. CCUS technologies are necessary in the scenarios projected to reach the commitment made under the Paris Agreement, so we support their development and deployment.

According to the IEA, energy efficiency, renewable energies and CCUS technology will be key to meeting climate change mitigation objectives, the latter being even more necessary in more ambitious scenarios.

These technologies still have a way to go to reduce costs, remove technical

uncertainties and achieve broad societal acceptance. Deploying pilot projects on an industrial scale is a necessary step to remove these uncertainties and test cost competitiveness when they are developed on a large scale.

To achieve their application, public administrations will have a decisive role in establishing the appropriate mechanisms (carbon prices, regulations and permits, etc.).

Repsol participates in the development of these technologies as a member of the OGCI with the investments made by the OGCI Climate Investments fund, which to date has taken stakes in:

- Solidia: a company dedicated to the production of cement and concrete, which has patented a technology that allows the use of CO₂ in the setting of concrete instead of water.
- Econic: a pioneering company in the development of catalytic systems, which has been able to incorporate up to 50% in weight of CO2 as a raw material in the production of polyols, the basis of all polyurethanes.
- Inventys: a company that has developed a process for capturing CO₂ which uses a patented architecture of solid adsorbent structures that avoids the high costs associated with other conventional processes.

The value of CCUS

Once developed at the industrial level and ready to compete commercially with other technologies, the added value would be enormous:

• The gas - CCUS binomial is an ally of the renewable energies in the electrical system, acting as a reserve of the intermittency of these energies with minimum emissions.

- The deployment of CCUS technology is necessary to achieve the ambition expressed in the Paris Agreement, which aims to achieve net zero emissions in the second half of this century or even negative net emissions in mitigation scenarios beyond 2°C.
- CCUS is also necessary to reduce emissions in industrial sectors such as

the steel, cement, aluminum, chemical sectors, etc., where there is currently no alternative for decarbonization.

• The CO₂ captured can be used as raw material for a wide range of opportunities, ranging from polymer formulation to fuel procurement, or used as a building material in cement manufacturing.





Commitments

We define metrics and targets to further our commitment to be part of the solution to climate change.



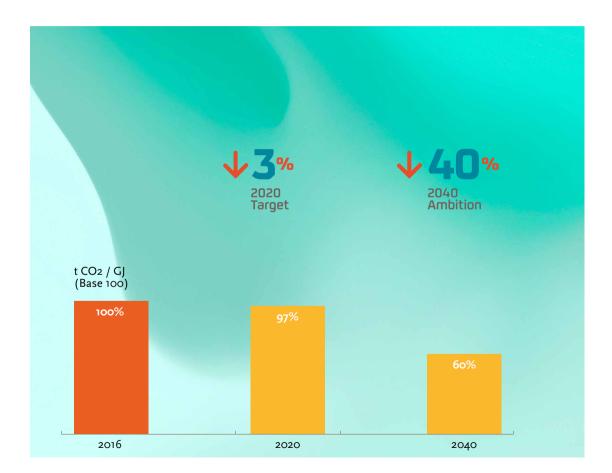
Luis CabraEMD Technology Development,
Resources and Sustainability

"Providing safe, clean, affordable energy and making it compatible with the solution to climate change is our ambition and what society and investors demand of us."

Carbon intensity reduction

Our commitment to reduce the carbon intensity indicator takes the form of a short-term target and a long-term ambition, which take 2016 as the baseline:

- Ambition to reach a 40% reduction by 2040, in line with the Paris Agreement, making our company evolve at the pace of the energy transition that the world needs.
- Target to reduce the carbon intensity indicator by 3% by 2020.



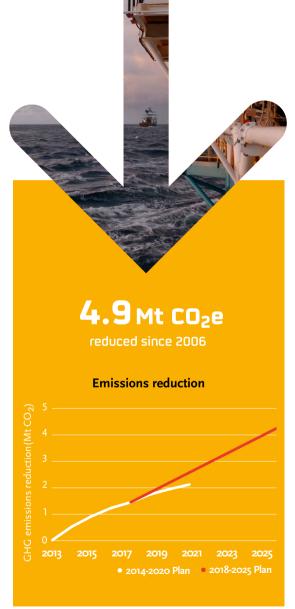
CO₂e emissions reduction plan

We are committed to reducing energy use and GHG emissions in all our operations. Our energy management systems enable us to establish energy efficiency plans and emissions reduction targets, both annually and in the long-term.

Therefore, we have developed emissions reduction plans since 2006, reaching with our first plan 2006-2013 a reduction of more than 3 million tons of CO₂ per year at the end of this period.

We then established a second 2014-2020 plan with an emissions reduction target of 1.9 million tons of additional annual CO_2 at the end of the period, which we extended to 2.1 million after the acquisition of Talisman Energy in 2015.

In 2018 we have defined a new GHG emissions reduction plan for 2018-2025 with the objective of achieving an annual reduction of 3 million tons of CO₂e at the end of the period compared to 2017.



The ambition of the new objective requires us to widen the field of action, which was until now focused on energy efficiency measures, also covering:

- Reduction of methane emissions
- · Reduction of routine flaring
- Additional improvement of energy efficiency
- Use of low-emission technologies and renewable energies in our operations

Undoubtedly, this new plan presents a greater challenge than the previous ones, due to the increasing cost of reduction of each abated ton of CO₂, to which we will respond using innovation, digitalization and the application of new technologies as key levers.

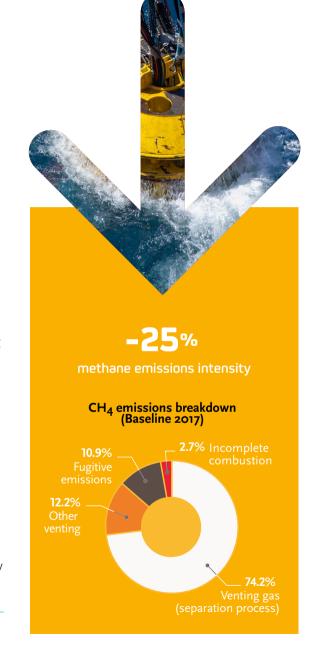
Methane emissions reduction

Natural gas is composed of different types of light hydrocarbons, with methane being by far the largest component. Therefore, any loss or leakage of gas generates an emission of methane into the atmosphere.

Methane is a greenhouse gas with a Global Warming Potential 25 times higher than that of CO_2 ¹, so minimizing its emissions is essential to ensure the advantages of natural gas as a lower carbon intensity energy source, key in the energy transition.

We have defined a strategy to reduce methane emissions at our facilities based on the application of best practices in measurement and mitigation and aligned with that we have joined several international initiatives as active participants.

In addition, we have aligned our commitment to the OGCI initiative to reduce our methane emissions intensity by 25% in our operating exploration &



production assets by 2025 compared to 2017. To achieve this, we have established two lines of action:

- Implementation of more reliable emissions detection and quantification technologies.
- Identification and use of opportunities for the reduction of emissions.

Repsol participates in the development of technologies for the reduction of methane emissions as a member of OGCI through the investments made by the OGCI Climate Investments fund, which to date has taken stakes in the following:

- GHGSat: a company that develops satellite technology for the identification of GHG emissions, specifically methane. This technology is capable of capturing a series of more than 200,000 atmospheric measurements around an industrial facility in a few seconds, generating a "heat map" of the facility's GHG concentrations.
- Kairos Aerospace: a company that has developed a technology for detecting methane emissions through aerial

inspections. They have patented sensors and software to monitor emissions over large areas, mainly E&P assets and transmission lines.

• ClarkeValve: a company that has developed economically competitive control valves that are capable of eliminating fugitive methane emissions from seal zones.

Fugitive emissions reduction program

We apply a program based on Leak Detection and Repair (LDAR) technology for the detection, quantification and correction of fugitive methane emissions in our operating assets.

To support this program, we have developed an internal hybrid technology application guide, which combines the use of an infrared camera and hydrocarbon detection devices.

Climate & Clean Air Coalition

Repsol is a signatory to the international initiative Climate & Clean Air Coalition - Oil & Gas Methane Partnership of the UN Environment, to reduce methane emissions, remove barriers and find technically and economically viable solutions.





Methane Guiding Principles

Group that addresses the guiding principles of proper methane management in terms of measurement, mitigation and transparency in reporting, among others.

Principles for Responsible Investors (PRI) Methane Initiative

Initiative to share best practices in management of methane emissions.



¹ Global Warming Potential (GWP) at 100 years. Source: IPCC Fourth Assessment Report (2007).

Flared gas reduction

Flares are part of the safety mechanisms of hydrocarbon processing plants. Its function is to eliminate evaporable gases and fluids that are being processed, through their controlled burning, in the event of an interruption in production. The combustion of these fluids eliminates the risk of their local accumulation or their direct emission into the atmosphere, mainly by converting them into CO₂ and water steam.

Deliveries of gas for flaring should be exceptional and associated only with situations of abnormal operation in the units (non-routine flaring). However, sometimes in exploration & production facilities, hydrocarbons are routinely sent for flaring.

At Repsol, we are aware that the routine flaring means not only higher CO₂ emissions but also a loss of product not used in our processes, and that is why in June 2016 we joined

the World Bank's Zero Routine Flaring by 2030 initiative to minimize routine flaring before 2030.

As members of this initiative we commit to seeking technically and economically viable solutions to minimize routine flaring as soon as possible and no later than 2030 in our exploration & production facilities, by means of:

- More accurate measurement, segregation between routine and non-routine flaring and improvements in design and operation.
- The reuse of gas to generate heat or electricity.
- The search for commercial solutions.

Numerous governments, institutions and companies from the Oil & Gas sector are part of this initiative, which opens the door to collaboration in the search for opportunities

and the development of projects to reduce flaring.

In 2018 Repsol set a target of 50% reduction in routine flaring by 2025 compared to 2018, aligned with the ambition of minimizing it by 2030.

In addition, we have our own Environmental Performance Practices (EPP) that allow us to ensure that our new upstream facilities include, from their design phase, solutions to avoid routine flaring.

Zero Routine Flaring by 2030



Minimize routine flaring in E&P operations by 2030

Ensure that new fields include, from design phase, solutions to avoid routine flaring and venting





Let's invent the future

We are convinced that innovation and technological development are essential to ensure a secure and sustainable energy supply in the long-term.



Jaime Martín JuezTechnology and Corporate
Venturing Director

"Without a doubt, innovation, technology and entrepreneurship will be fundamental pillars in our company's transition to a more sustainable future."

Sustainable mobility

Currently mobility has to face two environmental challenges, with a distinct impact on people's health and the protection of the planet:

- The air quality of cities, affected by pollutant emissions, mainly NO_X and particles produced by vehicles with thermal engines, with local or regional impact.
- Climate change linked to CO₂ and other GHG emissions with global impact.

There is no single solution for the future of mobility, and all promising solutions must be explored, focusing on each mode of transport.

To ensure the effectiveness of regulatory measures on CO₂ emissions not only should the emissions during the vehicle's use (from the vehicle's exhaust pipe) be taken into account, but also the emissions produced in each and every one of the stages that constitute the life cycle of each mobility



alternative: from the manufacture of the vehicle to the production of energy for its propulsion, through the use of the vehicle itself and the end of its useful life. However, the regulation that has been used historically and continues to be used sets emission limits (g CO₂/km) only in the vehicle's exhaust pipe, which distorts the comparison between internal combustion engine vehicles, which have their emissions concentrated in the exhaust pipe, and electric vehicles, whose emissions are produced mainly in power generation for recharging and in the manufacture of the battery.

It should be noted that internal combustion engines still have great potential for improving energy efficiency through technological development, estimated at 30% in 2030 with regard to current engines. At the same time, diesel and gasoline fuels must be adapted to the requirements of new engines in order for them to reach

Repsol electric mobility

We have positioned ourselves as a leading company in electric mobility and we participate in the largest recharging network in Spain, with more than 1,700 points, of which more than 200 are for public use. In April 2019 we inaugurated the first ultra-fast recharge point in the Iberian Peninsula, at the Lopidana service station (Alava).



their full potential for improvement. Our refineries, positioned in the first quartile of competitiveness and efficiency in Europe, are prepared to adapt to these changes.

Aware of our key role in the development of future mobility, we have implemented different lines of action that will allow us to be part of the solution to sustainable mobility that contributes to the fight against climate change:

AutoGas direct liquid-phase injection

We have led this development in collaboration with the companies AVL and DELPHI, demonstrating the benefits of using LPG or direct liquid-phase injection AutoGas as fuel, with a 15% reduction of CO2 emissions compared to gasoline.

Likewise, during 2019 and after a joint development project with our Repsol Technology Lab, we have

invested in the company BEGAS for the commercialization of an engine for heavy vehicles powered 100% by LPG.

High octane gasoline: Repsol Efitec 100 Neotech

Our Repsol Efitec 100 Neotech gasoline is a fuel inspired by racing gasoline that allows us to obtain reductions in fuel consumption (and therefore emissions of CO2) up to 21% under demanding operating conditions.

Electric mobility

We are also committed to being a relevant player in the supply of electricity for the electric vehicle, in order to continue being a leader in energy for mobility in the markets in which we are present. Our commitment covers the entire process, from the generation of renewable electricity to the recharging of the vehicle according to customer needs and the evolution of the car fleet.

 Repsol has been participating since 2014 in the company Silence, which designs, produces and sells electric scooters and battery replacement systems for electric motorcycles. In 2018 we became shareholders of Ample, a company dedicated to the development of a new alternative recharging technology for electric vehicles.

At the same time, we participate in a CLIMA¹ electric mobility project.

- We have been the first company to verify GHG emissions reductions in the history of CLIMA projects in Spain.
- We have been verifying reductions for six years, with the total cumulative amount of 1,124 t CO₂, the equivalent of 8.5 million km traveled without emissions.

Carsharing

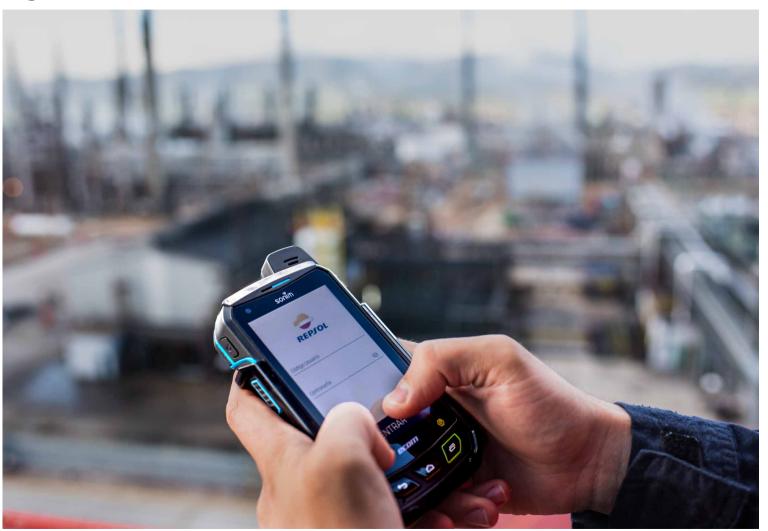
In 2018, Repsol and car manufacturer Kia created WiBLE, a new carsharing operator that offers its services in the city of Madrid, with a fleet of 500 plug-in hybrid vehicles with 600 kilometers of range labeled "Zero Emissions".

WiBLE is the first carsharing platform in Madrid that allows traffic and parking in the city center and the outskirts of the city, with operating bases in the metropolitan ring and private car parks in the center of Madrid.



¹ The CLIMA Projects of the Carbon Fund for a Sustainable Economy (FES-CO2) are GHG emissions reduction projects developed by the Government of Spain and designed "to transform the Spanish production system toward a low carbon model."

Digitalization



Digitalization is transforming society and has enormous untapped potential to improve the operations and business of the energy sector. Digital solutions provide tools and technologies that can improve energy efficiency and reduce resource consumption and carbon intensity.

Since 2017, Repsol has embarked on an ambitious digitalization program for the period 2018-2022, the objectives of which include improving efficiency, security, valuing data, optimization of resources, agility in decision-making and the sustainability of our business model. This program cuts across the company's entire value chain and involves all business units and many of our employees. Currently, the Digitalization Program already has more than 130 initiatives underway, with more than 1,000 professionals involved, and involves technologies such

as data analytics, artificial intelligence, omnicanality, RPA (Robot Process Automation) or blockchain.

Among the many initiatives of the digital program, we can cite as examples real-time monitoring and control of operations, mobile applications to improve safety and productivity in maintenance tasks of industrial complexes or new business models in connected service stations.

There are initiatives that will not only increase the company's profits but will also contribute to the reduction of emissions and encourage circular economy initiatives.

By way of example, the following stand out:

 Online assistance in efficient utilities management: this digital product uses an advanced analysis model to simulate the steam network of our industrial complexes and identifies

- actions for more efficient use of steam, resulting in lower fuel consumption in steam generation boilers.
- GesFugas: this system provides a mobile application for field operators to record and repair steam leaks in less time and more efficiently and reduce both CO₂ emissions and water consumption.
- Heat X: this digital application is based on a predictive model that anticipates fouling in heat exchanger trains and proposes optimal cleaning plans aimed at increasing energy efficiency and avoiding production losses.
- Online energy management: this tool makes it possible to identify deviations of energy consumption with regard to the optimum in real time, proposing corrective actions that achieve significant energy savings.

	Energy savings	CO ₂ emissions reduction	Water consumption reduction
Estimated savings in four digital cases within industrial area	193-213 GWh/year	38,900 - 42,900 t/year	16,400 t/year

Technology



We believe in technology and innovation as drivers of growth and sustainability. With more than 200 researchers, our Repsol Technology Lab is the largest private R&D center in Spain and bases its operating model on open innovation and networking, in alliance with other business centers and universities around the world. In this way, it contributes to our company's ability to anticipate the development of technologies related to energy transition and find solutions throughout our entire value chain to achieve a business with fewer emissions, which is more efficient and competitive. Some of the projects we develop several are focused on solutions that contribute to mitigate climate change:

Hydrogen production without CO₂ emissions

Currently 20% of CO₂ emissions in refining processes are associated with the generation of hydrogen, a component that allows us to improve the technical and environmental quality of our products. One of the main lines of activity at Repsol Technology Lab is to reduce the carbon intensity of hydrogen production. Alternative routes such as electrolysis with renewable electricity and photoelectrocatalysis with solar energy will play an important role in the future.

Fuel production from waste

As part of our commitment to the circular economy, we target the use of a wide variety of waste to produce fuels. In order to do so, we analyze the different options available, the conversion processes that allow its reuse and recovery and the quality of the final products so that they comply with the required standards.

CO₂ capture and use systems

Recovering and using CO₂ once produced is an alternative for reducing emissions in industrial processes. To do this, it is necessary to make separation technologies competitive (absorption, selective membranes, solid adsorbents), adapt them to the characteristics of the different sources of CO₂ (concentration, presence of pollutants) and promote the development of viable routes for later use, transformation or storage.

Residual heat in industrial processes recovery

Energy efficiency is the invisible source of energy. At Repsol Technology Lab we continuously research processes and technologies that allow us to achieve maximum energy use from all process streams, and in a special way, seeking the recovery of residual heat with a low thermal level.

Advanced biofuels

The production of biofuel from waste is a very effective way to reduce emissions of CO_2 and at the same time generate value with the recycling of urban, agricultural and industrial waste, without affecting the use of natural resources. In Repsol Technology Lab we study different industrial processes (hydrogenation, fermentation, pyrolysis) to transform waste such as used frying oils, fats, solid urban waste and used plastics or tires into clean fuels.

Repsol in numbers

Fuels

Venting

Process

Flaring

Fugitives

Emissions from use of products (Mt CO₂e)

Energy consumption (MGJ)

Energy from use of products (MGJ)

148.0

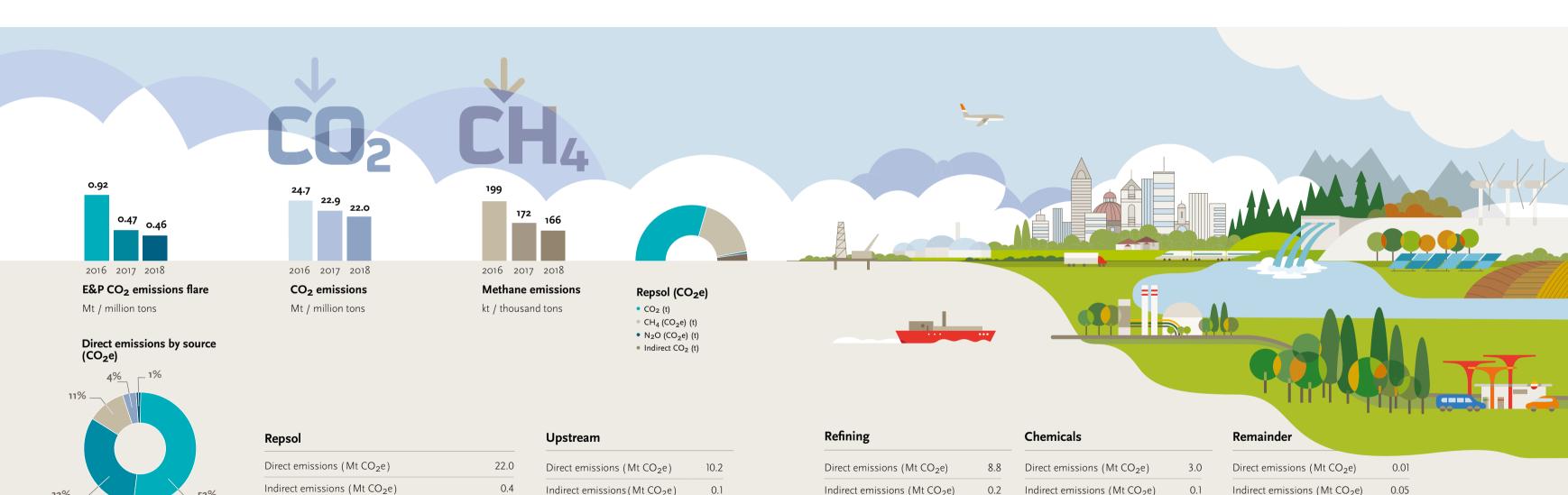
234

2,131

Energy consumption (MGJ)

50

We are committed to transparency and work to improve the quality of the information we report.



Energy consumption (MGJ)

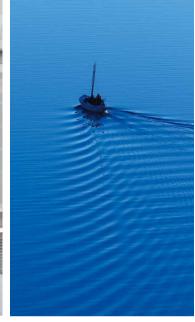
Energy consumption (MGJ)

Energy consumption (MGJ)

















Our commitment to transparency



The Repsol website includes a lot of sustainability and climate change content, as it is one the channels we use to communicate to our stakeholders our performance and the commitments we make on in this area.

2004

First Corporate Responsibility Report

2006

First CDP questionnaire response

In all these years in which Repsol has participated in CDP, it has been rated among the leading companies in climate change management.

2014

Repsol Sustainnability Day

Since 2014 we have been holding this event every year to make our best sustainability practices known to investors who take ESG criteria into account in their decision-making.

2017

Integrated Management Report⁽¹⁾

It provides information on the company's economic, social and environmental performance.

(1) To facilitate comparison with other companies, for years we have used an internationally recognized reporting standard, GRI (Global Reporting Initiative), and we externally verify the non-financial information we publish.

2018

Adhesion to TCFD

In line with this commitment, Repsol is aligning its report to comply with the recommendations of the TCFD, facilitating greater transparency in relation to climate-related risks.

We verify GHG emissions

Since 2007, we have verified the GHG emissions inventory according to ISO 14064-1. This verification currently includes emissions from Refining, Chemicals and Exploration & Production operating assets, accounting for more than 99% of the company's emissions. We have made the reports derived from these verifications available to stakeholders as further evidence of Repsol's commitment to transparency.

Glossary

Term	Description	Term	Description	Term	Description
ВЫ	Barrel of oil	GHG	Greenhouse Gas	NDC	National Determined Contributions
Вер	Barrel of oil equivalent	GWP	Global Warming Potential	OGCI	Oil & Gas Climate Initiative
CCUS	Carbon Capture, Use and Storage	HVO	Hydrogenated Vegetable Oil	ORE	Operational Review Energy
CCAC-OGMP	Climate and Clean Air Coalition –	ICMA	International Capital	SDG	Sustainable Development Goals
	O&G Methane Partnership		Market Association	SDS	Sustainable Development Scenario
CDP	Climate Disclosure Project	IEA	International Energy Agency	TCFD	Task Force on Climate related
EPP	Environmental Performance	ISO	International Organization		Financial Disclosures
	Practices		for Standardization	WEO	World Energy Outlook
ESG	Environmental, Social	LDAR	Leak Detection And Repair	ZRF	Zero Routine Flaring by 2030
	and Governance	LPG	Liquefied Petroleum Gas		0 , ,
ETBE	Ethyl Terc-Butyl Ether	MGP	Methane Guiding Principles		
FES-CO ₂	Fondo de Carbono para una Economía Sostenible	MTBE	Methyl Terc-Butyl Ether		

Repsol ED Communication Méndez Álvaro, 44 28045 Madrid Phone: (+34) 917 538 000

More information on repsol.com



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