CLIMATE CHANGE SUPPLEMENT

PETROBRAS

CONTENTS

Letter from the Chairman of the Board of Directors and Chairman of the HSE Committee

We are pleased to present our latest Climate Change Supplement, a critical tool for transparency and dialogue with our stakeholders that reflects our commitment to sustainability and decarbonization.

We are committed to ensuring that the company advances responsibly and transparently, aligning our business strategy with the needs of society and the global challenges of climate change.

Science shows that global warming is a reality that demands concrete and immediate actions. At the same time, the energy demand continues to grow, driven by economic development and the need to improve social well-being.

Considering the global environmental challenges, our strategic planning considers Brazil's unique situation, where the primary source of greenhouse gas (GHG) emissions is not the energy sector but changes in land use. Despite having the most diverse and renewable energy mix among G20 nations, we rank 102nd in per capita energy consumption. In this context, we seek to reduce greenhouse gas emissions and decarbonize our operations while ensuring a secure and accessible energy supply for society.

The management of emissions and the risks and opportunities associated with climate change are part of our strategy and corporate governance. We are committed to achieving neutrality in our operational emissions by 2050, consistent with the commitments made by Brazil, and we have already achieved significant operational results.

We are committed to being part of the solution, promoting innovation, investment, and transparent dialogue so that the energy transition occurs fairly and equitably, in alignment with our mission to produce oil and gas while diversifying into low-carbon businesses, and our purpose of providing energy that ensures prosperity and well-being in an ethical, fair, safe, sustainable and competitive manner.

Pietro Adamo Sampaio Mendes
CHAIRMAN OF THE BOARD OF DIRECTORS

Rosangela Buzanelli Torres
CHAIRMAN OF THE HSE COMMITTEE

Letter from the President of Petrobras and Energy Transition and Sustainability Executive Officer

Commitment to decarbonization is a global task. The speed and conditions of the energy transition depend on factors such as geopolitical conditions, availability of financing, and technological development. Despite the declining demand, our scenarios indicate fossil fuels will remain necessary worldwide, with a more resilient demand in Brazil for the upcoming decades. We understand that this demand will be met by the most efficient producers in the market from both environmental and economic perspectives.

With a portfolio characterized by double resilience (economic and environmental), we are prepared for the transition towards a future less dependent on fossil fuels and proactively support this transformation. We seek to advance the decarbonization of our operations while maintaining our focus on oil and gas production, at the same time diversifying our portfolio into low-carbon solutions such as biofuels, low-carbon hydrogen, and CCUS, in addition to expanding our capacity for wind and solar photovoltaic energy generation.

We have a comparative advantage in oil and gas production, with oil production characterized by low costs and a carbon intensity lower than the global average. These conditions allow the company to reconcile its leadership in a just energy transition with the responsible exploration of oil and gas in the country.

We advocate for a just, ethical, competitive, and safe energy transition, which should occur gradually, orderly, and cost-effectively, proportionally to Brazil's possibilities and responsibilities as a developing country. We reaffirm our ambition to achieve operational emissions neutrality by 2050 for our operated assets, influencing partners to reach the same ambition for non-operated assets. Similarly, we reiterate our ambition to achieve net-zero emissions growth by 2030, demonstrating that it is possible to expand the energy supply in Brazil without neglecting climate commitments.

The latest edition of the Climate Change Supplement continues our transparency on energy transition and climate change issues. It demonstrates our trajectory and contribution to a more sustainable world.

Magda Chambriard
PRESIDENT OF PETROBRAS

Maurício Tolmasquim
ENERGY TRANSITION AND SUSTAINABILITY EXECUTIVE OFFICER

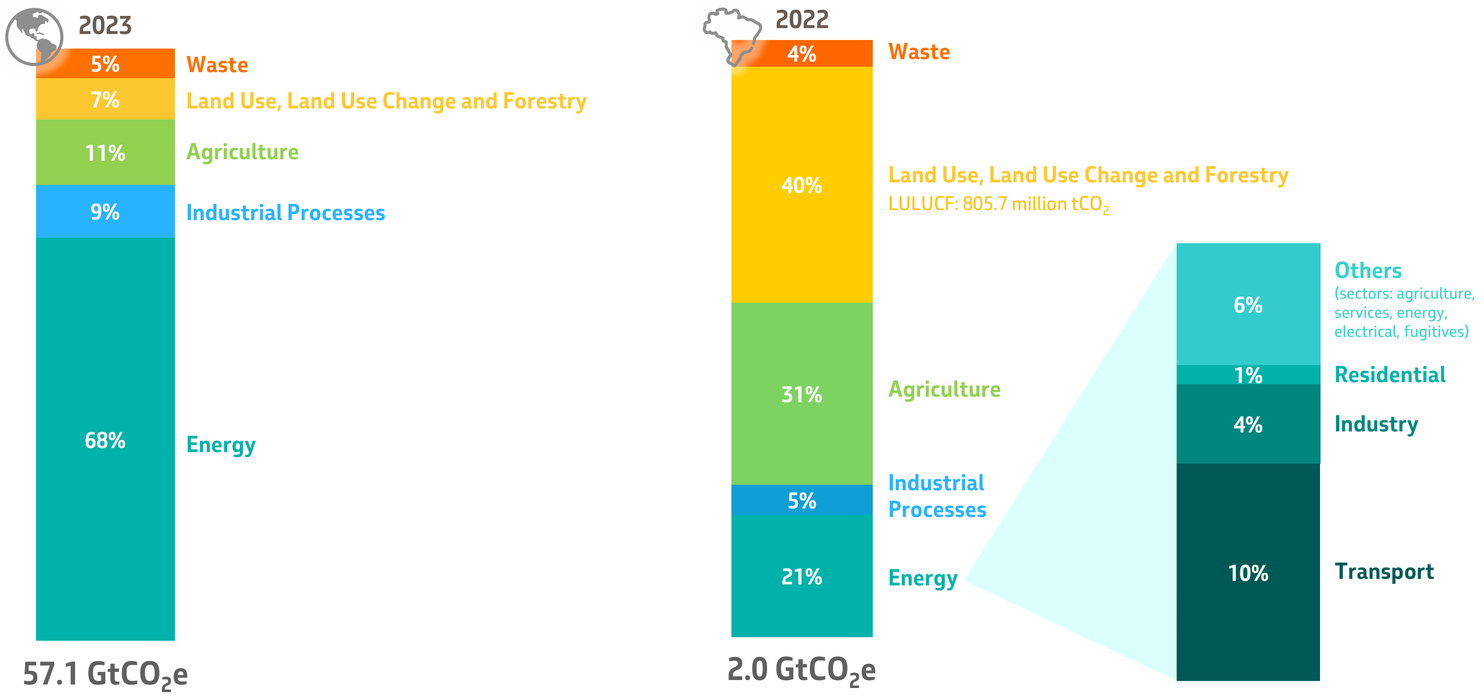
Executive Summary

Executive Summary

Brazil has a differentiated profile in its energy mix: while globally the energy sector is the most significant contributor to global emissions (68% in 2023), in Brazil, most emissions come from land use change, forests, and agriculture, accounting for approximately 70% of the country's total emissions, while the energy sector accounts for 21% of total emissions.

SHARE OF SECTORS IN TOTAL EMISSIONS

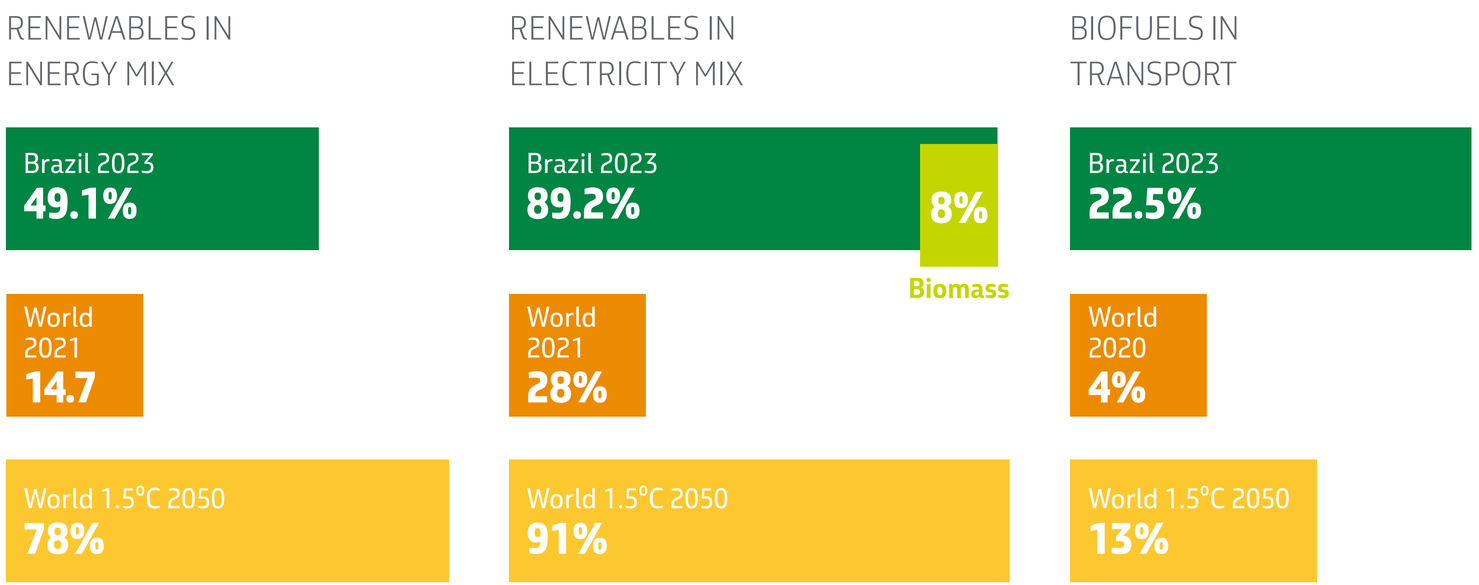
Primary Sources



Source: UNEP – Emissions GAP Report 2024 (UNEP, 2024), MCTI/SIRENE, 2025 (GWP AR5, data from 2022); BEN 2023, base year 2022 (EPE/MME, 2023).

- Brazil's total GHG emissions account for 3.5% of total global emissions.[1]
- The energy sector in Brazil accounts for 1% of the total emissions of the global energy sector.[2]

It also presents an energy mix with a high share of renewables, above the global average and comparable to long-term global energy transition scenarios.



However, Brazil faces challenges related to a growing **energy demand** driven by population growth, urbanization, and the need to improve access to essential services. For a **just transition,** expanding the supply of safe, sustainable, and efficient energy will be essential to mitigate energy poverty.

The results of the first **Global Stocktake** of the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28) show that the world needs effective measures to combat climate change and recommended that countries align their Nationally Determined Contributions (or NDCs) to limit global warming to 1.5°C, gradually reducing their Greenhouse Gas (GHG) emissions until they reach the level of Net Zero emissions by 2050. Efforts should seek a **fair, orderly, and equitable transition,** consistent with the possibilities and responsibilities of each country.

Source: 2024 World Energy Transitions Outlook: 1.5°C Pathway (IRENA, 2024); World Energy Outlook 2024 (IEA,2024) and the Brazilian Energy Balance 2024 (EPE/MME, 2024).

[1] UNEP, Emission Gap Report, 2023; MCTI/SIRENE, GWP AR5 (base year 2022), 2025.

[2] MCTI/SIRENE, GWP AR5 (base year 2022), 2025; EDGAR, JRC/IEA 2023 Report, 2023.

In response to this challenge, **Brazil** updated its **NDC,** setting a target for the entire economy to reduce net GHG emissions to a range of between 59% and 67% by 2035 (considering the base year 2005), which is consistent, in absolute terms, with emissions of 1.05 to 0.85 $GtCO_2e$. The successful implementation of this target relies on several factors, including the level of global cooperation and technological diffusion, as well as investment and development (See *Brazilian Context and General Overview*).

Considering the energy transition challenge and its implications for our business, we seek transparency in the disclosure of information related to climate change through this **Climate Change Supplement.** Here are the main guidelines and information about our vision, actions, and commitments regarding climate change and energy transition, as well as the main *Risks and Opportunities* and *Governance* related to the topic, following the recommendations of the *Task Force on Climate-Related Financial Disclosures* (TCFD), the foundation for new climate-related disclosure standards, such as those developed by the International Sustainability Standards Board (ISSB).

Our **Strategic Plan 2050** (SP 2050) is guided by our perspective on the evolution of the Brazilian energy mix and considers the uncertainties related to the global energy market. To represent the various uncertainties, we evaluated three long-term scenarios, with the **pace** of the energy transition being the primary factor guiding our **corporate scenarios.** All our scenarios indicate a reduction in oil consumption at varying rates. Despite this decrease, even our scenario with the highest speed and intensity of energy transition shows the need for new exploration and production (E&P) projects to meet global consumption, given the natural decline of fields. Therefore, we plan to explore oil and gas **ethically** and **responsibly,** contributing to **energy security** and generating the resources necessary to finance the **just transition.**

Considering our comparative advantage in producing oil at low costs and with low GHG emissions, we aim to balance our **focus on oil and gas** with the ambition of becoming a **leader in the just energy transition.** Our production carbon intensity is lower than the global industry average, and our Pre-Salt fields rank among the least carbon-intensive in the world **(10 $kgCO_2e$/boe).**

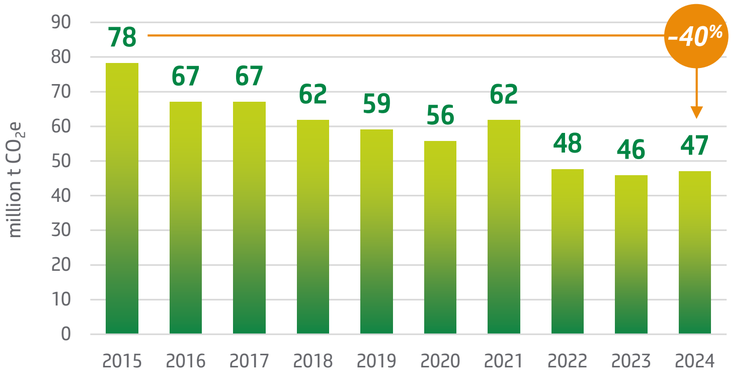
- Petrobras' direct emissions (scopes 1 and 2) account for 3% of Brazil's emissions.
- Petrobras' total emissions (scopes 1, 2, and 3) represent 1% of global emissions.

In this **SP 2050,** we reaffirm our **Vision** of being the most diversified and integrated energy company in **generating value,** building a more sustainable world, and reconciling the focus on oil and gas with diversification into low-carbon businesses (including petrochemicals, fertilizers, and biofuels), sustainability, safety, respect for the environment, and total attention to people. Learn more about *Petrobras in the Just Energy Transition.*

We have assets and projects that are resilient to the energy transition. Our *resilience analyses* indicate that approximately 98% of our E&P investments have a positive Net Present Value (NPV) under the oil price assumptions of the Announced Pledges Scenario (APS) of the International Energy Agency (IEA), and 65% have economic attractiveness in the NetZero Scenario (NZE), ensuring the financial resilience of our portfolio, even in very challenging contexts.

We have already achieved significant results regarding our greenhouse gas (GHG) emissions performance. Over more than a decade, we have achieved a 40% reduction in absolute operational emissions and a 70% reduction in absolute methane emissions since 2015, and we have achieved the Gold Standard through the trajectory of the United Nations Oil and Gas Methane Partnership (OGMP). CO_2 reinjection has also been a growing practice, with 22 operating platforms doing this in 2024, reflecting a gradual increase in the reinjection volume. For a more detailed analysis of the performance of each segment, we recommend reading the *Carbon Performance* item.

ABSOLUTE OPERATIONAL EMISSIONS



For the 2025-2030 horizon, we reaffirm our six commitments to reduce our carbon footprint, focusing on climate change mitigation. These commitments cover 100% of emissions under our operational control (Scopes 1 and 2), including power generation, and encompass all greenhouse gases. Our absolute reduction indicators and emissions intensity encompass all inventoried greenhouse gases (see Emissions Inventory).

		2024	TARGET 2025	TARGET 2030
OPERATIONAL ABSOLUTE EMISSIONS [a]	million tCO_2e	47	NA	**-30%** [b]
ROUTINE FLARING	million m^3	120	NA	**ZERO**
REINJECTION IN CCUS PROJECTS	million tCO_2 (accumulated)	67.9	80	**NA**
GHG INTENSITY IN E&P SEGMENT [c]	$kgCO_2e$/boe	14.8	15	**15**
GHG INTENSITY IN REFINING SEGMENT [d]	$kgCO_2e$/CWT	36.2	36	**30**
UPSTREAM METHANE EMISSIONS INTENSITY	tCH_4/mil tHC	0.20	0.25	**0.20**

a) This commitment only considers the business segments in which we are already involved and our willingness to use carbon credits

b) Compared to 2015.

c) The $kgCO_2e$/boe indicator considers gross oil and gas production ("wellhead") in its denominator.

d) The $kgCO_2e$/CWT indicator uses the activity unit CWT (Complexity Weighted Tonne), which considers both the effect of the processed load and the complexity of each refinery. This allows the comparison of the potential for GHG emissions between refineries with different profiles and sizes.

For details on the metrics used, see Metrics Table.

In addition to our 6 commitments, we have 3 ambitions related to the carbon theme:

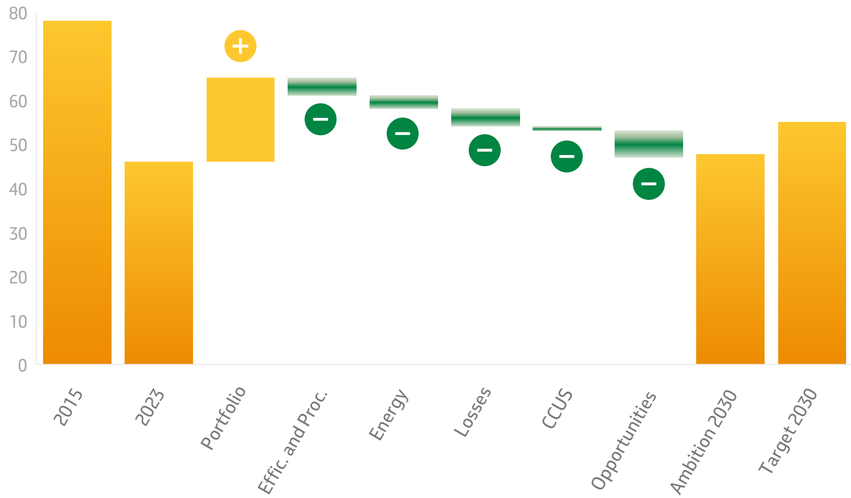
» Long-term ambition to neutralize emissions from activities under our control (Scopes 1 and 2) by 2050, and to influence partners to achieve the same ambition in non-operated assets.

» Ambition for net-zero growth of our operational emissions by 2030, representing a 40% reduction compared to 2015, even with the expected increase in production in the coming years, with the commissioning of ten FPSO-type (Floating Production Storage and Offloading) platforms by 2029.

» The ambition for “near-zero methane emissions” by 2030 is aligned with the “Aim for zero methane emissions” initiative promoted by the Oil and Gas Climate Initiative (OGCI) and industry best practices.

To achieve the 2030 net-zero growth ambition, we will reduce emissions growth through energy efficiency gains, energy source substitution, loss reduction, process improvements, carbon capture, utilization, and storage (CCUS), and the exploration of new mitigation opportunities. We are also considering the possibility of using quality carbon credit offsetting as a complementary strategy. For more information, consult *Ambitions and Commitments to Reduce the Carbon Footprint.*

CONTRIBUTION OF OPPORTUNITIES TO ACHIEVING THE 2030 COMMITMENT AND AMBITION



Efficiency
Optimization and energy integration
Replacement of machinery and equipment

Energy
Replacement of energy sources

Losses
Reduction of gas flaring
Reduction of fugitive emissions and venting

Process
Improvements in industrial process

CCUS
Geological sequestration

Opportunities
Maturing intrinsic projects
Offseting

To enable our strategic drivers and achieve the expected results, our Business Plan 2025-2029 (BP 2025-29) includes CAPEX for projects to decarbonize operations, low-carbon research, development, and innovation (RD&I), and profitable diversification.

DESCARBONIZATION
Operational Emissions

US$ **5.3** BILLION

INVESTMENTS IN EMISSIONS MITIGATION
(Scope 1 & 2)

E&P, RTM and G&E
US$ 4.0 billion

Decarbonization Fund
US$ 1.3 billion

PROFITABLE DIVERSIFICATION
Providing sustainable products

US$ **5.7** BILLION

LOW CARBON ENERGIES

Onshore Wind Energy and Photovoltaic Solar Energy
US$ 4.3 billion

Hydrogen
US$ 0.5 billion

CCUS, Offshore Wind and *Corporate Venture Capital*
US$ 0.9 billion

US$ **4.3** BILLION

BIOPRODUCTS

Ethanol
US$ 2.2 billion

Biorefining
US$ 1.5 billion

Biodiesel and Biogas
US$ 0.6 billion

R&D
In low carbon

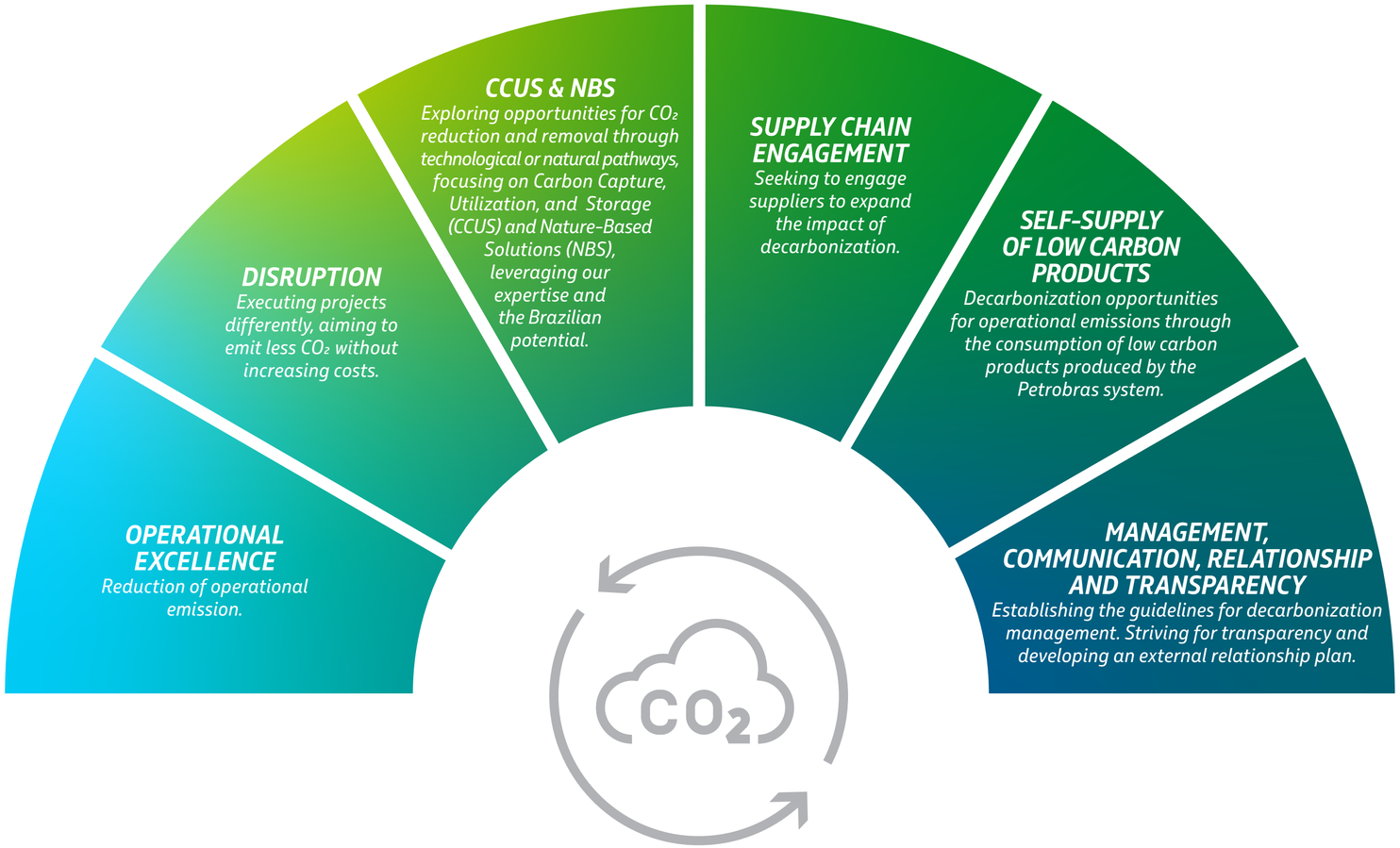
US$ **1.0** BILLION

GROWING IN THE FIVE-YEAR PERIOD

15% of the total budget in 2025, reaching 30% by the end of the period

BP 2025-29 intends to prospect new opportunities, focusing on synergy with current businesses and assets and considering the impacts of the energy transition. The *Climate Change Opportunities* section details the opportunities that the company should explore for profitable diversification of our portfolio.

In addition to the planned investments, we have adopted instruments with a firm commitment to accelerate the decarbonization of our operations, such as the *Carbon Neutral Program*, a program that cuts across several business areas and has already identified 700 GHG emission mitigation opportunities in its fronts of action, using the Marginal Abatement Cost Curve (MACC) methodology to map the most cost-effective opportunities. The program has dedicated resources, the Decarbonization Fund, in the order of USD 1.3 million over the next 5 years, and has a current portfolio of 34 projects, with the potential to mitigate 1.5 MM tCO_2e/year. Other important instruments and incentives can be found in *Energy Transition and Decarbonization Drivers.*



Emission offsets from carbon credits can be a complementary tool in our decarbonization journey. We seek high-quality, high-integrity credits to ensure climate, socioeconomic, and environmental benefits, taking advantage of Brazil's potential to generate highly competitive, naturally based credits. This Supplement also describes other initiatives related to *Nature-Based Solutions* that involve our actions.

We have a history of *Risk Management* that involves identifying, assessing, and analyzing possible consequences in their various dimensions. Risks related to climate change and energy transition are evaluated with a very high degree of severity and monitored by Senior Management regularly.

*The **Climate Change Supplement** also provides a comprehensive overview of the company's Decarbonization Initiatives in various areas and of our Engagement on the topic with our broad and diverse stakeholders.*

Brazilian Context and General Overview

Brazilian Context and General Overview

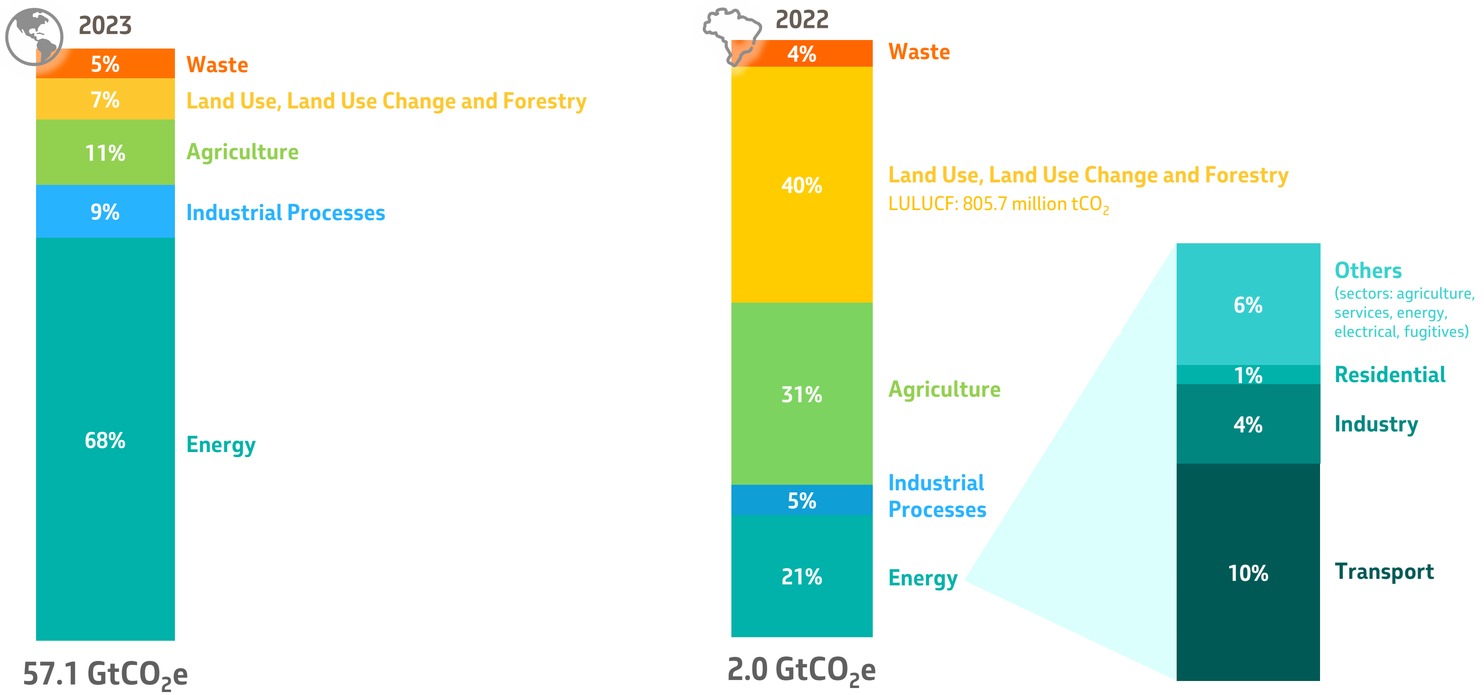
Brazil starts from a different point of view regarding the contribution of each sector of the economy to GHG emissions: while globally, the energy sector is the largest contributor to global emissions (68% in 2023), in Brazil most emissions come from land change, forests, and agriculture, accounting for approximately 70% of the country's total emissions, while the energy sector accounts for 21% of total emissions.

Brazil's total GHG emissions account for 3.5% of total global emissions.[3]

The energy sector in Brazil accounts for 1% of the total emissions of the global energy sector.[4]

SHARE OF SECTORS IN TOTAL EMISSIONS

Primary Sources



Source: UNEP – Emissions GAP Report 2024 (UNEP, 2024), MCTI/SIRENE, 2025 (GWP AR5, data from 2022); BEN 2023, base year 2022 (EPE/MME, 2023).

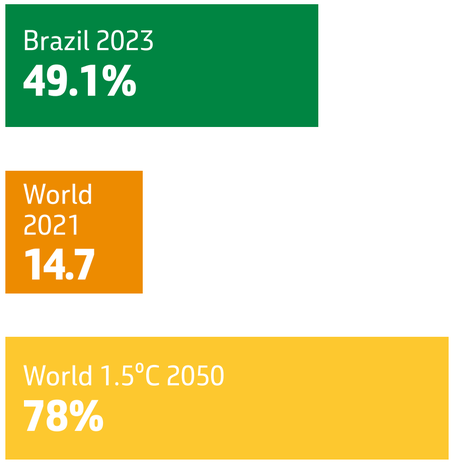
[3] UNEP, Emission Gap Report, 2023; MCTI/SIRENE, GWP AR5 (base year 2022), 2025.

[4] MCTI/SIRENE, GWP AR5 (ano base 2022), 2025; EDGAR, JRC/IEA 2023 Report, 2023.

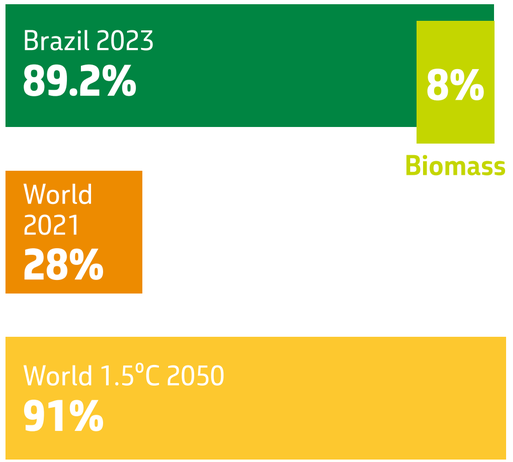
Brazil is well-known for its high use of renewable sources in its energy mix. In 2023, renewable energy accounted for 89.2% of the country's electricity mix, mainly due to the high participation of hydropower generation and the growth in installed solar and wind energy capacity. This achievement results from a solid trajectory of investments in the energy sector, focusing on renewable sources.[5]

Additionally, the country's energy mix consists of 49.1% renewable sources, with biofuels accounting for 22.5% of energy used for transportation. This outcome results from a combination of effective public policies and Brazil's inherent comparative advantages.

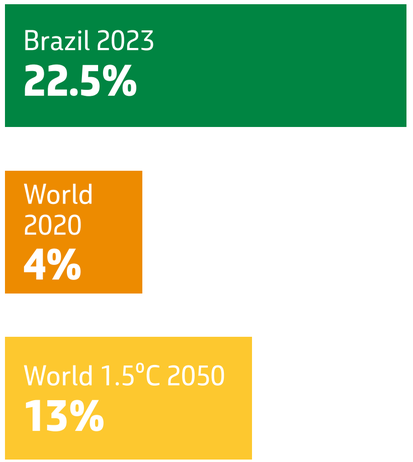
RENEWABLES IN ENERGY MIX



RENEWABLES IN ELECTRICITY MIX



BIOFUELS IN TRANSPORT

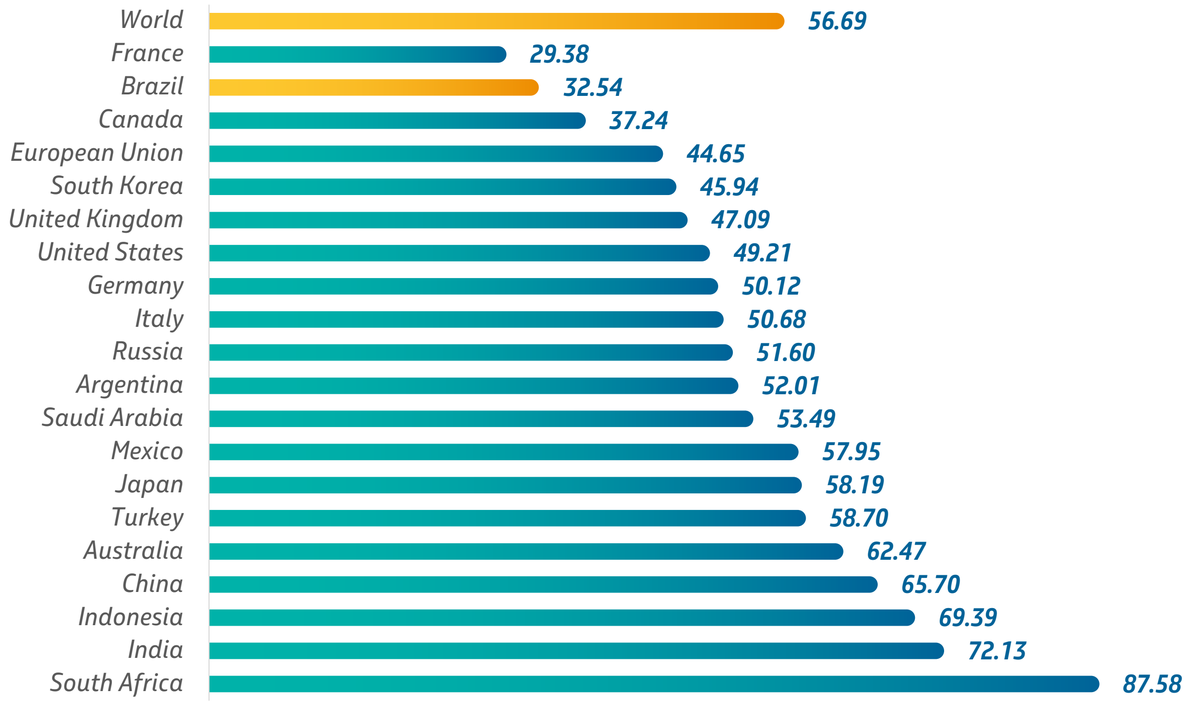


Source: 2024 World Energy Transitions Outlook: 1.5°C Pathway (IRENA, 2024); World Energy Outlook 2024 (IEA,2024) and the Brazilian Energy Balance 2024 (EPE/MME, 2024).

[5] EPE, Ten-Year Energy Expansion Plan.

The percentage of renewable energy in Brazil's energy mix is comparable to long-term projections for global energy transition scenarios. Brazil stands out as the country with the highest level of renewability in its energy mix among all G20 nations. This unique characteristic places Brazil in second place for the lowest carbon intensity within the energy mix among all G20 countries.

G20: GHG INTENSITY OF THE ENERGY SECTOR BY PRIMARY ENERGY CONSUMPTION ($KGCO_2/GJ$), 2023



The results of the first **Global Stocktake** of the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28) show that the world needs effective measures to combat climate change and recommend that countries align their Nationally Determined Contributions (or NDCs) to limit global warming to 1.5°C, gradually reducing their Greenhouse Gas (GHG) emissions until they reach the level of Net Zero emissions by 2050.

Source: 2024 Statistical Review of World Energy (Energy Institute, 2024) and the Brazilian Energy Balance, base year 2023 (BEN2024, MME/EPE)[6]

[6] Energy Institute, Statistical Review of World Energy, 2024; EPE, National Energy Balance, 2024.

Efforts should seek a **fair, orderly, equitable transition,** consistent with the possibilities and responsibilities of each country.

In response to this challenge, Brazil has updated its NDC, setting a target for the entire economy to reduce net GHG emissions to a range of between 59% and 67% by 2035 (considering the base year 2005), which is consistent, in absolute terms, with emissions of 1.05 to 0.85 $GtCO_2e$. The successful implementation of this target relies on several factors, including the level of global cooperation and technological diffusion, as well as investment and development. By signing its NDC in line with the objectives of limiting global temperature rise to 1.5°C, Brazil calls for a faster movement by developed countries based on the principle of common but differentiated responsibilities, considering different national circumstances.

From a social perspective of energy transition, Brazil faces challenges related to a growing energy demand driven by population growth, urbanization, and the need to improve access to essential services. The country has relatively low income and per capita energy consumption levels (approximately 50% of the per capita income of the G20 and equivalent to 50% of the per capita energy consumption of the European Union, for example[7]), demonstrating the necessity of expanding the supply of safe, sustainable, and efficient energy.

The Brazilian government's commitments are being incorporated through legal and regulatory measures aimed at reducing emissions and promoting the use of energy and fuels with lower emissions. The country is focused on developing and implementing climate policies that align with economic growth, aiming to accelerate the transition to a just, prosperous, and inclusive economy.

Some highlights of public policies in the climate sector are:

» National Energy Transition Plan
» Climate Plan (Mitigation and Adaptation)
» National Biofuel Program (RenovaBio)
» Fuel of the Future Program
» National Hydrogen Program
» Regulated Carbon Market

Considering the current context and the transformations of global energy systems that require an expanded long-term vision, we define our planning scenarios based on mapping factors that influence the energy transition's evolution and the process's inherent uncertainties. Our corporate scenarios support understanding the complex environment and underpin our positioning in a transitioning world.

[7] World Bank Group, World Bank national accounts data, 2023; EPE, National Energy Balance, 2024.

Petrobras in the Just Energy Transition

Petrobras in the Just Energy Transition

Considering the uncertainties faced by the energy sector, we work to build visions of the future by developing and monitoring different scenarios.

Our scenarios explore new possibilities and dynamics in the energy sector, which manifest themselves through perspectives ranging from geopolitical arrangements and conflicts to changes in consumer habits and behaviors, new technologies, and government policies.

Based on all these variables, we seek to map what is perhaps the most significant critical uncertainty for the future of the energy sector: the pace of the energy transition.

In all of our corporate scenarios, there is a slowdown and subsequent decline in fossil fuels and an increase in demand for renewables and low-carbon solutions, with differences between developed and developing markets.

OUR CORPORATE SCENARIOS

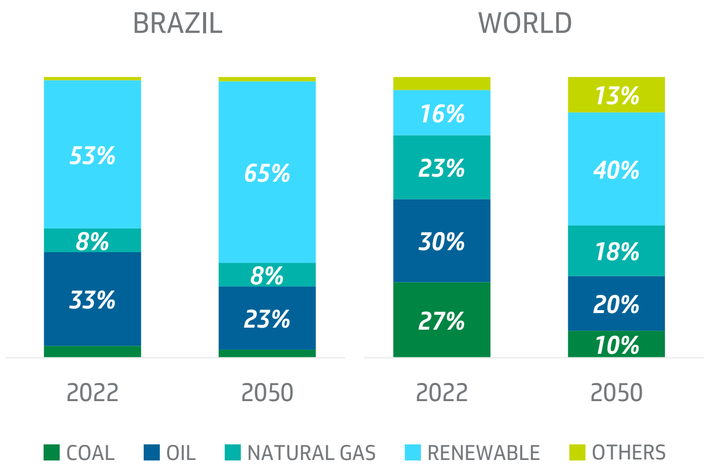
Adaptation: The pace of the energy transition is slow, and the world needs to adapt to climate change.

Negotiation: Uncoordinated activism and intense negotiation delay the pursuit of the energy transition. Moderate pace of the energy transition

Commitment: A broad and coordinated global commitment among countries allows for an accelerated energy transition. We seek to continue producing oil and gas in a manner compatible with scenarios that predict a slowdown in demand for fossil fuels.

Specifically in the Negotiation scenario, used as a reference for quantifying the BP 2025-29, we consider that fossil sources, currently representing approximately 80% of primary energy sources, will represent approximately 48% in 2050. The share of oil will be reduced from the current 30% to approximately 20%, and the proportion of gas is expected to remain stable in the Brazilian energy mix over the long term.

ENERGY MIX PROFILE



Source: IEA (WEO) and Petrobras.

Our 2050 Strategic Plan reaffirms our vision of being the best diversified and integrated energy company when it comes to generating value, building a more sustainable world, reconciling the focus on oil and gas with diversification into low-carbon businesses (including petrochemicals, fertilizers, and biofuels), sustainability, safety, respect for the environment and total attention to people.

We have a comparative advantage in oil and gas (O&G) production, as our oil production is characterized by low costs and a lower carbon intensity than the global average.[8] These conditions enable the company to align its leadership in the just energy transition with responsible exploration of O&G in Brazil, while maintaining future production levels close to the current ones. Our plan reflects the ambition to preserve our relevance in the energy supply and economic development of Brazil.

Petrobras' direct emissions (scopes 1 and 2) account for 3% of Brazil's emissions. Petrobras' total emissions (scopes 1, 2, and 3) represent 1% of global emissions.

By meeting society's demand, our energy production will grow cleaner, maintaining our relevance in the national energy mix and our important role in society.

Our production, both in the pre-salt layer and new frontiers, is essential for the country's energy security and generating the resources needed to finance a just energy transition. The natural decline in global oil production will still require new E&P projects, which must be economically and environmentally resilient. We also plan to increase the natural gas supply to meet the country's demand. We aim to operate and commercialize gas in a competitive and integrated manner, optimizing our portfolio while ensuring profitability and reliability.

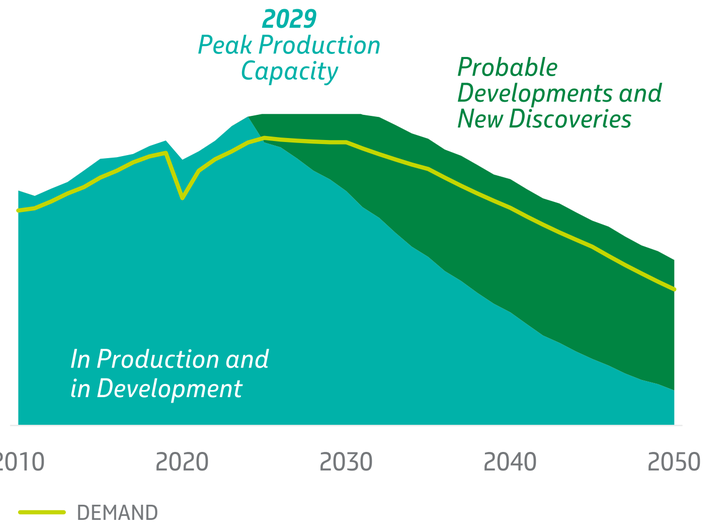
[8] According to the International Association of Oil and Gas Producers (IOGP), the global average carbon intensity of the sector is 17 $kgCO_2$/boe (IOGP, Environmental performance indicators, 2024).

Furthermore, increasing domestic natural gas supply can help reduce emissions by replacing other, more emission-intensive energy sources.

Fossil fuels will continue to be necessary in Brazil and worldwide, even if global demand declines in the coming decades. We project that the world's peak production capacity will occur in 2029.

DEMAND X WORLD PRODUCTION CAPACITY

million bpd



Source: Petrobras, Negotiation scenario BP 2050.

Financial Resilience Analysis

Financial Resilience Analysis

The assumptions used to prepare our Strategic Plan reflect a range of possible scenarios that consider climate change uncertainties, such as carbon pricing mechanisms, sustainable fuel mandates, and consumer preferences for our products.

Our Negotiation scenario (a reference scenario for quantifying our plan) considers an oil price range from an average of USD 83/bbl in 2025 to USD 65/bbl in 2030. Price expectations are close to the Announced Pledges Scenario (APS) of the International Energy Agency (IEA), which is aligned with a 50% probability of keeping the temperature increase below 1.7°C in 2100.

BRENT US$/BARREL	2030	2050
BP 2025-29 (Petrobras)	**65**	**65**
APS (IEA)	**72**	**58**
NZE (IEA)	**42**	**25**

International Energy Agency (IEA) Scenarios

STEPS - Stated Policies Scenario

This scenario provides a sense of the prevailing direction of the energy sector based on a detailed reading of the latest policy settings in countries worldwide. It considers energy, climate, and related industrial policies that are in place or have been announced. The objectives of these policies are not automatically assumed to be met; they are incorporated into the scenario only to the extent that they are supported by adequate provisions for their implementation. STEPS scenario is associated with a temperature increase of 2.4°C by 2100 (with a 50% probability).

APS – Announced Pledges Scenario

A scenario that assumes that all national energy and climate targets, including long-term net-zero emissions targets and commitments in Nationally Determined Contributions, are met in full and by the deadline. This is a strong assumption, considering that most governments are still far from having policies in place to meet their long-term commitments. Even those countries without long-term energy or emissions targets follow a different path to STEPS, as their investment choices are shaped by and benefit from steeper cost reductions for a range of clean energy technologies enabled by the actions of other countries. APS is associated with a temperature increase of 1.7 °C by 2100 (with a 50% probability). This scenario is consistent with the goals of the Paris Agreement, which aims to achieve the decarbonization of global economies and sets as one of its long-term goals limiting the increase in global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C.

NZE – Net Zero Scenario

A normative scenario that shows a path for the global energy sector to achieve net-zero CO_2 emissions by 2050, with advanced economies reaching net-zero emissions before others. This scenario models significant changes in the energy demand profile to achieve net neutrality in 2050 (50% probability of limiting the temperature increase to 1.5°C above pre-industrial levels in 2100).

Analysis of the Portfolio's Financial Resilience

We performed simulations of our portfolio's net present value (NPV), through sensitivity to the Brent price and the carbon price of the external reference scenarios (STEPS, APS, and NZE).

The total impact in each scenario is the sum of the two results, as seen in the graphs. The calculation of sensitivity to the oil price considers the effect of the Brent price only on the E&P segment, and the maintenance of the margins of the other segments. To calculate the impact of the carbon price, we considered a monetary value charged per ton of CO_2 emissions from 2028 in the NZE scenario and 2030 in the APS scenario, and the existence of free emission quotas, considering the uncertainties that still exist after the publication of Law 15,042/2024, which establishes the SBCE, still not regulated.[9]

Using the assumptions of the external STEPS scenario, there would be an increase in the portfolio's value in relation to that calculated with our assumptions of the Negotiation scenario (18%) due to the higher oil prices assumed in the IEA scenario.

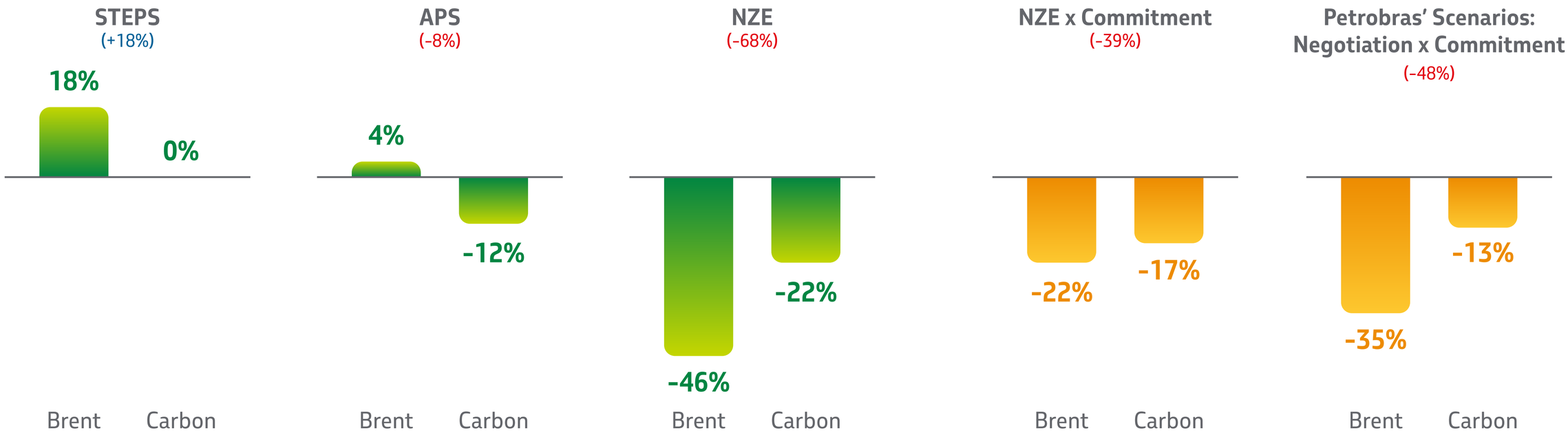
Compared with the external APS scenario, the portfolio's value gain with Brent is slightly higher in the short and medium term due to the higher oil prices assumed by the IEA. The carbon cost reverses this, given that the Negotiation scenario does not consider the carbon price's incidence. The simulation results in an 8% portfolio value loss.

We also conducted a resilience assessment using the price assumptions of the NZE scenario. In this case, we simulated the variation in the portfolio value relative to our Commitment scenario, to simulate the impact of the IEA scenario relative to our more accelerated corporate transition scenario. In this case, we would have a potential impact of a 39% reduction in portfolio value, due to the combined effect of the lower Brent price and the higher carbon price of the NZE scenario. It is worth noting that the prices of our Commitment scenario are aligned with the prices of the NZE scenario in the short and medium term.

When compared to the Negotiation scenario, there would be a 68% negative impact on the net present value (NPV) due to both the incidence of carbon prices and the significantly lower oil price of the NZE scenario. However, when comparing our internal scenarios, the price of Brent and carbon in the Commitment scenario would lead to a portfolio with a value 48% lower than in the Negotiation scenario.

[9] Brazil, SBDE, 2024.

It is worth noting that the NZE scenario is highly challenging and far from the current reality, requiring an immediate change in the energy paradigm, with the transformation of the global energy system. The scenario projects a demand of 23 million barrels of oil/day for 2050, with an associated drop in oil price to approximately USD 42/bbl by 2030, and USD 25/bbl by 2050.



Analysis of the Financial Resilience of E&P

Our governance for approving investment projects requires that E&P projects be resilient to the commitment scenario, which points to a Brent of USD 45/bbl in the long term. Therefore, there is an incentive only to include projects compatible with accelerated energy transition scenarios in our portfolio.

As a result, the prospective equilibrium Brent of the E&P portfolio is USD 28/bbl, with an extraction cost of USD 6/bbl (1st quartile of the industry) and an average discounted payback of 9 to 10 years. Our portfolio of E&P projects is highly resilient to low oil prices, with 65% of the CAPEX forecast for the 2025-2029 five-year period resilient to a Brent of USD 35/bbl and 98% resilient to a Brent of USD 45/bbl.

Our resilience tests indicate that almost all (98%) of our E&P investment projects generate value, or have a positive NPV under the assumptions of the IEA APS scenario, in line with a 50% chance of reaching a temperature increase of 1.7ºC, ensuring our resilience when faced with this external scenario.

The exception is small projects that contribute less than 0.1% of the portfolio's production. Furthermore, the tests indicate that 65% of our E&P investment projects also present economic attractiveness in the IEA's NetZero scenario, of significantly accelerated transition and compatible with a 50% chance of reaching a temperature increase of 1.5ºC.

Risks of Climate Change and Energy Transition

Risk Management Process

In our risk management process, risks are defined as threats and opportunities. In this context, a threat is a situation or event that may adversely influence the achievement of the objectives previously established by the company, while an opportunity is a situation or event that favorably influences the achievement of these objectives.

Both threats and opportunities are identified by each organizational unit, considering the specificities of processes, operations, and objectives, in alignment with our Business Plan.

Risks are classified into three groups according to their origin: Operational; Financial; and Compliance, Legal and Regulatory.

Once identified, they are assessed according to severity, which considers the probability of occurrence and possible consequences in their various dimensions: (i) financial, (ii) image and reputation, (iii) legal and compliance, (iv) environmental and life, and (v) social. The social dimension is the result of the evolution of Petrobras' corporate risk management methodology in 2024, and aims to capture impacts on society, in addition to those related to people's health and lives, previously incorporated into the environmental and life dimension. The qualitative and quantitative magnitudes of the consequences are assessed according to corporate standards for each dimension.

The risks identified must have treatment measures, whether in the form of controls or response actions. Under our corporate risk appetite, the respective areas should not accept risks assessed as having a very high, high, or medium severity level with a high impact. The corporate Risk area periodically assesses the integrity of the information on the data relating to the risks and monitors executing the actions planned to address them. In addition to monitoring its risks carried out locally by each unit, those classified as having high and very high severity are monitored by specific governance: the Statutory Audit Committee of the Board of Directors (CAE) and the Safety, Environment and Health Committee (CSMS) of the Board of Directors (BD). The Executive Risk Committee monitors the details of the indicators used in monitoring.

Every year, the Executive Risk Committee and the Executive Board define strategic risks according to their importance in implementing the Company's Business Plan and Strategic Plan, as well as the scope, degree of severity, and resources required for their treatment. These are included in a monitoring agenda by the Executive Board and Board of Directors throughout the year.

We have a history of analyzing and managing risks related to climate change. Climate risk management is integrated into the corporate methodology, allowing for an integrated and systemic view of risk monitoring across all areas at the company's most diverse hierarchical levels.

The set of risks related to climate change and energy transition is assessed with a very high degree of severity. It is considered a strategic risk and is monitored by Senior Management.

The governance of climate change and energy transition risk management is structured so that, in addition to Senior Management, all hierarchical levels of the company are involved. Risks and opportunities are identified to ensure the sustainability of our business and generate value.

Risks Related to Climate Change and Energy Transition

The risks related to climate change are divided into two main categories, according to TCFD:

(1) risks related to the transition to a low-carbon economy (transition risks)

and (2) risks related to the physical impacts of climate change (physical risks)

TRANSITION RISKS

Transition risks are associated with political, legal, technological, and market changes resulting from efforts to limit global warming and move towards a low-carbon economy. These changes may include new regulations to mitigate greenhouse gas emissions, reduced costs of new technologies, renewable energy sources, and shifts in behavior among segments of society that direct their consumption towards less carbon-intensive products.

An example of an evolving risk is regulatory risk. In Brazil, sectoral plans for mitigating climate change are being developed under the Climate Plan - Mitigation, which will include the contributions of each sector to national efforts for implementing Brazil's NDC for 2035, considering the specificities of various sectoral agents. These sectoral targets will be references for granting emission permits within the Brazilian Emissions Trading System (SBCE), the newly approved regulated carbon market, through Law 15.042/2024, which is currently in the regulatory phase.

Specifically, regarding carbon pricing, we estimated risk quantification based on simulations of portfolio value considering the impact of costs resulting from a national cap-and-trade system as a tool for containing operational emissions, as established by Law 15.042/2024.

In this study, we considered the gradual implementation of the instrument and ranges of possible carbon prices, which varied over time from US$ 10/tCO_2 to US$ 137/tCO_2, depending on the scenario (in the Negotiation scenario, the carbon price reaches US$ 100/tCO_2 by 2050). It is important to note that the company's accounting estimates did not incorporate the effect of carbon pricing. Due to uncertainties regarding the implementation and dynamics of the carbon market in Brazil, the Company considers it necessary to await the regulation of Law No. 15,042 of 2024, which establishes the Brazilian Greenhouse Gas Emissions Trading System (SBCE). This regulation will provide the necessary and sufficient details to reliably and reasonably assess the impact on the cash flows of Petrobras's assets.

REGULATED CARBON MARKET

On December 11, 2024, Law No. 15,042/2024 was enacted, establishing the Brazilian Greenhouse Gas Emissions Trading System (SBCE). The measure establishes the basis for creating a regulated carbon market in Brazil.

In this market, the government sets emission limits for companies, distributes "emissions permits" at these limits, and allows these permits to be traded among regulated operators (cap and trade system).

Law No. 15,042/2024 created the generic rules applicable to the SBCE, without intending to establish specific definitions, such as sectors covered or emission limits. The text broadly defines the principles and characteristics; governance; types of assets and their legal and tax nature; attributes of the supporting technological system; certain obligations of regulated agents; violations and penalties; the foundations of the National Allocation Plan, which will guide the allocation of permits among agents; and guidelines for integration with the voluntary market.

A gradual implementation schedule for the SBCE was established, and a period of up to 12 (twelve) months was defined, extendable for the same period, for its regulation.

PHYSICAL IMPACTS OF CLIMATE CHANGE

Physical risks can be (i) acute, driven by events such as storms, precipitation, or temperatures, or (ii) chronic, resulting from long-term factors such as rising average temperatures, changes in precipitation patterns, or sea level rise.

Based on recent extreme weather events in Brazil and the company's in-depth assessment, we expanded the analysis of physical risks related to climate change, incorporating new factors prioritized based on materiality.

Our facilities' operating and design conditions are subject to physical risks associated with climate change. Physical risks result from changes in the climate that can be caused by an event (acute physical risk) or long-term changes in climate patterns (chronic physical risk). The variables considered most susceptible to these changes include, in addition to the patterns of winds, waves and ocean currents in the areas where the company operates offshore, as well as the availability of fresh water for our onshore operations, reported in 2023, the risks of landslides, floods, extreme droughts, fires and heat waves.

For environmental variables in the oceanic region, we assess the physical risk associated with climate change in our operations through research and development of climate regionalization, with renowned institutions in Brazil and abroad, generating qualified information for adapting our operations. The studies to simulate atmospheric conditions and future waves were developed in technological partnership with IAG/USP (Institute of Astronomy, Geophysics and Atmospheric Sciences of the University of São Paulo), evaluating the effects of climate projections RCP4.5 and RCP8.5 of the global climate models MPI and HadGEM2-ES of CMIP5 and the high-resolution (HighResMIP) models HadGEM3-GC31-HM, MRI-AGCM3-2-S, MPI-ESM1.2-XR and ECMWF-IFS-HR of CMIP6, with a time horizon up to 2060. The dynamic downscaling technique adequately represented the physical phenomena of interest in the Santos, Campos, and Espírito Santo Basins. Based on these analyses, we estimate that the offshore structures in the Southeast basins, which account for most of our production, are adequately sized for the changes expected in regional wind, wave and ocean current patterns.

Also, for offshore facilities, the development of a system of physical climate risk indicators is underway with the aim of obtaining an integrated assessment of climate effects through reliability indicators of design parameters, and definition of operational indicators, such as improving the risk estimate for the interruption of offloading operations.

Regarding the availability of fresh water for the operations of our facilities, we monitor, manage, and mitigate the risks related to this topic. These risks can arise from several factors that pressure water availability, such as population growth, intensification of consumption patterns, inadequate infrastructure, pollution, failures in resource allocation, deforestation, fires, loss of biodiversity, and climate change. Therefore, managing water risks in the company covers climate and non-climate risks.

Based on our assessment, the potential impacts of climate change on the availability of fresh water for our facilities are not representative of the risks involved.

Our monitoring is carried out holistically and using multiple tools, such as:

» The WRI Aqueduct Water Risk Atlas, one of the world's leading public tools for mapping water risks

» The Water Scarcity Risk Index, a customized tool developed with the Federal University of Rio de Janeiro (UFRJ), is designed to select our facilities that are a priority for the development of complementary studies

» Detailed studies of current and future water availability and alternative sources

» The Decision Support System, developed with the University of São Paulo (USP), which allows the creation of water availability scenarios, using projected climate data from CMIP5 models (HadGEM2-ES, BESM, MIROC5 and CanERM2) and land cover data, to analyze the risk and vulnerability in meeting water demands at our units

RISK CATEGORY	RISK	DESCRIPTION	TIME HORIZON[10]	MAIN CONTROLS AND ACTIONS PLANNED
Transition Risks	**Market**	Increased demand for low-carbon energy and products and preference for fossil fuels with lower GHG intensity in production processes, leading to reduced demand for oil and the resulting drop in the prices of fossil fuels. In Brazil, demand for our products may be affected, for example, by increased demand for alternative fuels, fostered by Public Policies such as the Fuel of the Future Law, among others.	**Medium and long term**	> We consider, at different paces, the restriction on the sale of fossil products and/or the incentive for the sale of renewable alternatives in our corporate scenarios - See *Petrobras in the Just Energy Transition* > We conducted a value and resilience analysis of the portfolio compared to accelerated transition scenarios - See *Analysis of the portfolio's financial resilience* > We assessed the exposure of the E&P portfolio, where we identified that 98% of our investment projects present a positive NPV under price assumptions aligned with the Paris Agreement of the International Energy Agency (IEA) - See *Analysis of the portfolio's financial resilience* > We have made commitments related to carbon issues, with a short- and medium-term vision, and an ambition for operational emission neutrality by 2050, as well as net-zero growth of our operational emissions by 2030 - See *Ambitions and commitments to reduce our carbon footprint* > We are expanding the production and commercialization of low-carbon fuels and products, thereby increasing our presence in the ethanol, biodiesel, and biomethane chains, aiming to meet market demands and developing actions for adequate access to raw materials - See *Opportunities from climate change* > Development of new low-carbon businesses, such as renewable generation (wind and solar), low-emission hydrogen, and carbon capture (CCUS) - See *Opportunities from climate change*

[10] Criteria adopted for the time horizon: short term (1 year), medium term (between 1 and 5 years) and long term (more than 5 years).

RISK CATEGORY	RISK	DESCRIPTION	TIME HORIZON[10]	MAIN CONTROLS AND ACTIONS PLANNED
Transition Risks	**Technological**	Loss of competitiveness due to non-implementation or implementation of technologies that are insufficient or not cost-effective for the reduction of emissions from our operations and products.	**Medium and long term**	> We define a relevant share of investments in low carbon within the total PD&I portfolio - See *Low Carbon Innovation* > We monitor technological advancements in various external forums - See *Participation in associations* > We allocate financial resources to accelerate the incorporation of technological options for emission mitigation through the Decarbonization Fund - See *Decarbonization Fund* > We define performance and technological requirements for Investment Projects - See *Decarbonization incentives in investment projects* > Advances of the Carbon Neutral Program, especially with its Disruption front - See *Carbon Neutral Program*
Transition Risks	**Regulatory**	Establishment of stricter regulatory requirements regarding the control of GHG emissions and other requirements related to climate change, which may cause operational restrictions and financial penalties for our activities. In Brazil, an example is the regulation for the adoption of a carbon pricing instrument, considering the provisions of Law 15.042/2024, which institutes the Brazilian Greenhouse Gas Emissions Trading System (SBCE), resulting in additional costs for our operations.	**Medium and long term**	> Systematic monitoring of regulatory risk - See *Public Policy Engagement* > We participate in technical and strategic discussions about potential regulations and demands from external agencies - See *Public Policy Engagement* > We have made commitments related to carbon issues, with a short- and medium-term vision, and an ambition for operational emission neutrality by 2050, as well as net-zero growth of our operational emissions by 2030 - See *Ambitions and commitments to reduce the carbon footprint* > Value and resilience analysis of the portfolio considering carbon pricing scenarios - See *Financial Resilience Analysis of the Portfolio*

RISK CATEGORY	RISK	DESCRIPTION	TIME HORIZON[10]	MAIN CONTROLS AND ACTIONS PLANNED
Transition Risks	**Legal and Reputational**	Litigation and/or loss of reputation due to failure to meet climate commitments.	**Medium Term**	> We monitor and periodically evaluate carbon performance alongside the different levels of governance within the company, including Senior Management - See *Governance related to climate change* > We carry out various actions focused on transparency. We adopt the TCFD recommendations as a reference for disclosing information related to the topic and engage with investors and society about our strategies and positioning on climate change and energy transition through the Climate Change Supplement, Sustainability Report, website, bilateral events, and others - See *Engagement* > We track our results in various external assessment indices, such as CDP and DJSI, conducting gap analyses - See *Engagement* > We promote social and environmental responsibility associated with the business, positively impacting society and the environment, and strengthening our reputation - See *Nature-Based Solutions* > We disclose potential impacts of climate change and energy transition on accounting estimates - See *Appendix 1* > We carry out actions outlined in the implementation plan of OGMP 2.0 focused on transparency, quantification, and management of methane emissions - See *Decarbonization Initiatives*

RISK CATEGORY	RISK	DESCRIPTION	TIME HORIZON[10]	MAIN CONTROLS AND ACTIONS PLANNED
Physical risks	Water scarcity	Reduction in water availability affecting onshore facilities.	Medium and long term	> We assess water availability (current and future) and alternative supply sources at priority facilities using customized tools, as described in *Physical Risks* > We established the ESG commitment to reduce our freshwater intake by 40% by 2030, as defined in the SP 2050 and BP 2025-29 > Identification of actions and projects for reducing intake and increasing water resilience
Physical risks	Meteoceano-graphic changes	Changes in wind, wave and ocean current patterns may alter the operating conditions of our assets.	Long term	> We continuously develop studies on the regionalization of climate extremes for the main offshore production basins. See the evolution of the tools described in the same chapter > We use updated metoceanographic standards, technical specifications, and future climate projections for new offshore projects
Physical risks	Landslides	Risk of landslides along pipelines and surrounding areas.	Short, Medium and Long Term	> We implemented a weather alert system for activating safety action plans and operation interruptions, and optimized leak detection systems along the pipelines and geotechnical monitoring with instruments, right-of-way inspections, and specific procedures > Evaluate and implement adaptive measures such as redundancy and review/development of weather thresholds for action plans
Physical risks	Flooding	Risk of flooding in land facilities and surrounding areas.	Short, Medium and Long Term	> We updated the hydrological studies, incorporating climate projections to adapt drainage infrastructures

RISK CATEGORY	RISK	DESCRIPTION	TIME HORIZON[10]	MAIN CONTROLS AND ACTIONS PLANNED
Physical risks	Extreme Drought	Reduction of the river level for operation in Urucu.	Short, Medium and Long Term	> We apply techniques for maintaining operations, such as increasing tanking capacity by adding vessels for transshipment and production modulation, ensuring operational continuity > Evaluate dredging studies and initiatives with the relevant authorities > Assess alternative means of fuel distribution
Physical risks	Fire	Fire risks in the vicinity of our facilities.	Short, Medium and Long Term	> We apply prevention techniques such as firebreaks, drones for monitoring fire hotspots, and training for the firefighting brigade > Develop a climate indicator for Brazil, projecting areas with a higher potential for fire hotspots (FWI - Fire Weather Index) for Brazil
Physical risks	Heat Waves	Risk of heat stress impacting worker health.	Short, Medium and Long Term	> Prepare and disseminate preliminary technical guidelines on the subject > Strengthen health surveillance measures, seeking to anticipate heatwave situations and educate the workforce on the topic > Evaluate activities, environments, and functions more susceptible to adapting to the physical environment and personal protective equipment (PPE)

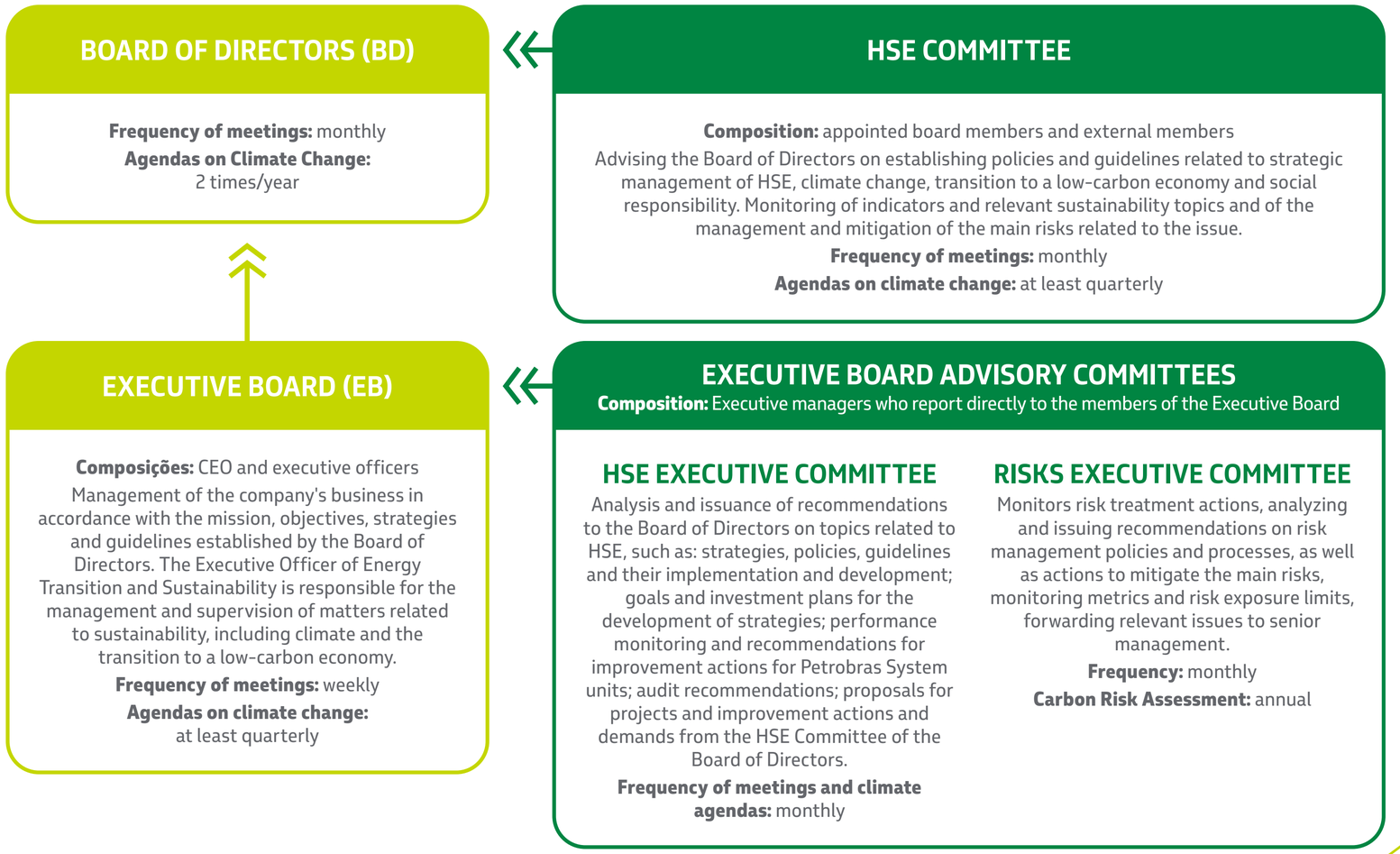
Transition risks may impact the company's accounting estimates in its financial statements. For more information on these estimates, see *Appendix 1,* with the content of Note 5 about Climate Change to Petrobras Financial Statements as of December 31, 2024.

Governance Related to Climate Change

Governance Related to Climate Change

Our governance for the topic of climate change and energy transition is structured so that the subject is addressed by all levels of the company and incorporated into our strategy in terms of goals, ambitions, and allocation of resources. We have the active supervision of the Safety, Environment and Health Committee (CSMS) of the Board of Directors, with executive committees that advise the Executive Board (EC-HSE, EC-Risks) and with committees at the tactical level in all segments.

The integration of the topic between the different levels is carried out by the Executive Management of Climate Change and Decarbonization, dedicated to the topic of emissions, climate, and energy performance, and linked to the Energy Transition and Sustainability Executive Office (DTEN).



In 2024, the HSE Committee of the Board of Directors addressed climate change and energy transition issues in eight meetings. All of these issues were also on the agenda of the Executive Board.

The Board of Directors is responsible for defining the general direction of the company's business, establishing its mission and strategic objectives, including those related to sustainability; approving the company's strategic plan and global policies, including those related to the environment and social responsibility; in addition to monitoring goals, results and business risks of greater severity, including those of a socio-environmental nature.

The selection and appointment processes of the Board of Directors, our highest governance body, including its committees, follow the guidelines set out in the Bylaws and the Policy for Nomination of Members of senior management and the Fiscal Council.

The Nomination Policy upholds the strengthening of principles such as transparency, equity, accountability, corporate responsibility, independence, focus on results, and diligence in relation to the nominee's selection, appointment, and eligibility assessment processes, which must be observed together with the legislation and our Bylaws.

Thus, the guidelines, procedures, minimum requirements, and impediments established in the legislation, the Bylaws, and in this policy must be observed by all those who exercise the right to be appointed, whether they are employees or shareholders, regardless of whether they are majority or minority shareholders, or are holders of common or preferred shares.

The Nomination Policy states that those responsible for nominations must consider, in the best interest of society:

- **(i) the profile compatible with the function to be performed;**
- **(ii) the succession plans established for the role;**
- **(iii) the variety of skills and experiences, training and qualifications recommended for each collegiate body;**
- **and (iv) the nominee's track record with respect to integrity and performance assessments.**

Also in accordance with the policy, one should seek to achieve diversity in the composition of the Board and complementarity of experiences and qualifications, such as:

- **(i) experience as an executive or director;**
- **(ii) knowledge of finance and accounting;**
- **(iii) specific knowledge of the energy sector;**
- **(iv) general knowledge of the national and international market;**
- **(v) knowledge of compliance, internal controls and risk management;**
- **(vi) strategic vision and knowledge of good corporate governance practices;**
- **and (vii) time availability.**

Regarding the appointment of the board member elected by the employees, in addition to the guidelines applicable to all appointed board members, it must comply with the rules contained in Law 12,353/10 and in the electoral regulations approved by the board

The company's shareholders, gathered in a meeting, are responsible for judging the convenience and opportunity of electing or not each of the nominees for the company's Board of Directors and Fiscal Council, as well as evaluating all the skills necessary to perform the position.

Information about the Nomination Policy can be checked at the *Petrobras Code of Best Practices*.[11]

[11] Petrobras, Petrobras Code of Good Practices. Available at: <https://www.investidorpetrobras.com.br/en/esg-environment-social-and-governance/governance/>.

Our Strategies

Our Strategies

Our vision and purpose, as well as our values, have been kept in their essence in this new planning cycle:

VISION

To be the best diversified and integrated energy company in **generating value,** building a more sustainable world, reconciling **the focus on oil and gas** with diversification in **low carbon businesses** (including petrochemical products, fertilizers and biofuels), **sustainability, safety, respect for the environment** and full attention to **people**.

PURPOSE

To provide energy that ensures **prosperity** in an **ethical, just, safe** and **competitive** way.

VALUES

- **Care** for **people**
- **Integrity**
- **Sustainability**
- **Innovation**
- **Commitment** to **Petrobras** and **Brazil**

Our Business Strategies

Our business strategies aim to promote a significant contribution to a prosperous and sustainable future. To implement them, we rely on governance that respects all decision-making and project evaluation processes, ensuring sustainability and profitability, with greater transparency.

Exploration and Production	• Maximize the value of the portfolio with a focus on profitable assets, replenish oil and gas reserves including exploration of new frontiers, increase the supply of natural gas, and promote the decarbonization of operations
Refining, Transportation and Marketing	• Act competitively and safely, maximize the capture of value by the adequacy and improvement of our industrial park and logistics, seek self-sufficiency in oil products, with vertical integration, more efficient processes, improvement of existing products and development of new products towards a low carbon market
Gas and Low Carbon Energies	• Act in a competitive and integrated manner in the operation and commercialization of gas and energy, optimizing the portfolio and acting in the insertion of renewable sources • Act in low carbon businesses, diversifying the portfolio in a profitable way and promoting the perpetuation of Petrobras
Sustainability	• Act in our businesses with integrity and sustainability with safety, seeking decreasing emissions, promoting diversity and social development, contributing to a fair energy transition • Innovate to generate value for the business, supporting operational excellence and enabling solutions in new energies and decarbonization

SP 2050 reaffirms our Strategy related to ESG issues by integrating its elements into a single vision, highlighting four positions:

- **Reduce our carbon footprint**
- **Protect the environment**
- **Take care of people**
- **Act with integrity**

REDUCE CARBON FOOTPRINT
Ambitions: (i) Net Zero 2050; (ii) Near Zero Methane 2030; (iii) Net neutral growth by 2030 (Do not exceed 2022 emissions level, consolidating 40% reduction since 2015)

PROTECT THE ENVIRONMENT
Zero Leak Ambition

TAKE CARE OF PEOPLE
Zero Fatality Ambition

ACT WITH INTEGRITY
Ambition to be a reference in ethics, integrity and transparency

Our commitment to life is a non-negotiable value, and our renowned safety culture is reinforced daily to strengthen both operational and personal safety. Therefore, we continue to uphold the ambition of achieving zero fatalities and zero spills in our plan.

ESG DRIVERS

For each Position, we maintain a set of relevant drivers that support and guide our actions, projects, programs, and related commitments.

The commitments related to each of the four positions of the ESG Mandala remain consolidated in a single list that is aligned with the concept of integrated ESG.

REDUCE CARBON FOOTPRINT

- Promote **intrinsic decarbonization**, seeking operational **emissions neutrality by 2050**, considering the origination and acquisition of competitive, high-quality **carbon credits** as a complementary strategy.
- Expanding the supply of and access to **low carbon energy** and products in a **cost-effective transition**, contributing to reducing energy poverty and reducing the portfolio's exposure to GHG emissions.
- Leverage knowledge and **innovation ecosystems** in low carbon solutions.
- Collaborate with stakeholders to accelerate opportunities that broaden **inclusion and sustainable development**.

TAKE CARE OF PEOPLE

- To be a vector for **socio-environmental** development.
- To be a benchmark for **human rights** and the promotion of **diversity, equity and inclusion**.
- To promote the **well-being** and comprehensive **health care of male and female workers**.
- To promote **people's safety** through practices that incorporate **human factors**, with a focus on organizational learning.

PROTECT THE ENVIRONMENT

- To be "**Water Positive**" in the water-critical areas where we operate, by reducing freshwater extraction and improving local water availability, contributing to water security.
- Minimizing the generation and maximizing the reuse, recycling and recovery of waste, promoting **circular economy** practices and **seeking zero landfill disposal**.
- Promote conservation, restoration and **gains in Biodiversity**, seeking a **net positive impact** in the regions where we operate.
- Improve **process safety, preparedness and response to contingencies** by preventing and mitigating accidents, leaks and environmental impacts.

ACT WITH INTEGRITY

- Strengthen our governance model by **promoting diversity, equity and inclusion**.
- To act with excellence in **ethics, integrity and transparency**.
- Encouraging the adoption of **ESG practices** among our **stakeholders**.

*Regarding our position of **Reduce Carbon Footprint,** each of these drivers is related to different targets of the Sustainable Development Goals (SDGs).*

Drivers	Most related SDG targets[12]
Promote **intrinsic decarbonization,** seeking operational **emissions neutrality by 2050,** considering the origination and acquisition of competitive and high-quality **carbon credits** as a **complementary strategy.**	 7.3, 7.a 8.2 9.1, 9.4, 9.5, 9.b 13.2
Expanding the **supply of and access to low-carbon energy** and products in a **cost-effective transition,** contributing to reducing energy poverty and reducing the portfolio's exposure to GHG emissions.	 7.1, 7.2, 7,3 13.2
Leverage **knowledge and innovation ecosystems** in low-carbon solutions.	 7.a 8.3 9.5
Collaborate with stakeholders to accelerate opportunities that broaden **inclusion and sustainable development.**	 10.2 12.7 13.b

[12] IBGE, Brazilian Indicators for SDG, 2024.

JUST TRANSITION

A just and inclusive energy transition is an energy transition committed to promoting equity and social participation, minimizing negative impacts on communities, workers, companies and social segments vulnerable to transformations in the energy system and maximizing opportunities for socioeconomic development, increasing the competitiveness of the productive sector and combating inequalities and poverty at the international, regional, and local levels.[13]

In Brazil, Just Transition is one of the cross-cutting strategies of the 2024-2035 Climate Plan and is in synergy with the Ecological Transformation Plan and the National Energy Transition Plan. In 2024, this topic was highlighted in the G20 discussions, where Petrobras and four other large Brazilian state-owned companies submitted a letter with proposals for their contributions.[14]

In this context, we recognize our strategic and leading role in a just energy transition with social inclusion, positioning ourself as a reference for the private sector in the search for more cost-effective paths for decarbonization and expansion of the energy supply in Brazil, and expanding employment and training opportunities, as well as socio-environmental investments. We also intend to collaborate with stakeholders and protect communities potentially affected by the energy transition, maintaining transparent dialogue in preparing transition and adaptation plans.

We believe that a Just Transition is connected to the promotion of human rights, especially through its contribution to the right to a clean and healthy environment and a standard of living that guarantees health and well-being for present and future generations. Therefore, the Just Transition is included in a specific principle of our Social Responsibility Policy and is part of Petrobras' Sustainability value. The path we will take as a leading Brazilian company in the just energy transition is addressed in our 2050 Strategic Plan. We will highlight some of our practices below.

When choosing and implementing new businesses: we ensure they have minimal negative impact on people and the environment, with robust project evaluation processes, licensing, characterization of the surrounding area, social and environmental risk analysis, and due diligence for community protection. In 2024, we began to integrate a "regional characterization" into the low-emission project evaluation system that analyzes local SDG indicators and the potential impacts of the installation. In this sense, we highlighted the importance of addressing risks and enhancing local benefits in the early stages of the projects. The evaluation of our portfolio includes metrics related to the supply and cost of energy production. In collaboration with external partners, we conduct studies on lower-cost decarbonization pathways aligned with

[13] Brazil, CNPE, 2024.
[14] Agência Gov, 2024.

regional potential, Brazil's energy planning, and commitments to the Paris Agreement through its Nationally Determined Contribution (NDC).

We seek to manage **Just transition indicators:** in our 2024 Human Rights Commission Action Plan, we completed a study to identify metrics and pilot initiatives to demonstrate and enhance progress in the just energy transition. In addition to the supply of lower-emission energy and its respective decarbonization potential and production costs, examples of the initial monitoring metrics include the social benefits of investments in energy production, socio-environmental projects, and RD&I.

As part of our **"Guidelines for Relations with Indigenous Peoples and Traditional Communities",** we include the guideline of enhancing partnership opportunities involving these communities, especially regarding the right to a clean, healthy, and sustainable environment with access to quality energy services and climate resilience, in the context of the transition to a low-carbon economy and climate adaptation.

We seek to provide **training and quality jobs in the energy sector,** directly and indirectly, with benefits for social inclusion and reducing inequalities. Our **Autonomy and Income Program**[15] offers professional training courses, in the form of initial continuing education and technical courses, to people in situations of socioeconomic vulnerability. The program prioritizes minority groups, such as women, black people, people with disabilities, and refugees. The selected candidates will be trained to work in the energy sector, in locations within the area covered by our operations. In the context of innovation and technological development, we have included diversity clauses in the Technological Cooperation Terms signed by Petrobras with educational and research institutions, which provide for the inclusion of black, brown, indigenous, women, and people with disabilities in the teams executing the projects.

[15] Petrobras, *Human rights and corporate citizenship supplement*, 2023.

OUR POSITIONING ON CLIMATE CHANGE

Our actions related to climate change are supported by three pillars:

TRANSPARENCY AND CARBON MANAGEMENT

Governance in information, processes, and decisions

Our Governance is focused on risk management of climate change and energy transition and is structured so that these issues are addressed at all levels of the company, including senior management.

We strive to ensure that risks and opportunities of climate change are adequately captured in our scenarios, quantified, and considered in our choices, seeking business sustainability and value creation for all stakeholders.

The company's employees' variable compensation incorporates performance linked to carbon intensity commitments in our operations, promoting employee engagement in achieving expected results.

We follow the TCFD's recommendations for climate-related disclosures, promoting carbon transparency for all stakeholders. Our inventory has been published voluntarily since 2002 and verified annually by a third party since 2003, representing our pioneering spirit in GHG management.

O&G COMPETITIVENESS

Robustness and value of the fossil portfolio in the face of transition

In our understanding, companies will become more competitive in the long-term market the more they can produce at low costs and with lower GHG emissions, thriving in scenarios of low oil prices, carbon pricing, and possible oil differentiation practices based on the GHG emissions intensity in production.

We aim to maintain our operations on a decreasing emissions trajectory with lower carbon intensity than other companies, safeguarding the competitiveness of our oil in world markets in a scenario of slowdown and subsequent contraction in demand.

We focus on continuing to supply oil and gas in a competitive and environmentally manner, to meet persistent demand for oil compatible with the goals of the Paris Agreement.

LOW CARBON BUSINESS, SCOPE 3 EMISSIONS AND FAIR TRANSITION

Carbon exposure of the portfolio

We acknowledge that the Paris Agreement's goals require significant reductions in GHG emissions and changes in energy supply. Our scenarios point to an unequivocal energy transition, albeit at an uncertain pace.

We believe balancing a focus on oil and gas activities with portfolio diversification into low-carbon businesses is the most effective path for a Just transition.

Ambitions and Commitments to Reduce our Carbon Footprint

The Board of Directors has approved our Strategic Plan, and the targets and ambitions related to decarbonization and energy transition are key elements of our transition strategy. For the 2025 and 2030 horizons, we reaffirmed our six commitments to reduce our carbon footprint, focusing on climate change mitigation. Our commitments cover 100% of emissions under our operational control (Scopes 1 and 2).

		2024	TARGET 2025	TARGET 2030
OPERATIONAL ABSOLUTE EMISSIONS [a]	million tCO_2e	47	NA	**-30%** [b]
ROUTINE FLARING	million m^3	120	NA	**ZERO**
REINJECTION IN CCUS PROJECTS	million tCO_2 (accumulated)	67.9	80	**NA**
GHG INTENSITY IN E&P SEGMENT [c]	$kgCO_2e$/boe	14.8	15	**15**
GHG INTENSITY IN REFINING SEGMENT [d]	$kgCO_2e$/CWT	36.2	36	**30**
UPSTREAM METHANE EMISSIONS INTENSITY	tCH_4/mil tHC	0.20	0.25	**0.20**

a) This commitment only considers the business segments in which we are already involved and our willingness to use carbon credits.

b) Compared to 2015.

c) The $kgCO_2e$/boe indicator considers gross oil and gas production ("wellhead") in its denominator.

d) The $kgCO_2e$/CWT indicator uses the activity unit called CWT (Complexity Weighted Tonne), which considers both the effect of the processed load and the complexity of each refinery, allowing the comparison of the potential for GHG emissions between refineries with different profiles and sizes.

Our absolute reduction and emissions intensity indicators cover all inventoried greenhouse gases (see Our Emissions Inventory).

For details on the metrics used, see the Metrics Table.

In addition to our 6 commitments, we have 3 ambitions related to the carbon theme:

» Long-term ambition to neutralize emissions from activities under our control (Scopes 1 and 2) by 2050, and to influence partners to achieve the same ambition in non-operated assets.[16]

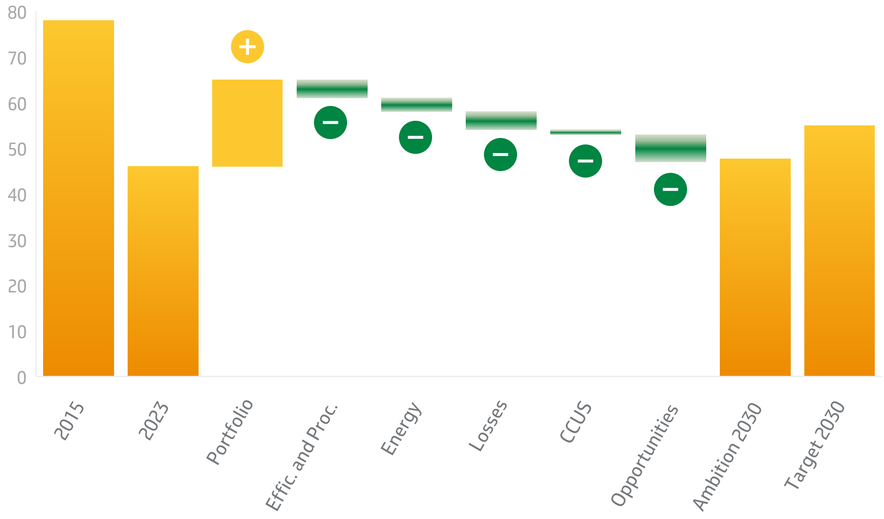
» Ambition for net-zero growth of our operational emissions by 2030, representing a 40% reduction compared to 2015, even with the expected increase in production in the coming years with the commissioning of ten FPSO-type platforms by 2029.

» The ambition for “near-zero methane emissions” by 2030 is aligned with the “Aim for zero methane emissions” initiative promoted by the Oil and Gas Climate Initiative (OGCI) and industry best practices.

[16] Our ambition refers to emissions in Brazilian territory, where more than 98% of our operational emissions occur. For the remaining emissions, we aim for neutrality within a timeframe compatible with the Paris Agreement, aligning with local commitments.

To achieve the 2030 net-zero growth ambition, we will reduce emissions growth through energy efficiency gains, energy source substitution, loss reduction, process improvements, CCUS, and the exploration of new mitigation opportunities. We are also considering the possibility of using quality carbon credit offsetting as a complementary strategy.

CONTRIBUTION OF OPPORTUNITIES TO ACHIEVING THE 2030 COMMITMENT AND AMBITION



Efficiency
Optimization and energy integration
Replacement of machinery and equipment

Energy
Replacement of energy sources

Losses
Reduction of gas flaring
Reduction of fugitive emissions and venting

Process
Improvements in industrial process

CCUS
Geological sequestration

Opportunities
Maturing intrinsic projects
Offseting

The ambition for net-zero growth by 2030 represents an additional challenge in relation to the commitment to reduce absolute emissions by 30%.

We have already made significant reductions through a combination of portfolio changes, energy efficiency, and optimization measures. Achieving the 2030 ambition will require an effort to implement process efficiency projects and assess opportunities.

We support the **Paris Agreement** and believe that our strategies, goals, ambitions, and investments contribute in a positive way to achieving its objectives, decarbonizing our operations and operating in low-carbon businesses, diversifying our portfolio profitably, promoting the sustainability of our business, and the development of society.

Energy Transition and Decarbonization Drivers

Energy Transition and Decarbonization Drivers

Our main levers and accelerators of energy transition and decarbonization

To leverage the decarbonization of our operations and portfolio, we allocate resources for energy transition and decarbonization, including investment in innovation to enable the greater maturity of alternative pathways to traditional fossil fuels.

We have also implemented various tools, including a corporate program aimed at accelerating the decarbonization of existing projects, as well as other mechanisms that promote the development of initiatives in new, lower-emission energy sources.

Investments in Energy Transition

Considering all low-carbon initiatives (scopes 1, 2, and 3), the total investment in energy transition amounts to USD 16.3 billion. This amount includes projects in Low Carbon Energy and initiatives aimed at decarbonizing operations and RD&I that permeate all segments. This volume is 42% higher than the amount allocated in the previous Plan, representing 15% of the total investment planned for the five years, compared to 11% in the last plan.

DESCARBONIZATION
Operational Emissions

US$ **5.3** BILLION

INVESTMENTS IN EMISSIONS MITIGATION
(Scope 1 & 2)

E&P, RTM and G&E
US$ 4.0 billion

Decarbonization Fund
US$ 1.3 billion

PROFITABLE DIVERSIFICATION
Providing sustainable products

US$ **5.7** BILLION

LOW CARBON ENERGIES

Onshore Wind Energy and Photovoltaic Solar Energy
US$ 4.3 billion

Hydrogen
US$ 0.5 billion

CCUS, Offshore Wind and *Corporate Venture Capital*
US$ 0.9 billion

US$ **4.3** BILLION

BIOPRODUCTS

Ethanol
US$ 2.2 billion

Biorefining
US$ 1.5 billion

Biodiesel and Biogas
US$ 0.6 billion

R&D
In low carbon

US$ **1.0** BILLION

GROWING IN THE FIVE-YEAR PERIOD

15% of the total budget in 2025, reaching 30% by the end of the period

The planned investments in low-carbon energy projects and bioproducts represent a potential expansion of the production capacity of low-carbon fuels by eight times by 2030. Also, by 2030, we should reach 45% of installed electricity generation capacity from renewable sources.[17] The planned investments could potentially reduce the intensity of GHG emissions in our portfolio by approximately 5% by 2030.[18]

[17] Compared to the renewable electricity generation capacity and in TPPs.

[18] Estimates made in comparison based on the year 2022.

Opportunities from Climate Change

The growing demand for low-carbon products and services brings new opportunities to the business, in line with our strategy of leadership in the just energy transition, leading to the profitable diversification of our portfolio. The Energy Transition and Sustainability Executive Office (DTEN) is the area responsible for coordinating activities related to decarbonization, climate change, new technologies, and sustainability, as well as natural gas commercial activities.

Opportunities are identified throughout the company, including our Research Center (CENPES) and the business areas. These are opportunities to meet the demands for products with lower GHG emissions, which require specific developments and may involve the execution of projects, always taking into account the requirements of the markets and the needs of our customers.

Opportunities may involve projects conducted or developed directly, in partnership with, or by acquisition of ongoing projects or assets already in operation. Based on our corporate scenarios, opportunities are assessed in alignment with strategic objectives and profitability, and follow the governance project approval guidelines. Projects in the renewable energy sector follow a system that establishes specific criteria for evaluation, where their technical and economic feasibility need to be attested by technical review groups and Statutory Technical Committees.

Throughout its life cycle, the project is monitored and controlled.

We seek specific operating models for each segment to integrate skills and assets with Brazil's competitive advantage in bioproducts and other low-carbon products, renewable energy, energy storage, and CCUS.

BIOPRODUCTS

In addition to biorefining, bioproducts include ethanol, biodiesel, and biomethane chains. In these segments, we seek to enter, preferably through strategic minority partnerships or shared ownership with relevant players in the sector. We foresee adaptations to the refining facilities and new units capable of transforming biomass into high-value-added products, integrating more sustainable raw materials into the supply chain. We have projects to implement new plants dedicated to the production of Sustainable Aviation Fuel (SAF) and renewable diesel.

ROAD TRANSPORT

CO-PROCESSING

Production and commercialization of derivatives with renewable content already available

INSTALLED CAPACITY OF DIESEL R5 *(5% renewable)*
- **REPAR:** 29 kbpd (Operating)
- **RPBC:** 9 kbpd (Operating)
- **REPLAN:** 6 kbpd
- **REDUC:** 6 kbpd
- **REGAP:** 13 kbpd

TOTAL: 63 kbpd

AIR TRANPORT

DEDICATED PLANTS

Compliance with global regulation (CORSIA) and flexibility of raw materials

FUTURE CAPACITY (2028+) **OF SAF** *(100% renewable) :*
RPBC: 15 kbpd (2029)
GASLUB: 19 kbpd (2031)
REPLAN - ATJ: 10 kbpd (under Evaluation)

MARITIME TRANSPORT

BUNKER WITH RENEWABLE CONTENT

Maritime fuel with renewable content aligned with the IMO's decarbonization strategy

Commercial tests with up to 24% renewable content enabled the development of the product that is already commercially available

GREEN CHEMICALS

CO-PROCESSING

Ethanol cracking at **RECAP** (active) and Bio-Oil cracking at **Refinaria Rio-Grandense** (Petrobras participation) for the production of HLR, Propene, and Ethylene with renewable content

PROCESSING
Vegetable oil cracking at **Refinaria Rio-Grandense** for the production of bioaromatics (petrochemical)

Highway Transport: Diesel Co-Processing with Renewable Raw Materials

Diesel R5 is already produced and sold at the Presidente Getúlio Vargas Refinery (Repar) and the Presidente Bernardes Refinery (RPBC). Diesel R is produced through the co-processing of refined soybean oil and diesel oil in a hydrotreating unit (HDT).

Diesel R is drop-in, meaning it is a product that can be used in systems designed for diesel oil, without any modifications to the engines or logistics infrastructure.

We conducted a Life Cycle Assessment (LCA) of the product Diesel R, which supported the international certification process for the renewable content of REPAR's Diesel R.

For this product, the ISCC Plus and ISCC EU RED certifications from the International Sustainability & Carbon Certification (ISCC) were obtained in February 2023, with recertifications scheduled for 2024 and 2025. The ISCC certification for Diesel R from RPBC is expected in 2025.

Refineries such as REPLAN, REDUC, and REGAP have already carried out tests and proven that they have the capacity to produce Diesel R5. We are conducting studies for the production of Diesel R in other refineries, depending on market conditions, especially regulatory progress in recognizing the renewable portion of Diesel R to meet biofuel mandates in the diesel cycle.

Air Transportation: Sustainable Aviation Fuel (SAF)

Technologies for producing renewable diesel and sustainable aviation fuel (SAF) have also been evaluated and developed.

We plan to build dedicated biorefinery plants for SAF production. Implementing dedicated plants will allow us to contribute to the decarbonization of the air and road transportation segments, while diversifying our portfolio with lower carbon intensity products.

The development and production of sustainable aviation fuel (SAF) and renewable diesel are aligned with the objectives of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and the program of the International Civil Aviation Organization (ICAO) aimed at reducing and offsetting CO_2 emissions from international flights.

The production of SAF by co-processing mineral kerosene with renewable raw material in hydrotreatment units is another option under evaluation. Although the maximum renewable content is limited to 5%, its use accelerates the product's availability to the market, which is in line with the mandatory use of this fuel provided for in Brazilian legislation by 2027.

Sea Transportation: Bunker with Renewable Content

Our initiatives in marketing marine fuels with renewable content align with the objectives of the International Maritime Organization (IMO) to reduce greenhouse gas emissions in international shipping.

We made the first sale of the VLS B24 product (bunker with 24% biodiesel), using an ISSC-certified biodiesel in 2023.

We were the first company in Brazil to obtain authorization from the National Agency of Petroleum, Natural Gas and Biofuels (ANP) to continuously market marine fuel with renewable content in July 2024.

In 2025, we obtained the international ISCC EU RED certificate for the marketing of bunker fuel with renewable content at the Rio Grande Terminal (TERIG). This certification demonstrates our strategy of providing economically viable solutions that meet society's demands for sustainability.

We also made the first sale of VLSFO B24 (Very Low Sulfur Fuel Oil with 24% renewable content) in the Asian bunker market in Singapore in 2025, which is in line with our strategy to develop new products for low-carbon markets.

Green Chemicals

We completed an industrial-scale test in 2024 aimed at obtaining sustainable chemical products from the co-processing of ethanol at RECAP's catalytic cracking unit. This process enables the generation of renewable petrochemical streams, such as ethylene, used to manufacture plastics with less dependence on fossil fuels. The test was carried out in partnership with Braskem.
It was relevant to prove the operational viability of producing Light Refinery Hydrocarbon (LHR) with renewable content, without negatively impacting other products and refinery operations. In 2024, internal and external audits were carried out to obtain the ISCC Plus certificate, which includes traceability of all process stages, from the receipt of ethanol, its storage, processing, and sale of LHR with renewable content, adding value to the business.

Ethanol

We are actively advancing decarbonization solutions across all modes of transportation, aiming to offer our customers the most optimized and sustainable options available. In Brazil, ethanol stands out as an immediate positioning alternative due to a context characterized by a large consumer market, a favorable natural resource environment for biomass production, and an adequate regulatory framework for biofuel production.

We plan to invest up to USD 2.2 billion between 2025 and 2029, aiming to enter the ethanol segment, preferably through strategic minority partnerships or shared control with key players in the sector. We are analyzing different raw materials, carbon intensity, and potential synergies. We aim to produce SAF via the alcohol-to-jet (ATJ) route and other synthetic fuels, exploring opportunities to access new domestic and international markets.

Biomethane

We aim to have an integrated role in the biogas value chain, generating revenue from various uses of energy sources (biomethane production, CO_2 production, and fertilizer production). Like ethanol, we plan to enter this sector through partnerships with industry players, as a minority shareholder or with shared control.

In October 2024, the Legal Framework for the Fuel of the Future (Law 14,993/2024) was enacted, establishing the mandatory purchase of biomethane and/or certificates by natural gas producers and importers. For Petrobras, this represents approximately a volume of 700,000 m³/day starting in 2026, equivalent to a decarbonization of 1% of the average volume produced and imported by Petrobras over the past 10 years.

In this context, we launched our first call for proposals for acquiring biomethane and guarantee of origin certificates at the beginning of 2025. The non-binding process aims to receive proposals for firm contracts with deliveries starting in 2026. It is aligned with our goals for decarbonizing operations and acting with a robust and competitive gas offerings portfolio, featuring products with a lower carbon footprint.

Biodiesel

We are active in biodiesel through Petrobras Biocombustíveis and plan to increase our market share, considering the mandate evolution introduced by the Fuel of the Future Law. This product also aligns with reducing carbon emissions from fuels like bunker fuel. This expansion, as in other segments, is under evaluation through partnerships with key players in the market.

The investment planned in the BP 25–29 for the biomethane and biodiesel segments is USD 0.6 billion.

ETHANOL

Current mandate at 27%, will increase to 30% and may reach 35%.

Synergies: inputs for SAF production via ATJ route and synthetic fuels.

BIODIESEL

Increased market share, aligned with the evolution of the mandatory percentage established in the new mandate, reaching 20% by 2030.

Synergy: bunker with biodiesel content, seeking raw material.

BIOGAS

Regulation with annual emission reduction targets for natural gas producers, starting in 2026 with 1% and potentially reaching 10% by 2034 (decade average). Applicable to the volume of gas traded, self-produced, and self-imported.

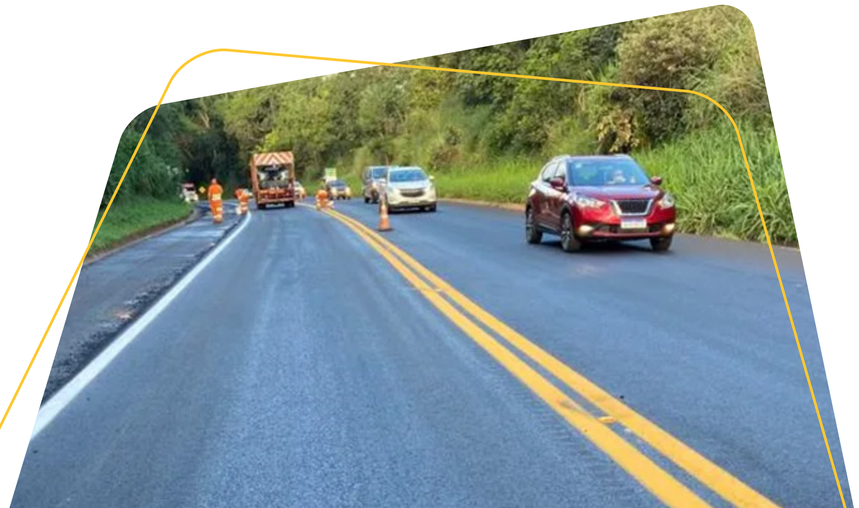
LOW-CARBON PRODUCTS OF MINERAL ORIGIN

CAP Pro Asphalt Product Line

In addition to fuels, our portfolio includes the CAP Pro line, which brings lower GHG emissions and greater reuse of paving waste to the asphalt product chain, enabling more sustainable application. CAP Pro AP, a high-penetration asphalt, is ideal for hot recycling services of damaged asphalt pavements, as it allows for greater use of recycled content (RAP – Reclaimed Asphalt Pavement) without the need for rejuvenating agents. CAP Pro W 30/45 is an asphalt cement that can be machined and applied at temperatures up to 40 °C lower than usual, generating energy savings, lower GHG and vapor emissions, and benefits for workers and the environment.

In partnership with COPPE/UFRJ, we began in 2024 to offer technical support for the application of these products (which includes the design of asphalt mass dosage, measurement of smoke and GHG emissions in plants and during application), the preparation of the life cycle assessment of the processes, and monitoring of road performance.

The first use of this product in an urban stretch in the country was accompanied by our technical sales team and took place in the same year, when paving works were carried out using CAP Pro W 30/45 in Copacabana, Rio de Janeiro.



PRODUCTS WITH OFFSET GHG EMISSIONS

Podium Carbon Neutral Gasoline

Petrobras Podium carbon-neutral gasoline, launched in 2023, is the first on the Brazilian market to have its GHG emissions offset throughout its life cycle. The offset is carried out through carbon credits generated by forest preservation actions in national biomes. In addition to having its GHG emissions offset, Petrobras Podium Gasoline has quality differentials, such as the highest octane rating and the lowest sulfur content on the market, which improves vehicle performance.

We have also launched a new premium gasoline, with a lower sulfur content (30 mg/kg) compared to the regulated limit (50 mg/kg), and a higher octane rating (100), compared to the specified limit (97), contributing to the reduction of SO_2 emissions into the atmosphere.

Life Cycle Assessment (LCA)

To assess the carbon intensity of our products in greater depth, we are conducting Life Cycle Assessment studies of the oils produced and the Refining products, focusing on the environmental impact of global warming. These assessments are used internally to improve our processes and define our sustainability strategies and our product portfolio, aiming to contribute to the energy transition and a low-carbon economy.

To date, we have already carried out the Life Cycle Assessment of part of our oil production basins and part of our refineries. We continue to work on evolving our models to develop digital systems with greater agility and inventorying a greater number of oil production and refining units.

In 2023, we carried out the LCA of Podium Gasoline, which underwent a critical review process by the consultancy ACV Brasil, meeting the ISO 14040 and ISO 14044 recommendations.[19]

In 2024, we implemented the pilot program of the Digital LCA Oil and Gas system to determine the carbon intensity of oil and gas from an oil field. The production and logistics stages of five stationary production units were considered. The system will be improved and implemented in other oil fields in our 2025 production. This effort seeks to meet customer demands, provide the carbon intensity of oil for the Refining Digital LCA, and prepare the company to meet regulatory requirements.

[19] A document with the main premises and results is available at our *site.*

Refining Digital LCA

We have developed the Refining Digital LCA system in our refineries, which allows us to quickly determine the carbon intensity of our products with traceability. The model uses real-time information from refinery management systems, such as the Digital Twin (digital twin of refinery processes used to optimize production) and the energy panel (energy performance data), as well as information from SIGEA® (Atmospheric Emissions Management System) and other complementary systems.

The system was implemented at the Henrique Lage Refinery (Revap) and the Paulínia Refinery (Replan) in 2023. Four other refineries had the system implemented in 2024 and are now undergoing a validation and improvement process.

The results are being evaluated, allowing us to improve the model and support the first internal studies on developing products with lower carbon intensity and certification.

We are moving forward with our plan to implement and validate the system in the refineries. The forecast is to have a significant portion of this work completed within two years, with the validation and critical review.

Certification of sustainable products

Certification of sustainable products is a global trend that is aligned with ESG practices. These practices ensure that a product follows international standards related to transparency, good management, quantification of carbon emissions in its life cycle, and environmentally responsible production, with safe working conditions, compliance with human, labor, and land rights, among others.

Certification is a rigorous process that involves third-party auditing, with control and traceability requirements for many internal documents and records, which involve everything from the purchase of raw materials to the receipt, storage, processing and sale of the sustainable product produced.

In addition to the ISCC - International Sustainability and Carbon Certification, certifications already obtained for the sustainable fractions of REPAR's R diesel, VLS B24 from Rio Grande (RS) and RECAP's green LHR, we are also evaluating the certification of other products with lower carbon intensity, in line with our biorefining projects, commercial strategy and the desires of the consumer market.

LOW-CARBON HYDROGEN

Studies show a relevant role for low-carbon hydrogen in the coming decades, with great potential for market growth in various application segments. With its wide availability of renewable resources, Brazil is an essential player in the low-carbon hydrogen segment.

We are currently Brazil's largest producer and consumer of hydrogen, generated essentially from the steam reforming units installed in its refining facilities. We plan to act in the production of low-carbon hydrogen and its products, with a focus on decarbonizing our operations, products, and business development to meet market demand.

In this context of challenges and opportunities, we are positioning as a relevant player in the hydrogen market, with expectations of increasing participation in the coming years. To achieve the desired position, we aim to enter the segment through pilot projects and smaller-scale projects in strategic partnerships, seeking to capture technical and commercial knowledge and reach larger scales competitively over the medium and long term.

Our first pilot plant for generating renewable hydrogen is being implemented at the Vale do Açu Thermoelectric Plant, in Alto do Rodrigues, in Rio Grande do Norte, with an electrolysis capacity of 2 MW. The plant is expected to start operating in the first quarter of 2026.

ELECTRICITY

We plan to have around 4.5 GW of renewable electricity generation capacity from solar photovoltaic and onshore wind power by 2030. We seek to work in partnership with large companies in the sector, without majority ownership, to decarbonize operations, integrate the portfolio of low-carbon solutions, and capture market opportunities in Brazil.

We are conducting studies in search of future business opportunities in offshore wind power, considering the main synergies with our activities, our regional operational expertise, and the potential for integration with our offshore operations.

POTENTIAL

Brazilian potential puts us in a competitive position for future investments

PHOTOVOLTAIC
USE 34 GW
POTENTIAL 28 THOUSAND GW

ONSHORE WIND
USE 27 GW
POTENTIAL 800 GW

OFFSHORE WIND
USE ZERO GW
POTENTIAL 700 GW

PRESENT

Our choice for the next period: opportunities in photovoltaic solar and onshore wind

M&A and investments in project development in Brazil

US$ 4.3 billion

FUTURE

Synergies and regional operational expertise, in addition to the potential for integration with our offshore operations

Dispatchable thermoelectricity is necessary considering the intermittency of wind and solar sources and the seasonality of hydropower. In this context, our thermal plants play an essential role in the increasing inclusion of renewables in Brazil's energy mix.

CCUS

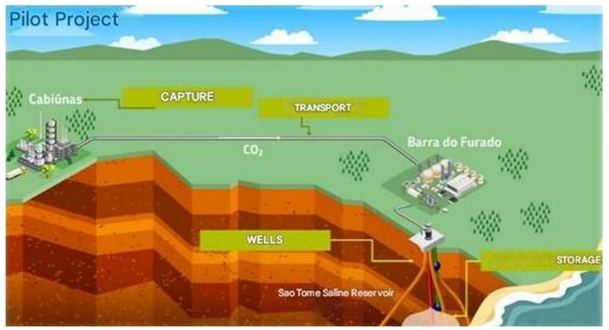
We study the feasibility of developing CCUS hub projects in Brazil, which aim to provide the service to reduce both our own emissions and those of third parties. In this new business model, CO_2 is captured in different locations and emission sources (refineries, cement, steel, aluminum, chemical, thermoelectric, ethanol plants, among others) and transported through a connected, shared and optimized transportation network, for later storage in geological reservoirs that are suitable and safe.

We are developing a pilot Carbon Capture and Storage (CCUS) project at the Cabiúnas terminal, in the north of the state of Rio de Janeiro (see more in *CCUS and NBS*). In parallel, we are advancing preliminary studies for the development of CCUS projects in the states of RJ, SP, ES, BA, and AM, with the aim of decarbonizing our operations and those of other industries.

In addition, to accelerate the advancement of CCUS and foster the dissemination of this technology in Brazil, we signed a cooperation agreement with PUC-RS for the development of a Brazilian digital CCUS platform. This free online tool gathers strategic information for the implementation of projects, including georeferenced data on CO_2 emissions from stationary sources and characteristics of reservoirs with potential for geological storage.

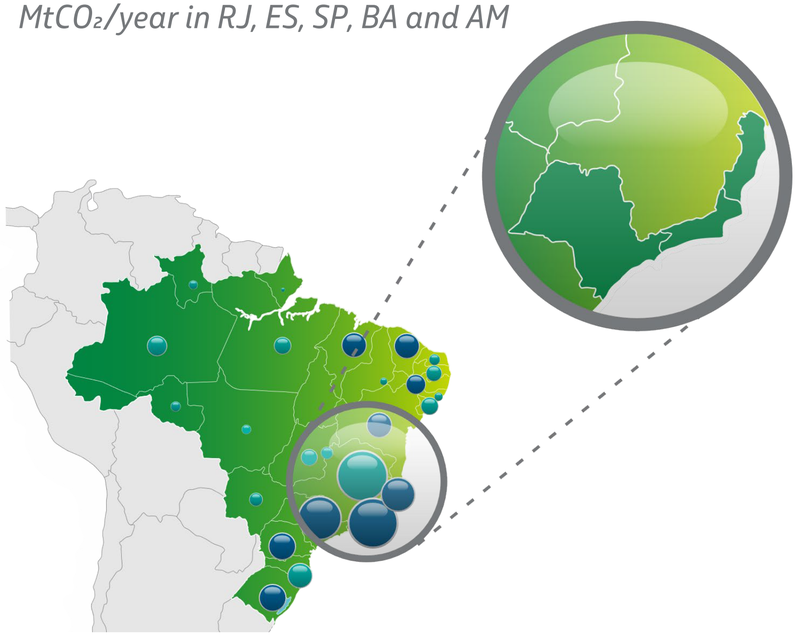
Rio de Janeiro CCS pilot

- *First CCS pilot in Brazil*
- *Injection of 100,000 tCO_2/year into saline reservoir*
- *Technology validation focused on cost reduction and process safety to enable commercial-scale projects*



First opportunities

The combined potential of the first projects under study reaches 57 $MtCO_2$/year in RJ, ES, SP, BA and AM



FINANCING OPPORTUNITIES

In December 2024, we entered into two Export Credit Notes with sustainability commitments, valued at BRL 3.5 billion and BRL 3.0 billion, with a 7-year term. We declare our commitment to the current long-term Strategic Plan (PE 2050) and efforts to apply planned resources, including actions to promote biodiversity, biofuels, renewable energy, efficiency, and energy transition. The assessment of sustainability commitments will be carried out annually by a specialized consulting company hired by Banco do Brasil.

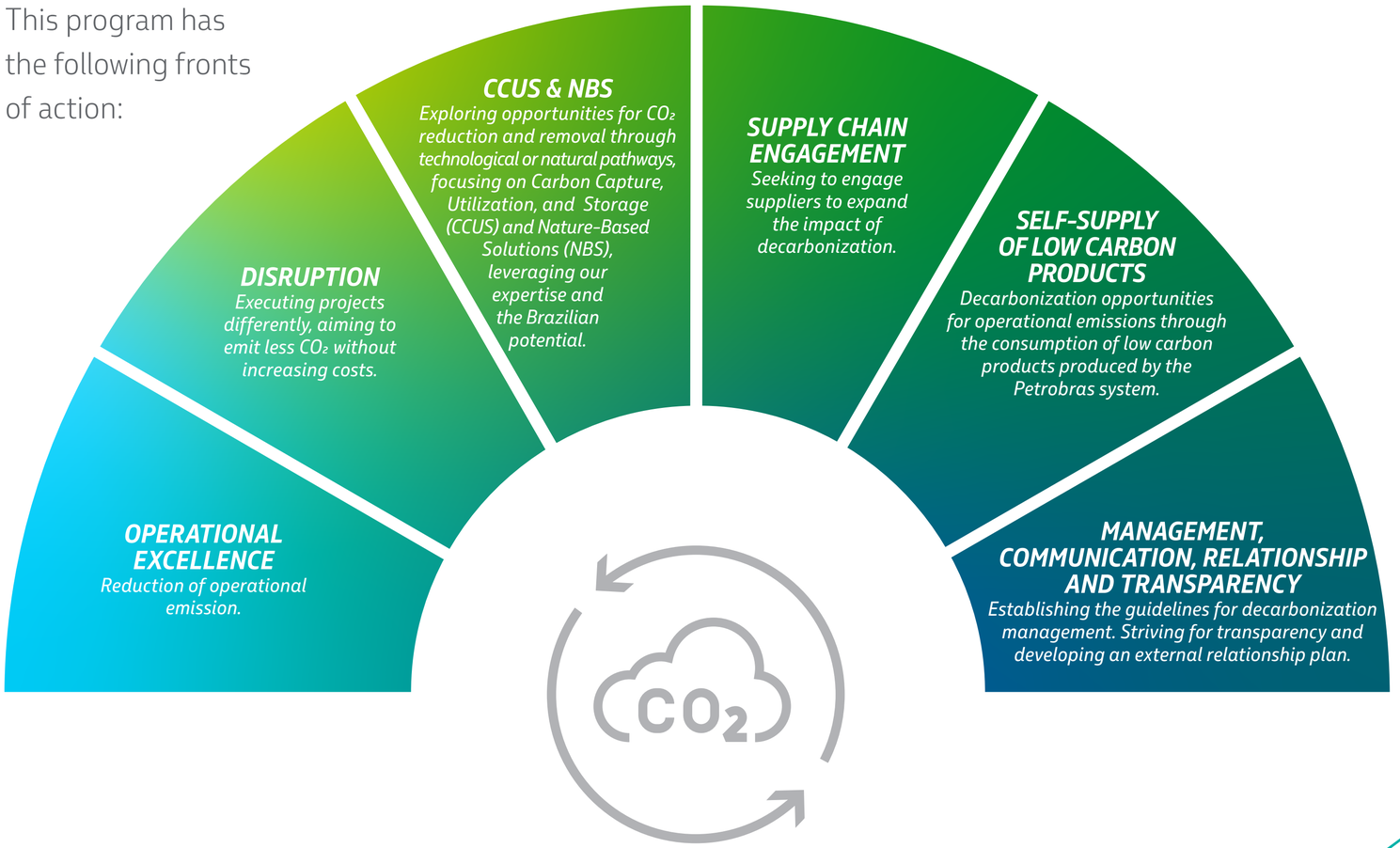
It is important to note that the opportunities described are at various maturity levels.

Carbon Neutral Program:
Leveraging Solutions for the Net Zero Trajectory

The challenge of achieving neutrality of operational emissions involves making the technologies that will support this commitment technically and financially viable. To overcome this challenge, the Carbon Neutral Program was structured to strengthen our current low-carbon position, accelerate and reduce the costs of decarbonization solutions, and provide the company with greater competitiveness.

The Program is a cross-cutting instrument that seeks an integrated view of our initiatives developed by different business areas.

This program has the following fronts of action:



We systematically map opportunities for mitigating GHGs and organize the set of opportunities in all our operating segments using the Marginal Abatement Cost Curve (MACC) methodology.

The integrated MACC is a decision support tool that helps compare different mitigation opportunities and guides the allocation of resources to maximize cost-effectiveness. Additionally, it enables the modeling of decarbonization scenarios, identifies gaps to meet commitments for reducing the carbon footprint, and prioritizes technological advancements. This tool also contributes to forming decarbonization opportunity portfolios that can access the Decarbonization Fund.

The Integrated MACC has more than 700 mitigation opportunities with different technological maturities.

DECARBONIZATION FUND

The Carbon Neutral Program has a Decarbonization Fund to accelerate operations' decarbonization (Scopes 1 and 2) to meet climate commitments and net-zero ambition. The fund has a specific budget, currently USD 1.3 billion for the five years (2025-29). Governance for access to the fund involves analyses to identify and prioritize decarbonization alternatives, using criteria such as marginal abatement cost, total amount of GHG abatement, technological maturity, and project phase (window of opportunity), among others.

We also assess the NPV of the alternatives, considering a specific hurdle rate of intrinsic decarbonization and submitting selected projects to a specific governance process.

In the first quarter of 2025, the portfolio of projects approved for use by the fund includes 34 decarbonization opportunities, with committed funds of approximately USD 430 million and the potential to mitigate 1.5 million tCO_2/year when implemented.[20]

Examples of projects include:

- Installation of a photovoltaic solar plant in refineries
- Energy recovery through the discharge of seawater
- Combined cycle
- Optical gas imaging (OGI) cameras in an E&P production unit
- Large-scale electrification
- Installation of equipment that allows for a reduction of up to 10% in the intensity of GHG emissions, and a reduction in refinery operating costs

[20] Position as of March 2025.

Low-Carbon Innovation

Technological innovation has been the basis for our pioneering work throughout our 70 years and will drive the construction of the future to enable decarbonization paths that take into account the social aspect of energy costs, contributing to a fair energy transition. We believe that the competitiveness of renewable electricity generation technologies, liquid fuels with a lower carbon footprint, less energy-intensive processes, hydrogen and biomethane, CO_2 capture, use, and storage (CCUS), subsea CO_2 separation, among others, will be essential for the creation of new energy paradigms based on low carbon, generating value for society.

We are committed to investing in low-carbon research, development, and innovation (RD&I). In 2025, the development of low-carbon solutions will account for 15% of the total RD&I budget, rising to 30% in 2029.

Our research portfolio explores opportunities in the oil and gas chain and in renewables. We have developed and evaluated technologies that contribute to achieving the decarbonization goals established in operations (scope 1 and 2), reducing emissions in internal processes, and adding greater sustainability to our products (scope 3), in order to achieve diversification over the long term.

Our main initiatives in low-carbon RD&I are:

» Energy efficiency

» CCUS (carbon capture, utilization, and geological storage)

» Electrification

» Subsea CO_2 separation

» Mitigation of methane emissions

» Low-carbon products

» Biomethane and biogas

» Low-carbon hydrogen

» Wind and Solar Generation

Goals for Variable Compensation of Employees and Senior Management

The top metrics translate and quantify the attributes of our vision and more explicitly guide the company's main objectives, to ensure that activities are aligned with the main commitments established in the Strategic Plan.

Of the four top metrics established in BP 2024-28+, three are linked to the variable compensation of all employees: two environmental and one financial.

» Greenhouse Gas Emissions Target Achievement Indicator (IAGEE), which represents the consolidation of compliance with greenhouse gas intensity targets for E&P and Refining

» Environmental Commitment Indicator (ICMA), which considers Oil and Oil Products Spilled Volume Indicator (VAZO)

» Delta Value, which measures our economic and financial performance based on the value generated by activities, considering short- and long-term aspects

The variable compensation of each employee and executive is calculated based on individual goals and the percentage of achievement of these three top metrics. In addition to the IAGEE, executives related to the E&P and Refining segments also have their compensation impacted by the emissions intensity results of their respective segments. Thus, in relation to the variable compensation programs in force in fiscal year 2024, the weight of the metrics related to emissions represented between 15% and 30% of the value of the variable compensation, with decreasing values among members of the Executive Board, up to non-managerial employees.

Decarbonization Incentives in Investment Projects

FINANCIAL REQUIREMENTS

The decision-making process for investment projects includes a series of technical evaluations carried out by review groups led by company experts. These groups provide recommendations that support the decisions of the competent authorities. At the end of each project phase, a defined set of minimum information, outlined by the Corporate Investment Projects System, is presented to ensure the projects meet adequate maturity levels and comply with mandatory requirements.

In investment projects' economic and financial analyses, mandatory assessments are carried out regarding the potential impact of carbon pricing linked to Scopes 1, 2, and 3 emissions in the Negotiation scenario.

We have incorporated the internal carbon price into the economic valuation calculation of all E&P projects across the three corporate scenarios since 2023. According to the established governance, only economically attractive projects in all our scenarios are sanctioned.

Adopting the internal carbon price aims to accelerate the implementation of GHG emissions mitigation opportunities to achieve our footprint reduction commitments and give greater autonomy to implement these opportunities.

TECHNICAL REQUIREMENTS

Performance requirements

In line with our commitments to reduce emissions, new projects must demonstrate efficiency and emissions intensity that fall within the established limits for their respective segment or type. This is a mandatory requirement for project development and progression to subsequent phases following our corporate system for investment projects.

In addition to meeting the operational performance requirements, investment projects must evaluate the feasibility of implementing technologies and solutions contributing to GHG reduction. These opportunities must be assessed during each phase of project planning, focusing on quantifying their impacts, financially and in terms of mitigation.

Technological requirements

The incorporation of minimum low-carbon technologies groups in the development of new projects is mandatory, considering economic feasibility and environmental benefits. Additional technologies were also mapped out, and their implementation may be recommended through a technical and economic assessment according to the particularities of each project.

Carbon Performance

Our Emissions Inventory

The management of greenhouse gas emissions is directly related to climate risk management and the identification of mitigation opportunities. The publication of our inventory makes it possible to monitor our commitments to reduce our carbon footprint, in addition to meeting the demands of several external entities.

As a basis for monitoring our performance in operational emissions, since 2002, we have had proprietary software for managing our emissions inventory, the Atmospheric Emissions Management System (SIGEA®). This computerized system consolidates our inventory through the monthly processing of information from approximately 7,000 sources, ensuring traceable and reliable information. In SIGEA® GHG emissions are calculated: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6) and hydrofluorocarbons (HFCs), in addition to emissions of atmospheric pollutants: nitrogen oxides (NOx), sulfur oxides (SOx) or sulfur dioxide (SO_2), carbon monoxide (CO), particulate matter (PM), non-methane hydrocarbons (NMHC) and total hydrocarbons (TCH). We are also working on incorporating our scope 3 emissions inventory into SIGEA®, seeking continuous improvement in our atmospheric emissions management.

Our emissions inventory is prepared according to the technical specifications of the Brazilian GHG Protocol Program, in alignment with the guidelines of the "A Corporate Accounting and Reporting Standard" of the Greenhouse Gas Protocol, developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), and with the specific guidelines published by IPIECA in the Petroleum Industry Guidelines for Reporting Greenhouse Gas Emissions.

The scope of our inventory includes all activities under our operational control, in Brazil and abroad. The organizational boundaries encompass the emissions of the companies Petrobras, Transpetro, TBG (Transportadora Brasileira Gasoduto Bolívia-Brasil S.A.), Petrobras Biocombustível, Petrobras Bolivia, and Petrobras Colombia.

In our inventory, we adopt the detailed methodology, that is, source by source, known as "bottom-up". In this way, the total result is the sum of the emissions from each emitting source. Emissions calculations are based on international references such as the American Petroleum Institute Compendium, the Compilation of Air Pollutant Emission Factors (AP-42) of the US Environmental Protection Agency (US-EPA AP-42), and the calculation tool of the Brazilian GHG Protocol Program.

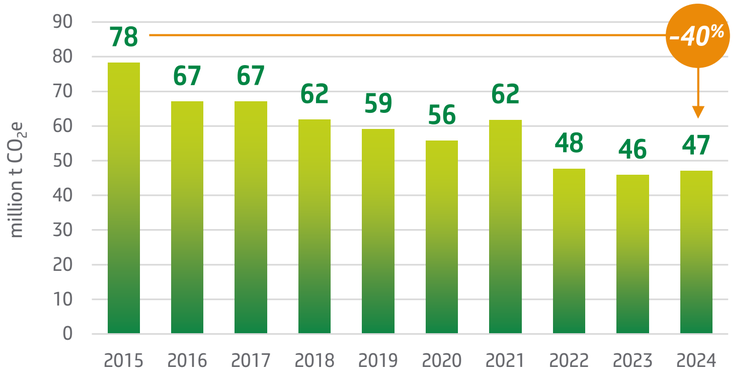
Our inventory is verified by a third party annually. We are founding members of the Brazilian GHG Protocol Program and publish our inventory in its Public Emissions Registry. In 2024, for the seventh consecutive year, our inventory (base year 2023) was classified as Gold Seal, a standard of excellence in data quality and availability.

We closely monitor trends in the results publication, especially with regard to global warming potential (GWP) factors, periodically made available by the Intergovernmental Panel on Climate Change (IPCC). Our public commitments have been defined since 2019, considering the GWP values in the IPCC's 4th Assessment Report (AR4). Thus, to maintain coherence with our commitments, all CO_2 equivalent values are aligned with AR4 in this publication.

Emissions Performance

We achieved significant results in decarbonizing our operations, which allows us to connect the future challenges with the delivery capacity that we have demonstrated in recent years.

ABSOLUTE OPERATIONAL EMISSIONS OF GREENHOUSE GASES*



We have a trajectory of reducing absolute emissions from our operational activities, resulting from efficiency actions and loss reduction implemented in the operational segments, such as the optimization of the operation of turbogenerators and the operation of FGRUs (Flaring Gas Recovery Units), a unit that recovers part of the gas stream that would be sent to the flare, returning it to the process. In Refining, energy efficiency and equipment maintenance measures stand out, contributing to increased operational efficiency.

Since 2022, we have neutralized our Scope 2 emissions in Brazil by purchasing Renewable Energy Certificates (I-REC). By purchasing these certificates, we obtain the guarantee that 100% of the electrical energy purchased from third parties in Brazil is generated by renewable sources. In 2024, we neutralized 185 thousand tCO_2, equivalent to 3.39 million MWh of renewable electricity purchased, through the acquisition of I-REC certificates. Abroad, our Scope 2 emissions totaled 141 tCO_2, representing only 0.0003% of our absolute operational emissions in 2024.

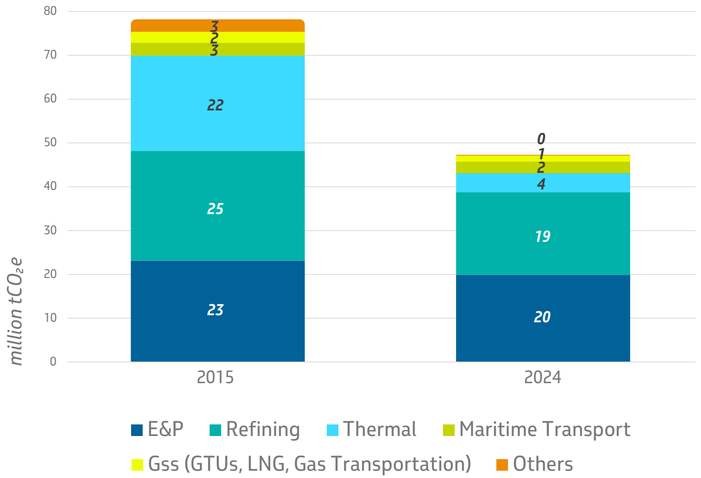
*The values refer to total operational emissions, calculated through LCA without considering the use of carbon credits to offset GHG emissions from Petrobras Podium Carbon Neutral Gasoline. Of the offset emissions in 2024, approximately 27.6 thousand tCO_2e are operational emissions.

OPERATIONAL GHG EMISSIONS BY BUSINESS SEGMENT

The quantification of our absolute operational emissions considers not only oil exploration, production, and refining, but also electricity generation. We include emissions from all our operational activities, such as maritime transportation and logistics activities, gas processing and transportation, biofuel production, and administrative activities, among others. In our governance, we monitor absolute operational emissions by business segment.

E&P and Refining segments account for the most significant portion of our total absolute operating emissions. Our public commitments regarding GHG emissions intensity (IGEE-E&P and IGEE-Refining) represented coverage of 84.4% of emissions from the activities in which we operate in 2024.

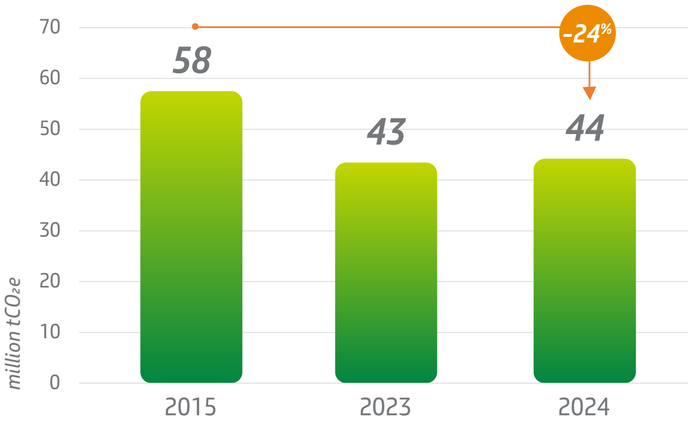
OPERATIONAL EMISSIONS BY SEGMENT



OPERATIONAL GHG EMISSIONS FROM OIL AND GAS ACTIVITIES

We also monitor the operational emissions of our oil and gas activities separately, excluding emissions from our operations in the thermoelectric market.[21] In this way, we can verify the results of our efforts to reduce absolute emissions without the influence of the thermoelectric dispatch requested by the ONS (National Electric System Operator).

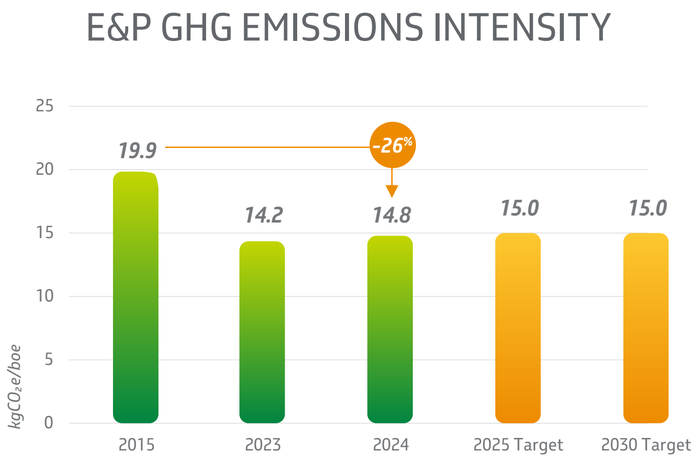
OPERATIONAL EMISSIONS FROM OIL AND GAS ACTIVITIES



GHG emissions in O&G in 2024 were 44 million tCO_2e, 1 million tCO_2e higher than in 2023. Efficiency and loss reduction actions implemented in the operational segments mitigated the increases resulting from the commissioning of new assets.

[21] Two refineries consume steam from cogeneration from nearby thermoelectric plants. When the scope 1 emissions of these thermoelectric plants are excluded, the emissions related to the steam purchased by the refineries are then accounted for as scope 2 emissions.

GHG EMISSIONS INTENSITY IN E&P



The 2024 result represents a 4% increase compared to that achieved in 2023, having been impacted mainly by the commissioning of new FPSOs and the 1% reduction in oil and gas production, associated with the natural decline in production of mature fields and unscheduled shutdowns/platform closures. The implementation of actions such as energy optimization and reduction of gas losses mitigated this increase.

Our Pre-Salt fields are among the least carbon-intensive in the world, with an average of 10 $kgCO_2e/boe$.

Main vectors for reducing emissions intensity in E&P:

» **Efficiency of new assets**

» **Energy Optimization**

» **Reduction of Gas Losses**

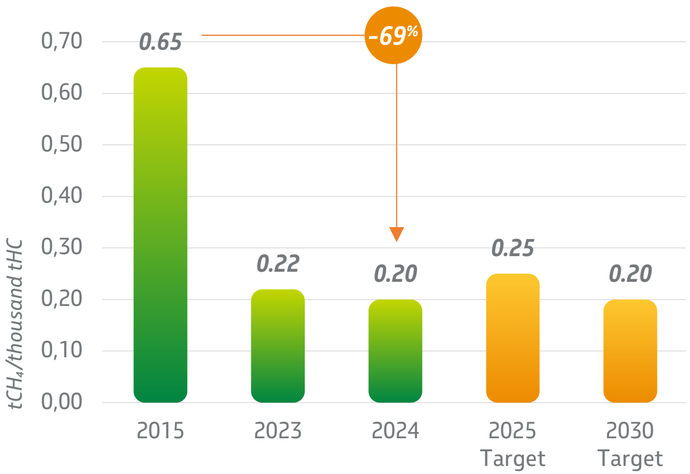
» **CCUS-EOR**

We are committed to improving the efficiency of GHG emissions from our E&P activities. In oil and gas projects, it is natural for fields to mature over time, showing a progressive increase in water production and energy demand and a reduction in the oil production rate. As a result, there is a natural tendency for the intensity of the E&P segment portfolio to increase over time. To contain this increase, we seek to: i) act to mitigate assets in operation, through actions such as energy optimization and loss reduction, ii) incorporate low-carbon technologies into new projects, and iii) study and implement disruptive solutions for long-term decarbonization.

METHANE EMISSIONS

Our carbon intensity targets for the segments incorporate all greenhouse gases, including methane. However, given the characteristics of methane, which has a very high warming potential over the short term, we monitor it with specific metrics.

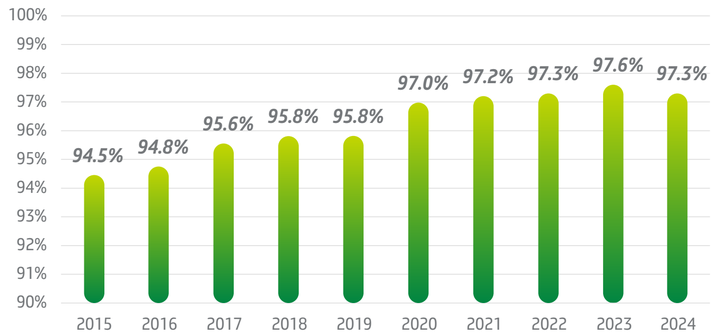
METHANE EMISSION INTENSITY IN UPSTREAM



In 2024, we achieved the best historical result, 0.20 tCH_4/thousand, a reduction of 0.02 tCH_4/thousand tHC compared to 2023. The actions to reduce gas losses in E&P, such as the operation of FGRUs and the reduction of gas passage, contributed to this result.

Our Associated Gas Utilization Index has remained above 97% for the past 5 years.

ASSOCIATED GAS UTILIZATION INDEX



Main vectors for reducing the methane emissions intensity in E&P:

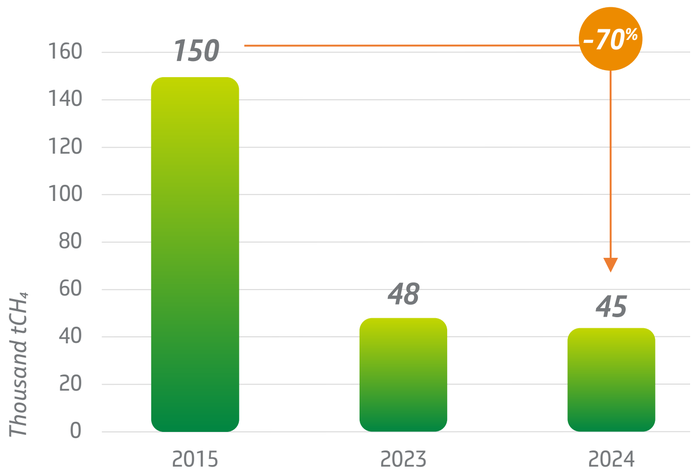
» **Implement gas loss reduction actions, such as the operation of FGRUs and reduction of gas venting, and campaigns for detecting and repairing fugitive emissions.**

» **Portfolio Management**

Our goal of reducing the intensity of methane emissions in E&P supports the goal of reducing the GHG intensity of E&P and our reduction of absolute emissions. It also contributes to the objectives of the Global Methane Pledge, a commitment established by Brazil at COP26 to reduce methane emissions by 30% by 2030 (based on 2020).

Regarding direct methane emissions, in the period between 2015 and 2024, we achieved a 70% reduction, mainly due to portfolio management and implementation of mitigation measures, such as flaring reduction.

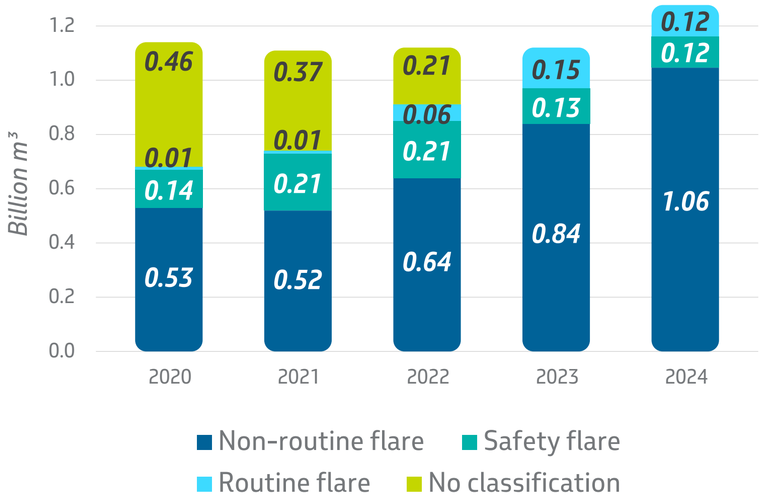
DIRECT METHANE EMISSIONS



ZERO ROUTINE FLARING

In 2018, we announced our support for the World Bank's Zero Routine Flaring by 2030 initiative, and meeting its criteria is one of our public commitments.

FLARING VOLUM



In 2024, routine flaring represented 9% of the total volume flared by E&P (~120 million Sm^3). Despite the increase in the total volume of flaring associated with commissioning, a 20% reduction in routine flaring was observed.

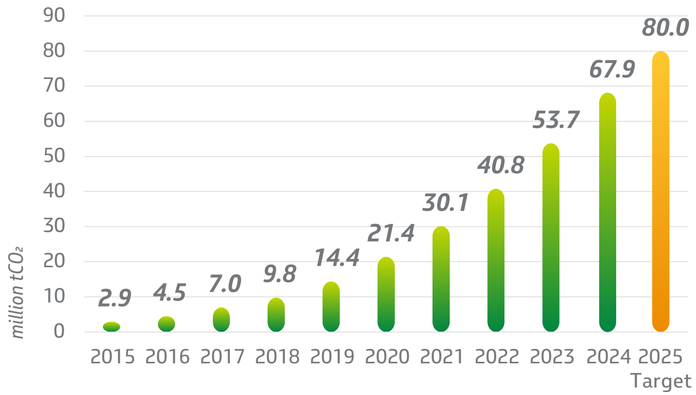
Main vectors for achieving zero routine flare:

- **Improvement of management and classification of flaring reasons**
- **Implementation of mitigation actions, such as the operation of FGRUs.**
- **New Project Guidelines (see *Performance Requirements*)**

CO_2 REINJECTION IN CCUS PROJECTS

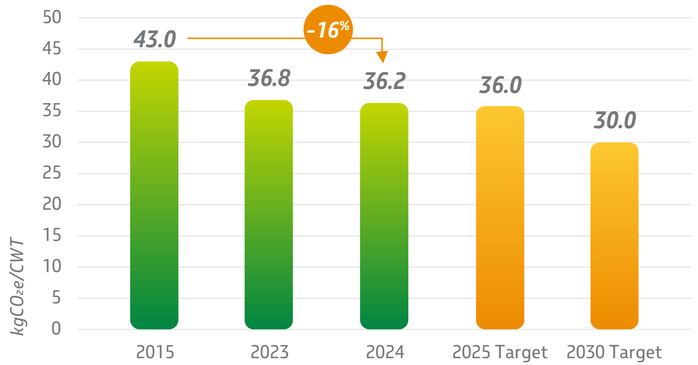
CO_2 reinjection in production fields, associated with EOR, will continue to play a relevant role in reducing GHG intensity in oil and gas production.

ACCUMULATED CO_2 REINJECTION



In 2024, we injected 14.2 million tCO_2, the highest amount in a year. 22 operating platforms carried out CO_2 reinjection in 2024. There is a gradual increase in the volume of CO_2 reinjection associated with the entry of new units, mainly total gas reinjection units.

GHG EMISSIONS INTENSITY IN REFINING



In the Refining segment, the intensity of GHG emissions has continued to decline, reaching 36.2 $kgCO_2e/CWT$ in 2024, which represents a reduction of 2% compared to 2023 and 16% compared to 2015, marking its lowest and best historical value. The main factors contributing to reducing the intensity of GHG emissions in refining include reducing the gas sent to the flare, energy performance improvements, and greater load processing efficiency.

In 2024, along with the decrease in GHG emissions, we also recorded a reduction in regulated pollutant emissions compared to 2015, such as particulate matter (-45%), sulfur oxides (-15%), and nitrogen oxides (-29%).

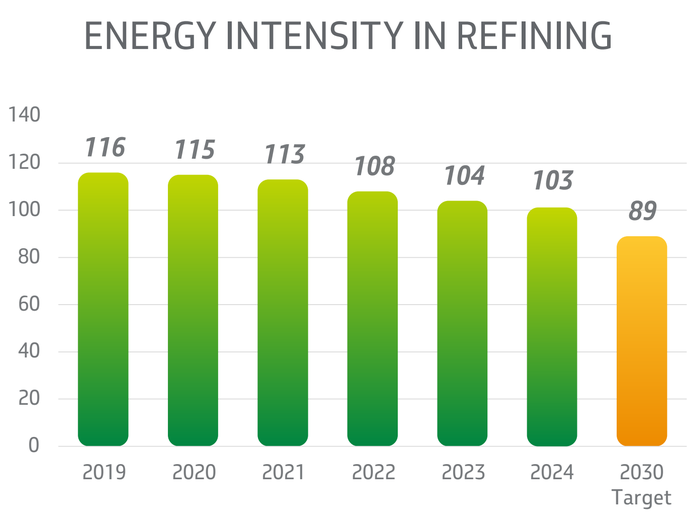
Main improvement vectors for reducing GHG intensity in refining:

- **Increased energy recovery in processes**
- **Reduction of steam and condensate losses**
- **Reduction of gas flaring**
- **Improvement in energy performance**

ENERGY INTENSITY IN REFINING

We monitor our energy intensity in Refining through the relationship between the total primary energy consumption of a refinery and the standard energy consumption, which takes into account the processed load volume, load quality, complexity, and severity of the process units.

The energy intensity index (EII) of our facilities continues on a downward trajectory, reaching 102.6 in 2024, a 1% reduction compared to 2023, with the main positive highlights being the ongoing efforts to optimize and recover energy in the Refining units.



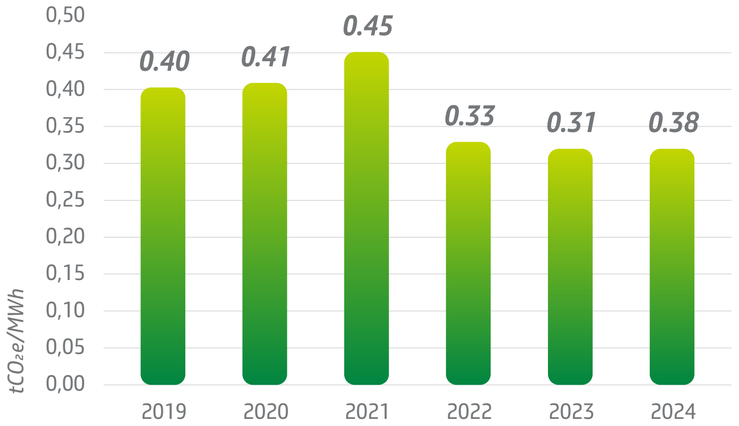
Starting in 2025, we will begin to monitor Refining the Energy Sustainability Index™ (ESI™). This indicator also incorporates the impact of initiatives for electricity consumption from renewable energy sources, such as the implementation of photovoltaic plants and the Brazilian electric system with a high share of renewables.

INTENSITY OF GHG EMISSIONS IN ELECTRIC POWER GENERATION

The intensity of GHG emissions in electricity generation by Petrobras' thermoelectric plants is directly related to the dispatch requests made by the National Electric System Operator (ONS). These requests are influenced by factors such as the availability of other generation sources in the country, climate conditions, and seasonal variations characteristic of the Brazilian electrical system.

We continuously monitor the emission intensity in the operations of our thermoelectric plants, which include open-cycle and combined-cycle units, some of which have cogeneration. These cogeneration units exhibit high energy efficiency and are integrated with our assets for steam supply.

GHG EMISSIONS INTENSITY IN ELECTRIC POWER GENERATION



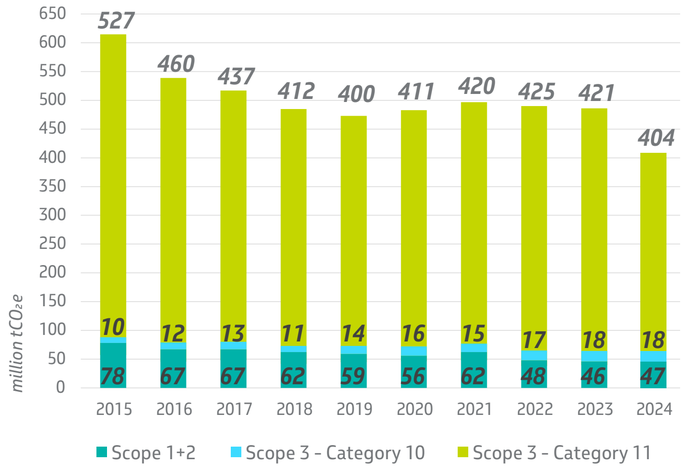
The calculation methodology only considers emissions related to electricity generation, excluding the portion associated with steam generation in cogeneration plants.

The increase in intensity in 2024, compared to 2023, is related to the request for the dispatch of simple cycle thermal plants by the ONS to quickly serve the National Interconnected System (SIN), especially in the second half of 2024. Open cycle thermal plants, due to their rapid start-up capacity, played a relevant role in peak demand scenarios and reduction in the supply of renewable sources, such as wind and solar.

VALUE CHAIN EMISSIONS

As an integrated energy company, we monitor the absolute emissions and carbon intensity of the value chain of our global energy portfolio. We also consider the carbon performance of each product to be relevant, as there are significant differences in the emission intensity of different types of crude oil, natural gas streams, and fossil-fuel-based electricity.

VALUE CHAIN EMISSIONS*



In the case of GHG emissions from the value chain, in addition to operational emissions, two categories of scope 3 are considered: indirect emissions from the processing of products sold (Category 10) and indirect emissions related to the use of products sold (Category 11), which are the most relevant in our value chain.[22]

GHG EMISSIONS INTENSITY OF THE PORTFOLIO

We assess the portfolio's intensity of GHG emissions as an element of our analysis of carbon risks and opportunities, aiming to monitor our operations and business.

This metric represents the amount of GHG emissions associated with each unit of energy sold to our consumers.[23]

In 2024, the intensity of our value chain was 78.3 gCO_2e/MJ.

* The amounts refer to the main emissions of our value chain without considering the use, since 2023, of carbon credits to offset GHG emissions from Petrobras Podium Carbon Neutral Gasoline, calculated through LCA, and which, in 2024, represented 226.6 thousand tCO_2e.

[22] Although this document only presents categories 10 and 11 of scope 3, categories 1, 2, 3, 4, 5, 6 and 7 are also reported to the Brazilian GHG Protocol Program.

[23] See description of the calculation methodology in *Appendix 2 - Metrics Table*

Decarbonization Initiatives

Decarbonization Initiatives

In 2024, we disbursed approximately US$600 million on low-carbon initiatives,[24] as follows:

- USD 474 million in initiatives to decarbonize operations
- USD 19.26 million in biorefining
- USD 102 million in low-carbon RD&I
- USD 4.11 million of initiatives, through our Decarbonization Fund

Operational Excellence

Initiatives seeking operational excellence involve assets in operation and new projects to reduce greenhouse gas emissions.

[24] Includes CAPEX and OPEX.

EXPLORATION AND PRODUCTION

Greenhouse gas emission reduction actions for operational assets include initiatives related to operational excellence. In the upstream sector, these initiatives can be divided into two main sets of actions: **energy optimization** and **reduction of gas losses.**

Energy optimization actions aim to increase efficiency in energy generation and consumption. We can highlight, for example, optimizing the use of turbogenerators.

ENERGY OPTIMIZATION

Solution examples:

- Online monitoring of equipment efficiency
- Optimization of turbogenerator use
- Increasing equipment availability and reliability
- Compressor recycling

Potential GHG mitigation on a standard platform **1% - 5%**

Short Term 2025+

Optimization of turbogenerator use

Turbogenerators are responsible for supplying electrical and thermal energy to our offshore platforms through fuel gas consumption. One factor that directly affects the efficiency of this type of equipment is the electrical demand, since the energy generation efficiency is higher with loads close to the turbogenerator's nominal capacity.

The optimization solution seeks to use the smallest possible number of turbogenerators for the current electrical demand of the platform, so that each turbogenerator operates with a high load. This way, the equipment operates with greater efficiency and lower fuel consumption, generating fewer emissions.

Gas loss reductions include actions associated with mitigating emissions from sources such as flaring, ventilation, and fugitive emissions in process components. These types of sources are the main culprit for methane emissions in the upstream sector.

REDUCTION OF GAS LOSSES

Solution examples:

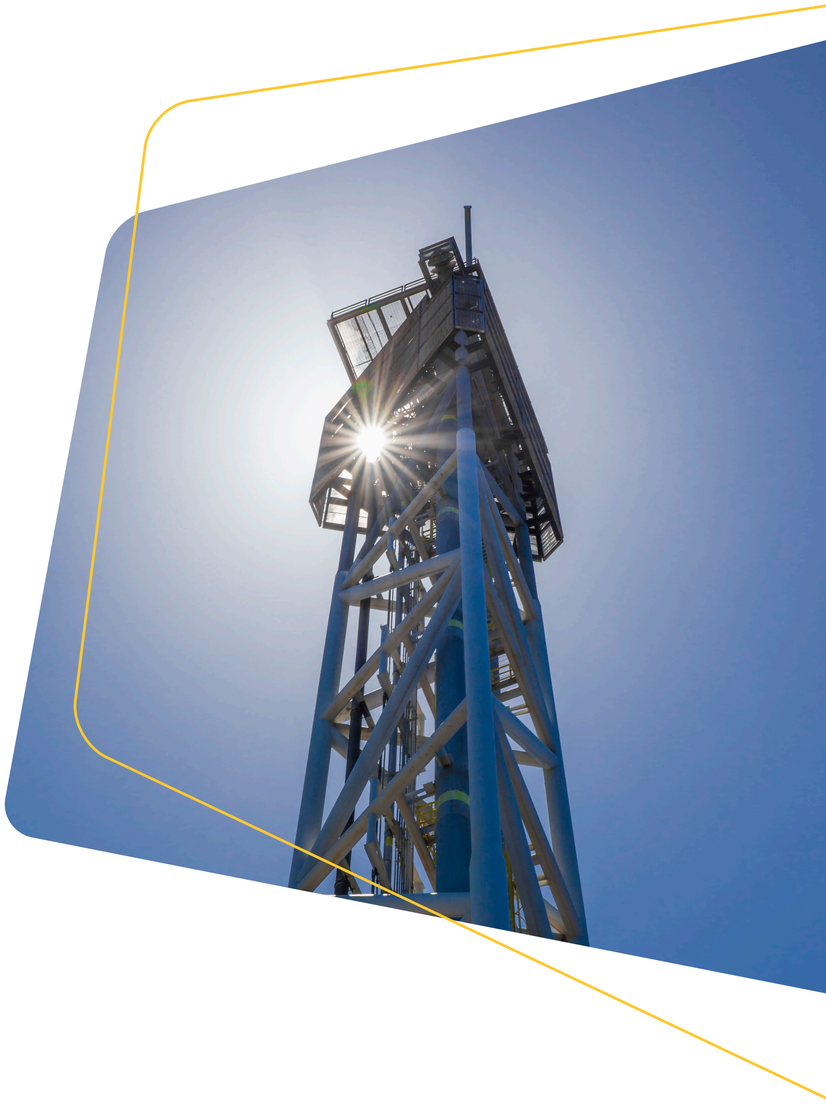
- Flare Gas Recovery Systems (FGRS) Operation
- Monitoring of gas flow through valves
- Detection and repair of fugitive emissions
- Recovery of vented gas streams

Potential GHG mitigation on a standard platform **5% - 10%**

Short Term 2025+

Flare Gas Recovery System (FGRS) Operation

The FGRS is to recover any gas streams sent for burning back into the process. The system operates in a closed circuit and can recover, on average, a volume of gas in the order of 50 thousand m^3/d. When this volume is exceeded, a valve opens automatically, and this current is sent to the flare for combustion, ensuring the unit's safety. This system prevents unnecessary gas flaring, contributing to reducing emissions and our goal of zero routine flaring. This equipment is in operation in all units with such a system, and is expected to be mandatory equipment in new projects.



In January 2023, we joined the OGMP 2.0 initiative – Oil and Gas Methane Partnership, reinforcing our commitment to the methane issue. OGMP 2.0 is a global initiative coordinated by the United Nations (UN) dedicated to the quantification, reporting and management of methane emissions, with a focus on mitigating climate change in the O&G sector. Recognized as the sector's most transparent and credible when it comes to providing data on methane emissions, OGMP 2.0 brings together more than 150 companies in the oil and gas industry.

In 2024, for the second consecutive year, OGMP awarded Petrobras the Gold Standard Pathway seal in recognition of our implementation plan for methane emissions management in the upstream, midstream, and downstream gas sectors, which aligns with industry best practices.

This maintenance of the Gold Standard Pathway was the result of a joint effort by several areas that carried out a series of monitoring actions in 2024, such as:

» Conducting more than 30 fugitive emissions monitoring campaigns

» 3 drone monitoring campaigns

» Execution of several process simulations and modeling

In 2025, we seek to achieve Level 4 (source-level) methane reporting across our entire upstream, midstream, and downstream gas portfolio, in line with the implementation plan agreed with OGMP. To achieve this goal, new emissions monitoring and simulation campaigns will be necessary.

The **incorporation of decarbonization technologies** into new oil and gas production development projects and the prospecting of solutions are being evaluated with the aim of reducing emissions in the medium and long term.

INCORPORATION OF SOLUTIONS INTO NEW PROJECTS

Solution examples:

- All-electric concept
- Combined cycle
- HC blanketing

Potential GHG mitigation on a standard platform **15% - 30%**

Medium Term 2030+

Among the technologies, we can highlight the all-electric concept and the recovery of gas from cargo tanks, also known as HC blanketing, and combined cycle:

All electric

Projects with all-electric technology use equipment driven by electric motors, whose energy is generated centrally within the unit's generation system. This centralization allows us to optimize the efficiency of the generation system, resulting in a significant reduction in the overall consumption of fuel gas. In addition, projects with all-electric technology allow us to concentrate the residual energy contained in the exhaust gases from the generating turbines, enabling its reuse through steam turbines in combined cycles. This solution, already being implemented in some of our projects, represents a strategic advance in significantly reducing our GHG emissions, which is in line with our commitments to sustainability and operational efficiency.

HC Blanket

HC blanketing (or hydrocarbon blanketing) is widely used in offshore oil and gas projects to ensure the safety and operational integrity of storage tanks and equipment. This method involves injecting an inert gas, such as nitrogen, or light hydrocarbons, such as methane, into the vapor space above the stored liquid. The goal is to create a controlled atmosphere that prevents the formation of explosive mixtures between the gas and oxygen, reducing the risk of ignition and explosion. In addition, HC blanketing minimizes oxidation and degradation of the stored product, preserving its quality. In offshore environments, where operating conditions are challenging and risks are high, this practice is essential to ensure operational safety, reduce the intensity of methane emissions, and ensure process efficiency.

Combined Cycle

A combined cycle is a technology that captures the thermal energy from turbine exhaust gases, which are used to generate electricity and then reused to produce steam in a recovery boiler. This steam, in turn, drives a steam turbine, generating additional power without consuming more fuel. On offshore platforms, where space and resources are limited, the combined cycle offers a strategic advantage by increasing energy efficiency and reducing GHG emissions. In addition, this technology contributes to operational sustainability, aligning with global demands for cleaner and more efficient practices in the O&G industry. The FPSO Maria Quitéria, which began operations in 2024, is the first FPSO-type offshore platform in the world to have this technology, reinforcing our pioneering role in adopting new technologies for decarbonization.

HYBRID VESSELS

We seek **energy efficiency for the fleet of vessels in the E&P** portfolio with solutions aimed at reducing fuel consumption and increasing resource productivity, resulting in a consequent reduction in emissions. Among the actions, we highlight the hybridization of the vessel fleet, vessel routing, the application of diverse solutions to reduce the number of vessels, management of vessel speeds, changes in contracting methods, and contractual incentives for greater efficiency in diesel consumption.

REFINING

In REFINING, the actions to decarbonize operations include those that are part of the RefTOP Program and those that are the result of incentives from the Decarbonization Fund.

We currently have 126 mitigation actions in progress, 113 from RefTOP and 13 with incentives from the Decarbonization Fund. Together, these actions will reduce more than 1.6 million tCO_2e/year by 2030. The RefTOP program, launched in 2021, aims to place our Refining Facilities among the best in the world regarding operational and energy efficiency and sustainability. Since then, we have achieved successive records in energy performance, reducing the Energy Intensity Index (IIE) by 12.5 points compared to 2020.

RefTOP – OUR REFINING FACILITIES AMONG THE BEST IN THE WORLD BY 2030

RELIABILITY
Operational Availability: ≥ 97%

ENERGY PERFORMANCE
Energy Sustainability: ≤ 86

SUSTAINABILITY
Emission Intensity: ≤ 30kgCO_2e/CWT

VALUE
Pre-salt processing capacity = 100%

Within the Energy Performance and Sustainability of the RefTOP program, the reduction of greenhouse gas emissions is related to the following initiatives:

- Projects for energy integration and optimization of processes
- Increased combustion efficiency of furnaces and boilers
- Reduction of steam and condensate losses, through increased availability of steam traps and loss prevention
- Optimization of the thermoelectric system, resulting in better use of inputs such as natural gas, electricity, and steam in operations
- Reduction of systemic gas delivery to flare systems, through increased availability of compressors and identification and repairs of valve losses

Among the actions leveraged by the Decarbonization Fund, we highlight the installation of photovoltaic plants at the Gabriel Passos (REGAP) refineries, in Minas Gerais; Abreu e Lima (RNEST), in Pernambuco; and Paulínia (REPLAN), in São Paulo. The total estimated capacity of the three plants will be approximately 42 MW, with the potential to reduce emissions of more than 37 thousand tCO_2e/year, and operations of the first are scheduled to begin by the end of 2025.

To solidify the decarbonization trajectory of Refining operations, as of 2025, we will adopt the Energy Sustainability Index™ (ESI™). This indicator measures both energy intensity and sustainability, considering the efficiency of the Brazilian electricity grid and encouraging electrification and photovoltaic generation projects.

Joining efforts with the RefTOP Program, in 2024, we launched Carbon Neutral in Refining to prospect new opportunities for decarbonizing this segment, including disruptive technological solutions necessary for the net-zero emissions trajectory of Refining operations.

LOGISTICS

We maintained actions to optimize fuel consumption, resulting in greater energy efficiency, continuing the work carried out in 2023.

The pillars of this strategy are:

» Control of vessel speed and consumption;

» Installation of hydrodynamic appendages on Transpetro vessels;

» Optimization of vessel trim[25] through numerical simulation software, which reduces resistance to advancement and reduces fuel consumption.

In addition, an integrated study was carried out in 2024 to reduce the number of trips at maximum or full speed, in marine jargon. This resulted in a significant reduction in fuel consumption without impacting compliance with the loading ranges in the scheduling area.

We have begun work to modernize Transpetro's fleet, with orders for more efficient vessels, which will reduce fuel consumption compared to the current fleet.

Through the use of a Remotely Operated Vehicle (ROV), we will have the opportunity to manage actions to reduce fouling on the hulls of the vessels in our fleet, starting in the 2nd quarter of 2025, which will also increase the energy efficiency of our fleet.

Finally, there is potential for greater emission reductions when it is possible to supply vessels with renewable content bunker.

[25] Trim is the difference between a vessel's bow draft and stern draft. Trim control reduces the vessel's resistance to advancement, resulting in lower fuel consumption.

LOGISTICS TO SUPPORT EXPLORATION AND PRODUCTION OPERATIONS

In 2024, the carbon performance of the logistics that supports exploration and production activities was monitored by indicators of emission intensity per ton of cargo transported and distance navigated by PSV (Platform Supply Vessel) vessels; per passenger transported and hours flown, in air transport by helicopters that serve offshore activities; and per ton of cargo transported in land transport.

For overland cargo transportation, in addition to the electrification of the fleet of utility and light vehicles, with mobilization scheduled for 2025, studies were completed regarding the purchase of a cargo planning and optimization software, based on operational research and artificial intelligence, seeking to reduce diesel consumption in heavy vehicle fleets.

In offshore air transport, the first long-range flight was carried out with a remotely piloted civil aircraft (RPA), covering approximately 180 kilometers between the Imbetiba base in Macaé and the P-51 platform in the Campos Basin, on the coast of Rio de Janeiro. The project, still in the testing phase, with potential for expansion to the northeast region in 2025, seeks to transport cargo weighing up to 50 kg, reducing costs and with the potential to reduce greenhouse gas emissions in the transport of light cargo.

In maritime cargo transport, projects were implemented to optimize routes and control the speed of PSV vessels, and the conversion of the first contracted hybrid support vessel (Mr. Chafic), to install a battery bank, aiming to reduce GHG emissions due to diesel savings.

We signed contracts worth BRL16.5 billion for the construction and chartering of 12 PSV-type vessels. These vessels will have a hybrid propulsion system combining electric motors and batteries with diesel/biodiesel generators. In addition, anti-fouling paint on the hulls and ultrasound technology will prevent the proliferation of Orange Cup Coral and increase navigation efficiency.

HYBRIDIZATION OF VESSELS

An important feature of this technology is its perfect integration with the propulsion system. Through this integration, the batteries assist the main engines, reducing fuel consumption, as the vessel can operate with fewer generators, while maintaining operational safety. This hybrid approach allows the vessel to operate more efficiently, saving resources and reducing pollutant emissions. The expected reduction in emissions is up to 15%.

NATURAL GAS PROCESSING

In 2024, the natural gas processing (PGN) area continued a set of initiatives and projects to reduce emissions. In January 2024, PROGAS, an Excellence Program at PGN, was launched, including ambitions in decarbonization, reduction of flaring, and actions to comply with the OGMP 2.0 initiative. Numerous ideas and opportunities were surveyed for modernization, facilities optimization, and generation of value through increased operational availability, reliability, and energy efficiency, which led to the reduction of GHG emissions.

The flare gas recovery projects, which are underway at the Cabiúnas Gas Treatment Unit (UTGCA), the Cacimbas Treatment Unit (UTGC), and the Monteiro Lobato Gas Treatment Unit, in Caraguatatuba-SP (UTGCAB) assets, stand out. The UTGCA reached a new record in the flaring rate, reaching the historic mark of 0.028%. The ongoing flare gas recovery project can potentially reduce an additional 19.6 thousand tCO_2e/year. At the UTGCAB, the flare gas recovery project, supported by the Decarbonization Fund, will reduce emissions by 46 thousand tCO_2e/year. At the UTGC, the flare gas recovery project could reduce emissions by 5.3 thousand tCO_2e/year.

By 2024, all gas processing assets will have implemented a program to control fugitive methane emissions in process line components, allowing for monitoring and action where leaks occur. This initiative meets the requirements of the OGMP 2.0 initiative, enabling better reporting of methane emissions. At PGN, the program enabled an 82% reduction in methane fugitive emissions in 2024 compared to 2023.

GAS AND ENERGY

We continue to combine reliability, energy efficiency, and decarbonization initiatives in electricity generation. This action has allowed us to increase operational availability in line with the corporate sustainability strategy.

Among the initiatives that promote the reduction of GHG emissions, in addition to the modernization of internal components and updating of control systems carried out in 2024, we highlight the “Upgrade AGPTech AFS” project at TPP Cubatão. This project, which has resources from the Decarbonization Fund, is scheduled to start operations in 2027 and will enable the reduction of natural gas consumption during its inflexible electricity and steam generation for RPBC. Considering the SP 2025-2029 premises, the potential for reducing GHG emissions from this initiative is estimated at approximately 109 thousand tCO_2e/year.

Along with operational improvements and project implementation, in 2024, we promoted meetings in the Gas and Energy area to explore the best opportunities and strategies to advance the segment’s decarbonization trajectory, in alignment with our Net Zero 2050 ambition. New opportunities and disruptive alternatives have been identified and are being studied regarding their feasibility and potential for mitigating greenhouse gases.

We also conduct in-depth surveys and studies related to the alternative of using biomethane in our operations as a substitute for part of the fossil natural gas consumed.

Disruption

There is no consensus on a single solution to achieve net-zero emissions. Therefore, we are investing in validating technological solutions, both incremental and disruptive, through fast and efficient pilots, exploring several fronts that complement each other on the path to unlocking a promising future in the fair energy transition.

HIGH PERFORMANCE AND OPTIMIZED ENERGY SYSTEMS

One of the most economical opportunities in the energy transition is to increase efficiency associated with developments that reduce costs and emissions. One example is the withdrawal of Ultra Deep Waters (over 400m deep), which is in an intermediate stage of technological maturity and has a reduction potential of up to 6% per unit of production.

HIGH-EFFICIENCY MONITORING TO REDUCE LOSSES

One example was the pilot carried out in 2024, the result of a partnership with the Oil and Gas Climate Initiative (OGCI) to measure methane emissions at the Caraguatatuba Gas Treatment Unit (UTGCA).

LOW-EMISSION LOCAL OFFSHORE GENERATION

We invest in several technological solutions to assess the technical and economic feasibility of integrating new technologies that optimize local generation processes. An example is the Post-Combustion CO_2 Capture Units (from gases from gas turbine generators – GTGs) in offshore projects (offshore CCUS). Another ongoing research project is offshore Oxycombustion, which, despite being in the early stages of technological maturity for the offshore environment, has great potential to reduce almost 100% of emissions from the generation system. These solutions indicate a potential for reducing emissions by up to 70% per production Unit.

EXTERNAL SUPPLY OF DECARBONIZING ENERGY

The electrical generation systems of offshore Units use gas turbines, which are responsible for approximately 70% of CO_2 equivalent emissions in the E&P segment. In this context, the development of technologies that use electricity from renewable sources can significantly impact the decarbonization of this segment. There is great potential for decarbonization, considering the strong participation of renewable sources in the Brazilian Energy Mix. As an example, we can mention the electrification of Units and the import of energy from the continent (power from shore). Another ongoing research project is using offshore wind farms to power oil and gas production facilities. These solutions indicate a potential for reducing emissions by up to 70% per production Unit.

DECARBONIZED FUELS

This effort aims to complement energy generation by seeking cleaner and more efficient sources, in addition to supporting the increase in the gas supply without increasing emissions and, in many cases, even reducing them. For example, we can mention supplementary hydrogen for generation, low-carbon methanol, and blue ammonia. Although the technological maturity of these solutions is intermediate to high, there are still economic challenges for their application in the offshore environment.

INTEGRATION OF RENEWABLE RAW MATERIALS INTO REFINING

Integrating renewable processes with oil refining allows renewable products to be introduced into the market and new businesses to be opened.

Examples include the production of light olefins and bioaromatics, the formulation of renewable marine fuels, and the incorporation of renewable components into asphalt. In addition, plants dedicated to SAF and renewable diesel also produce green naphtha and LPG, which are of interest to the petrochemical industry.

Co-processing technologies in refining are at an advanced stage of technological maturity, and for most of them, prototype-scale or industrial tests have already been carried out, and commercial implementation and licensing of the technology are currently being evaluated.

LHR WITH RENEWABLE CONTENT

We developed a technology for producing Light Refinery Hydrocarbons (LHR) with renewable content. This stream is rich in ethylene, an essential raw material for the chemical industry and the production of plastic resins. The innovation lies in using ethanol obtained from sugarcane as a raw material, which is co-processed in a Fluid Catalytic Cracking Unit (FCC). During the process, ethanol is converted into ethylene, maintaining product quality, without contamination or additional pollutant emissions.

The commercial scale testing of this technology on a commercial scale was successfully completed in the first half of 2024, with Braskem's participation. The LHR with renewable content was produced at RECAP's residue catalytic cracking unit (RFCC) and shipped and processed at Braskem's polyethylene production plant in Santo André (SP). The partnership seeks to identify technological solutions to increase the sustainability of the companies' portfolios, with a focus on reducing emissions and using renewable raw materials. We are certifying its units and plans to structure the regular commercialization of LHR with renewable content for the petrochemical industry.

PRODUCTION OF SUSTAINABLE AVIATION FUEL FROM ETHANOL (ATJ – ALCOHOL TO JET)

ATJ (Alcohol-to-Jet) technology is an ASTM-certified route for producing SAF from alcohols. The alcohols used as raw material in the process can be obtained from renewable sources, such as biomass, which is abundant in Brazil. This technology is a promising alternative for reducing the aviation industry's carbon footprint. The fuel produced by ATJ technology meets the global decarbonization goals of the air transport sector. Currently, the scaling up and implementation of the first industrial units are challenges to technology (technical and economic). Several ATJ plant projects are announced by the main licensors of the technology until 2030. In addition, research and development initiatives continue to seek ways to increase process efficiency and reduce production costs.

CONVERSION OF CO_2 TO METHANOL AND e-SAF (SYNTHETIC SUSTAINABLE AVIATION FUEL)

We seek to use the CO_2 captured from our sources or of biogenic origin in fuel molecules, especially methanol and SAF (safety aviation fuel). With this investment, we aim to develop technologies that enable the production of decarbonized fuels, mainly for the maritime and aviation sectors, which will contribute significantly to the decarbonization of these sectors. The research lines in this area include the development of catalytic, biological, and electrochemical routes, and combining these routes to obtain methanol and SAF from CO_2 and low-carbon hydrogen.

DEVELOPMENT OF NEW TECHNOLOGIES TO MAXIMIZE ENERGY EFFICIENCY AND DECARBONIZE DOWNSTREAM ASSET OPERATIONS

We seek technologies that will position Petrobras among the best refiners in the world, ensuring the competitiveness and sustainability of downstream operations. This includes greater energy integration between process streams and units and the development and application of new technologies to recover waste heat.
In the early stages of maturity, research and development projects are underway for compact heat exchangers, with lower risks of cross-contamination, using thermosiphon technologies and unconventional methods. The goal is to use hydrocarbon thermal sources to heat boiler water and combustion air to reduce fuel gas consumption in these operations.

These innovations will provide significant gains in energy efficiency and reduce GHG emissions, which aligns with our goal of standing out among the world's best refiners regarding energy efficiency and sustainability. Furthermore, when direct energy integration options are exhausted, an early-stage study is underway to apply heat pumps as equipment that improves the energy quality of the streams and serves as an alternative source for steam generation. This initiative will significantly contribute to decarbonizing the utility generation area in refineries.

CCUS and NBS

We seek CO_2 abatement and removal opportunities through technological or natural routes, focusing on Carbon Capture, Utilization and Storage (CCUS) and Nature-Based Solutions (NBS), leveraging our expertise and Brazilian potential.

CO2 CAPTURE, UTILIZATION AND STORAGE (CCUS)

We are internationally recognized for our experience in operating the CCUS project implemented in pre-salt fields. In addition to being a pioneer in ultra-deep waters, it is also the largest CCUS program in operation in the world, considering the amount of CO_2 reinjected annually. According to the Global CCS Institute report of 2024, the storage capacity of all CCUS projects in operation worldwide is 51 million tCO_2 per year. In 2024, we injected 14.2 million tCO_2 into pre-salt reservoirs. Since the beginning of the project, which began as a pilot in the Tupi field in 2008, we have reinjected 67.9 million tCO_2 into pre-salt reservoirs. Our goal is to expand our annual reinjection capacity and reach the mark of 80 million tCO_2 reinjected by 2025.

In addition to the pre-salt CCUS-EOR projects, we are developing a pilot research and development project to validate and adapt technologies to enable the construction of Brazil's first commercial CCUS hub in the State of Rio de Janeiro. The pilot project is scheduled to be implemented in 2027 and involves the capture, transportation and injection of 100 thousand tons of CO_2 per year, over a period of 3 years, in the São Tomé saline reservoir, located in the Campos Basin. The CO_2 that will be used in the pilot project comes from the Cabiúnas Natural Gas Processing Unit (UTGCAB), which is one of the terminals that receives gas from the pre-salt. The project will evaluate injection capacity, pressure management, profiling, and monitoring technologies for the movement and behavior of the CO_2 plume, in addition to other aspects of storage safety. This initiative represents an important initial milestone for the future implementation of a large-scale CCUS hub in Brazil.

In addition to the hub in the State of Rio de Janeiro, hubs in São Paulo, Espírito Santo and Bahia are being studied, among other opportunities.

***CCUS** consists of a process in which a relatively pure flow of CO_2 is obtained from its separation (capture) from other chemical compounds present in the gases emitted by an emission source (fuel combustion or industrial processes). This CO_2 stream is then conditioned, compressed, and transported to a geological storage site or destined for use. Capturing CO_2 at or near the source of the emission counts as emission reduction (or avoided emissions), not as removal.*

NATURE-BASED SOLUTIONS AND CARBON CREDITS

AWe believe that offsetting emissions using carbon credits can be used as a complementary tool in our decarbonization journey. These credits can be nature-based, taking advantage of the potential of forests, soils, oceans, and seaweed, or obtained through technological solutions. Although we expect to use offsets, these initiatives should be thought of as additional contributions to intrinsic mitigation efforts, and do not replace the need for a lower carbon intensity energy supply for society.

Our operating assets are mostly installed in Brazil, and we are responsible for supplying a large part of the energy consumed there. We prioritize the acquisition of nature-based credits, which include reforestation credits (ARR) and credits for reducing emissions from deforestation and forest degradation (REDD+) as a contribution to mitigating national GHG emissions, 40% of which result from changes in land use and forests (Sirene, 2025, base year 2020). Therefore, we include offsets in our strategy as a possibility of achieving even more ambitious results than possible with the intrinsic decarbonization of our operations, while contributing to preserving Brazilian ecosystems.

We seek high-quality and high-integrity credits to ensure they bring climate, socioeconomic, and environmental benefits, taking advantage of Brazil's potential in generating highly competitive nature-based credits.

We believe in carbon markets as an important instrument in the fight against climate change, and are engaged in discussions regarding implementing a regulated carbon market in Brazil.

Our activities in the carbon market include:

» Acquiring carbon credits to offset our operational emissions up to a limit of 20%

» Investing in carbon credit generation projects

» Considering the use of carbon credits in our commercial strategy, offering carbon-neutral fuels that have their emissions offset, meeting the growing demand of the market and customers

» Assess the feasibility of generating carbon credits by optimizing transportation infrastructure as a vector for decarbonization in public-private partnerships

» Support structural initiatives that enable the development of voluntary and regulated carbon markets in Brazil

» Support socio-environmental initiatives that qualify communities and traditional peoples to access and benefit from the carbon market, with a focus on safeguards and quality

In 2024, we will continue to invest in the voluntary carbon credit market, acquiring a new batch of 270,000 credits from the REDD+ Envira Amazônia project. The credits are from the 2020 and 2021 harvests and certified according to the Verified Carbon Standard (VCS) standard from Verra, the largest voluntary carbon market certifier in the world, and have gold level certification for the Climate, Community & Biodiversity (CCB) standard for Adaptation to Climate Change, Biodiversity and Community. The credits acquired in this initiative were used to offset emissions from the Petrobras Podium Carbon Neutral Gasoline.

As a complementary action and with the purpose of increasing our contributions to a more diversified portfolio of projects involving nature-based solutions, we launched, together with the Ministry of Environment and Climate Change (MMA) and the National Bank for Economic and Social Development (BNDES), the first three calls for proposals for the "Restaura Amazônia" project, which aims to contribute to transforming the deforested Amazon region known as the "Arc of Deforestation" into the "Arc of Restoration". This phase will receive BRL 50 million from Petrobras and BRL 50 million from the Amazon Fund to recover flora, fauna, and biodiversity, restoring around 6 thousand hectares of native vegetation in the states of Amazonas, Acre, Rondônia, Mato Grosso, Tocantins, Pará, and Maranhão.

"Restaura Amazônia" will contribute to containing deforestation and conserving biodiversity in indigenous lands, territories of traditional peoples and communities, conservation units, non-designated public areas, and permanent preservation and legal reserves of settlement areas and small rural properties.

In addition, we have structured an Impact Fund for Socio-Environmental Projects of Bioeconomy and Nature-Based Solutions (Petrobras Bioeconomy Fund) together with Régia Capital, a manager focused on sustainable investments and financial solutions, which is the result of a strategic partnership between JGP and BB Asset. The funding initially consists of BRL 50 million contributed by Petrobras, complemented by another BRL 50 million of Régia Capital's resources. The Fund aims to support socio-environmental projects in Brazil, with the goal of transforming them into sustainable businesses with a large-scale positive impact, prioritizing initiatives in areas considered critical for climate action and the preservation of biodiversity. The Petrobras Bioeconomy Fund is one of the first in Brazil to adopt the Impact Linked Compensation model, which aligns financial incentives with sustainability goals. In other words, the fund's performance rate varies according to the socio-environmental impact rate of the projects.

ProFloresta+

In March 2025, we launched ProFloresta+ with the aim of generating carbon credits from the restoration of the Amazon rainforest.

ProFloresta+ is a joint initiative of Petrobras with BNDES that aims to structure ecological restoration projects for the generation of high-quality and integrity carbon credits. The program seeks to meet Petrobras's emission reduction commitments while contributing to increasing vegetation cover with native species, strengthening the technical and management structure of the productive chain in the forest restoration sector, and the carbon credit market in Brazil.

The initiative aims to promote the restoration of up to 50,000 hectares of degraded areas in the Amazon, generating around 15 million carbon credits.

In the proposed model, ecological restoration projects with native species will be selected, which will generate carbon credits through the reforestation of degraded areas. These credits will have guaranteed purchase by Petrobras in long-term contracts (offtake) at a price to be defined by bidding. BNDES, in turn, participates by offering subsidized financing to the developers of these projects through special credit lines, such as the Climate Fund.

In addition to the direct benefits to Petrobras, this initiative also aims to strengthen the restoration chain in Brazil by creating a scalable flow of projects that will allow for the sustainable and robust structuring of seed collector networks and seedling nurseries, the application of various restoration techniques, access to subsidized capital, complementarity with public area concessions for restoration, training of professionals and local communities, among others.

This will also be the first carbon restoration transaction to provide transparency regarding the contracted price and the contemplated technical parameters. It will have a standard and public contract that can serve as a reference for the market and a price that can serve as a benchmark for future transactions.

Socio-environmental Projects

The socio-environmental projects in Forestry contribute to the reduction of GHG and generate numerous social and environmental benefits where they operate, supporting nature-based solutions.

Our portfolio of projects focused on Forests under the Petrobras Socio-Environmental Program is dynamic. In 2024, 25 projects were underway, and approximately BRL30 million was invested.

These projects work on the recovery or conservation of forests and natural areas of the Atlantic Forest, Amazon, Caatinga, Pampa, and Cerrado, contributing to the mitigation of greenhouse gas emissions and specifically collaborating with Sustainable Development Goals 13 (action against global climate change) and 15 (life on land).

For more information on socio-environmental projects, consult the *Sustainability Report.*

Supply Chain

Continuamos intensificando as ações para acelerar a maturidade de nossos fornecedores em descarbonização, focando no compartilhamento de conhecimentos, medição e divulgação das emissões, eficiência energética e avaliação de tecnologias para redução de emissões operacionais.

We continue to intensify actions to accelerate the maturity of our suppliers in decarbonization, focusing on knowledge sharing, emissions measurement and reporting, energy efficiency, and the evaluation of technologies to reduce operational emissions. We believe that this maturity, which begins with the survey of GHG emissions, evolves with the establishment of objectives and initiatives for their reduction, and with the implementation of incentives for efficiency in emissions that are in line with Environmental, Social and Governance (ESG) requirements for contracting processes. Incentivizing sustainability in the supply chain is related to our understanding of business practices for a fair transition, especially in collaboration and engagement with stakeholders.

Our Strategic Plan maintains the following commitments, in line with the guidelines of the ESG Strategy ("Foster the adoption of ESG practices among our stakeholders"):

» Assess the expansion of ESG requirements in strategic categories in 100% of contracts by 2028;

» Establish that 70% of relevant suppliers[26] have their emissions inventory (GHG) published by 2028.

In 2024, supplier engagement policies yielded important results. We conducted a mapping exercise through the CDP Supply Chain that involved approximately 400 suppliers. More than 50% of respondents have established active decarbonization targets, and there has been an increase in the percentage of suppliers publishing their Scope 1 emissions inventories. The Carbon Neutral Program and the ESG Journey for suppliers were essential in disseminating guidelines and promoting sustainable initiatives, while sustainability governance was reinforced with internal standards and training actions. We have been recognized and awarded in 2024 for our leadership in decarbonization and innovation in the supply chain.

For more information on supplier engagement actions and their impacts, see *Supplier Engagement.*

[26] Relevant suppliers include approximately 200 to 250 suppliers selected through a multi-criteria assessment: Financial Impact, Environmental, Social and Governance Impacts.

Internal Supply of Low-Carbon Products

*With the development of low-carbon products, the **Carbon Neutral Program** front was created to identify and quantify decarbonization opportunities involving the self-supply of low-carbon products.*

A decarbonization opportunity through the self-supply of a low-carbon product is based on an integrated analysis of the impact of implementing the opportunity on the company and identifying its cost or benefit. Value generation can occur through self-supplying the product used in the decarbonization process, unlocking opportunities that are only possible by being the supplier of the product in question.

Throughout 2024, we structured a working group to detail the procedures and responsibilities for mapping and incorporating self-supply opportunities in the MACC, with the expectation of a defined portfolio of self-supply opportunities throughout 2025.

Engagement

Engagement

We support and advocate for policies that aim to reduce carbon emissions, and we work with governments and other stakeholders to develop policies that support the transition to a low-carbon energy system.

We value transparency in our actions with our stakeholders, guided by our Code of Ethical Conduct, our social responsibility and HSE policies, and our Guide to Ethical Conduct for Suppliers.

We systematically monitor and adhere to world-class climate reporting standards, such as the Global Reporting Initiative (GRI Standards) sustainability reporting guidelines, the requirements of the Dow Jones Sustainability Index (DJSI), CDP and Task Force on Climate-related Financial Disclosures (TCFD), as well as our industry guidelines, such as the IPIECA supplementary reporting methodology (Guide for Voluntary Reports of the Oil and Gas Industry).

We adhere to TCFD recommendations, which are the basis for developing new climate-related information disclosure standards. We have been included in the B3 Carbon Efficient Index (ICO2 B3) for the eighth consecutive year. This indicator assesses companies' commitment to transparency regarding their emissions and a low-carbon economy. In addition, to participate in the index, the company must be part of the IBrX 100 B3 (formed by the 100 Brazilian companies with the most traded shares on the stock exchange) and report the annual greenhouse gas emissions inventory.

In 2024, the CDP gave us a B rating in the "Climate" and "Water Security" categories. These scores recognize the ongoing, transparent, and effective work we have carried out in our climate mitigation and adaptation strategies. We are on the list of global companies that stand out in climate change management. We have been responding to the questionnaire since 2004.

Again, we are part of the DJSI World of S&P Global's Corporate Sustainability Assessment. DJSI World is one of the world's most important sustainability indices, and we are one of nine global energy companies qualified among more than 50 evaluated companies, recognizing our efforts and initiatives in the environmental, social, and governance areas.

Recognizing that climate governance requires coordinated actions among various agents in favor of common objectives, our commitment goes beyond ensuring internal results; we also seek to empower the various sectors of society to implement the changes necessary for a more sustainable future.

Cooperation, Dissemination of Knowledge, and Good Practices

Our strategic approach to dealing with climate change involves a comprehensive assessment of the external scenario, seeking to integrate the perspectives of our stakeholders in the decision-making processes crucial to mitigating climate change. This includes analyzing gaps, identifying synergies in positioning, and incorporating new insights into our internal and external communications strategy. We firmly believe in the importance of collaboration in the transition to a low-carbon economy. As part of this commitment, we have established partnerships with other companies and the science, technology, and innovation community. In 2024, we actively participated in forums and initiatives related to climate change, covering the oil and gas sectors at international and national levels and other industrial and business segments.

During these events, we shared our perspective on just energy transition and sustainability, reporting the main initiatives that are underway.

COP16

We actively participated in COP16, held from October 21 to November 1, 2024, in Cali, Colombia. Our delegation participated in four panels promoted by partner organizations, such as the National Confederation of Industry, IPIECA, CEBDS, and Instituto Life. During the conference, we contributed to two publications by CNI and IPIECA. We launched our digital publication[27] on biodiversity at Petrobras, highlighting ESG initiatives, projecting and outlining our next steps in protecting nature. The conference highlighted the importance of integrating the climate and biodiversity agendas, promoting nature-based solutions to address global challenges. We are determined to step up efforts to achieve biodiversity gains by 2030, focusing on forests and oceans, and to complete the preparation of biodiversity action plans by 2025. We aim to achieve a net positive impact on vegetative areas by 2030, increasing our biodiversity conservation efforts by 30%.

G20

In cooperation with the Organization of Ibero-American States (OEI), BNDES, Banco do Brasil, and Caixa Econômica Federal, we participated in the International Cooperation Agreement in 2024. This agreement aimed to collaborate with the OEI to prepare, organize, and carry out various events and activities in the context of Brazil's rotating presidency of the G20, which was of institutional interest to Petrobras. Participation in the G20 allowed us to share our experiences, lessons learned, and positive impacts from energy transition initiatives, environmental and social responsibility, technology, and innovation. It also added value by: (i) strengthening our position in global forums; (ii) deepening relationships with key stakeholders; (iii) generating inputs for enhancing its social responsibility policies, programs, and initiatives; (iv) improving reputation; and (v) bolstering ESG agenda by consolidating our commitment to established principles and fostering multidisciplinary and multisectoral dialogue. Participation in these events reinforced our commitment to contributing to discussions focused on culture, education, sustainability, and employment — areas where we already have a significant presence.

COP29

We were at COP29, held in Baku, Azerbaijan, in November 2024. We took part in six debate panels alongside prominent national institutions, such as the National Confederation of Industry (CNI) and the Brazilian Petroleum, Gas and Biofuels Institute (IBP), and international organizations such as Oil and Gas Climate Initiative (OGCI), addressing crucial topics such as: (i) the role of decarbonization in global emissions reduction, (ii) the actions of the oil and gas sector in adapting to climate change, (iii) the carbon market and reforestation in Brazil, (iv) the technological and regulatory challenges of the transition to a low-carbon economy, (v) Our ESG commitments and initiatives, which promote synergies between nature and climate, (vi) Brazil's leadership in the energy transition, (vii) innovations in natural gas and biofuels, and (viii) the importance of methane capture and financing for achieving climate goals. These events provided a platform to discuss best practices and share experiences on our climate initiatives and other organizations. Among the significant outcomes of COP29 for the energy sector, we highlight the publication of the first Oil and Gas Decarbonization Charter (OGDC) baseline report, which establishes a benchmark for monitoring emissions reductions in the industry.

[27] Details of this publication can be found on our biodiversity page at: <*https://www.petrobras.com.br/en/sustentabilidade/biodiversidade*>.

Public Policy Engagement

The Brazilian government is heavily involved in defining public and development policies that support domestic mitigation and adaptation to climate change and the transition to a low-carbon economy fairly and sustainably. In this sense, we seek to contribute to technical discussions that aim to strengthen the premises and definitions of the legal and regulatory framework to enable technologies and businesses that contribute to national climate efforts.

We can engage directly in these processes through ad-hoc meetings, participation in public forums, responses to consultations, submission of written proposals/inquiries, and participation in working groups organized by public policymakers. We can also engage indirectly through the trade associations we are members of, although advocacy is not the primary or exclusive purpose of these associations.

We understand that the quality of public policies aimed at mitigating and adapting to climate change and the synergy of these policies with domestic industry will be a determining factor for Brazil to achieve its national GHG emissions reduction targets. For this reason, **transparent, proactive, and collaborative climate advocacy** is a fundamental part of our strategy. We have played an important role in supporting and implementing public policies. We can further contribute to improving policies, legislation, and regulations that drive Brazil towards a just energy transition.

Holding a national leadership position in the fair energy transition also means being **committed to proactive climate advocacy, always in compliance with the objectives of the Paris Agreement, in all jurisdictions in which the company operates.**

Governance Structure for Climate Advocacy

We have a well-defined governance structure for engaging in public policies aimed at mitigating and adapting to climate change. We have established limits on decision-making, which ensure our participation in associations that carry out indirect climate advocacy activities is always linked to authorization and supervision from the senior management.

The integration of the Climate Change topic among the various levels is carried out by the Executive Management of Climate Change and Decarbonization, dedicated to the issue of emissions, climate, and energy performance, and linked to the Energy Transition and Sustainability Executive Office (DTEN). DTEN was created in 2023 and is responsible for managing processes and projects related to energy transition and sustainability within the company (See in *Governance*).

The Executive Management of Institutional Relations is responsible for liaising with the Public Authorities at the Federal, State, and Municipal levels, Regulatory Agencies, Associations, and National and Foreign Representations, proposing the Company's engagement strategy with these stakeholders. The Executive Management of Integrated Energy Transition Management linked to DTEN deals with, among other topics, regulatory matters related to energy transition, and plays a strategic role in monitoring public policies, legal and regulatory frameworks, standards and national guidelines related to Energy Transition. It is also responsible for monitoring bills related to the natural gas, electric power, and energy transition sectors, in addition to monitoring the regulatory agendas of the agencies responsible for regulating these sectors together with the Business Areas, carrying out analyses of bill proposals and sub-legal regulations, working in partnership with RINST, along with the executive and legislative branches, ministries and federal and state regulatory agencies. In addition, it maps regulatory risks related to business and investments in energy transition, providing suggestions for improvements.

Participation in Associations

PRINCIPLES FOR PARTICIPATION IN ASSOCIATIONS

We do not hire consultants or groups specialized in political representation and advocacy. However, we contribute financially to associations and initiatives that, in addition to their main activities, may occasionally carry out indirect advocacy activities. It is important to emphasize that our participation in these associations is not intended to outsource advocacy activities, but rather to collaborate in initiatives that promote the development of the sector and good practices. In addition, our governance structure monitors and reviews any political engagement activities of these associations, ensuring that their climate engagement actions align with the company's principles. In this sense, **we defend climate advocacy positions aligned with our strategies related to climate change in all external entities of which we are a member.**

In December 2024, we updated the Internal Standard that governs our participation in external entities. In the clause that addresses the "procedure for proposing new Petrobras participation in an external entity," we included an emphasis on the requirement that the external entity's objective and scope of action be aligned with the company's corporate purpose and/or strategy. It highlights the entity's level of adherence to our public positions and current commitments regarding climate change and the Sustainable Development Goals. **This emphasis made climate alignment a necessary condition for new participations.** The company's continued membership in the entities is subject to an annual reassessment of the participation criteria by the responsible organizational unit. This reassessment must consider the alignment between the external entity's engagement in climate policy positions and our public positions. A misalignment may result in the non-renewal of the company's membership in the entity in question. This procedure applies to all jurisdictions in which the company operates.

OUR MAIN ASSOCIATIONS AND INITIATIVES

Brazilian Institute of Oil and Gas (IBP)

The Brazilian Institute of Oil and Gas (IBP), the institutional representative of the sector in Brazil, develops, together with its members and experts, policies and activities for all segments and demands of the oil, gas, and biofuels industry.

Since 2021, IBP has reinforced its commitment to the industry's decarbonization trajectory by 2050, which is in line with Brazil's commitment to emissions neutrality by 2050 in the Paris Agreement. As a member company, we endorse this commitment, seeking to generate wealth from our oil and gas reserves while supporting the decarbonization of the national economy.

In 2024, IBP worked on proposing legislative improvements to create legal frameworks for Carbon Capture, Storage and Utilization, the Regulated Carbon Market, Low-Carbon Hydrogen, and the Fuel of the Future Program. The IBP has publicly positioned itself in favor of the development of an "economy-wide" carbon market in Brazil, with the inclusion of all sectors of the Brazilian economy in the reduction of GHG emissions to comply with the Brazilian NDC.

Brazilian Hydrogen Association (ABH2)

In 2024, we joined the Brazilian Hydrogen Association (ABH2), an entity that has been working since 2017 on the development and promotion of the domestic hydrogen economy, fostering the production, conditioning, storage, distribution, and use of hydrogen for energy purposes. In addition to engaging in actions aimed at creating public policies for hydrogen in Brazil, the association actively participates in the International Partnership for Hydrogen and Fuel Cells in the Economy (IPHE), a collaborative intergovernmental initiative for developing and implementing this kind of technology.

Brazilian Thermoelectric Power Generation Association (ABRAGET)

We are also affiliated with the Brazilian Thermoelectric Power Generation Association (ABRAGET), which aims to study, discuss, and seek institutional solutions for all issues that can enable the country's economic and financial balance of thermoelectric plants. The association has been working on developing energy policies to ensure the security and stability of the national electric system, contributing suggestions for legislative improvements for the regulated carbon market and the legal framework for low-carbon hydrogen.

Oil and Gas Climate Initiative (OGCI)

Since 2018, we have been part of the Oil and Gas Climate Initiative (OGCI), which brings together twelve of the world's largest oil and gas companies, responsible for around 30% of global O&G production. We contribute on the technical side by participating in different working groups, such as Carbon capture, use and storage (CCUS), Low-emission opportunities, Role of natural gas, Energy efficiency, Natural climate solutions, and Transportation. OGCI supports initiatives such as the Methane Guiding Principles, the Global Methane Alliance, and the World Bank's Zero Routine Flaring by 2030. In the latter, we are signatories to the commitment to eliminate routine flaring from operating fields by 2030.

OGCI member companies increased their low-carbon investments in 2023 to USD 29.7 billion – an increase of almost 15% from the previous year, bringing the total to USD 96 billion since 2017.[28] Collectively, the OGCI member companies more than halved absolute upstream methane emissions and reduced carbon intensity by 21% compared to 2017. In 2023, OGCI Scope 1 greenhouse gas emissions were 19% lower than in 2017.

IPIECA

IPIECA is the global oil and gas association that seeks to promote environmental and social performance during the energy transition. The institution has been working for over 45 years to promote and exchange good practices in sustainability, contributing to developing and disseminating guidelines for the O&G industry. IPIECA has 36 companies and 16 associations, forming a network representing over 400 oil and gas companies.

Since July 1, 2022, one of the conditions for joining (or remaining associated) with IPIECA is to support the "IPIECA Principles". Setting sustainability expectations for members, the IPIECA Principles reinforce the organization's role in inspiring action and leading the global oil, gas, and alternative energy industry through a sustainable energy transition. The eight principles are grouped under the four pillars of IPIECA's strategy, providing a shared ambition for members in support of its vision: Climate, Nature, People and Sustainability. Regarding the Climate pillar, we endorse its two principles: (i) supporting the Paris Agreement and its objectives, and (ii) promoting emissions reductions and innovation and enabling the adoption of low-carbon oil, gas, and/or alternative energy products and solutions.

IOGP

The International Association of Oil and Gas Producers (IOGP) has been representing the upstream segment of the O&G industry for over

[28] Data related to 2023.

45 years, promoting the sharing of knowledge and practices related to safety, health, environment, and climate. Its members are responsible for supplying over 40% of the world's demand for oil and gas.

At IOGP, in addition to several other groups with environmental, operational safety and health issues, we participate in the Low Carbon Operational Efficiency (LCOE) Committee and its respective subcommittees on Flare & Vents and Methane Management, Energy Efficiency, Electrification and Energy Transition Metrics and the Carbon Capture and Storage (CCS) Committee.

ARPEL

The Regional Association of Oil, Gas and Biofuels Companies in Latin America and the Caribbean (ARPEL), founded in 1965, aims to promote cooperation and mutual assistance among companies in the sector in the region, actively contributing to industrial integration, competitive growth, and sustainable energy development in the region.

Its members represent many upstream, midstream, and downstream activities in Latin America and the Caribbean, including national and international operating companies, technology suppliers, goods, and services for the value chain, and national and international sector organizations.

ARPEL's stated mission is to promote integration, growth, operational excellence, and effective socio-environmental performance of the sector in the region by facilitating dialogue, cooperation, developing synergies between stakeholders, and creating shared value among members through the exchange and expansion of knowledge.

In 2024, ARPEL's public positioning stood out regarding fair energy transitions in Latin America and the Caribbean, based on the region's specificities. In this sense, recognizing the urgency of measures to mitigate climate change, the organization points out that energy transition trajectories must consider the social and economic impacts on developing communities with high unemployment, inequality, and energy poverty.

Oil & Gas Decarbonization Charter (OGDC)

The OGDC ("Charter for Accelerating the Decarbonization of the Oil and Gas Industry") was an initiative led by the COP28 Energy Transition team with the specific aim of bringing together the global oil and gas industry around ambitions that will lead the sector to carbon neutrality by or before 2050, and the elimination of methane emissions from routine flaring by 2030.

It is therefore a joint effort to be adopted by the oil and gas sector. At COP28, it was announced that 50 oil and gas companies had joined the OGDC, accounting for more than 40% of global oil production. It is worth highlighting our presence among the National Oil Companies (NOCs), representing around 60% of the companies that have joined the OGDC.

During COP29, the OGDC published its first report aimed at establishing a baseline, prioritizing, and tracking progress in reducing emissions from the 54 signatory companies. Other priorities for 2024 included sharing information and recruiting new signatories, operationalizing the OGDC, and seeking partnerships with external stakeholders.

Cooperation in other sectors

We seek to extend our collaboration beyond industry, committing ourselves to dialogue and searching for solutions. We also work in partnership with other prominent entities that promote sustainable development, such as the World Economic Forum (WEF), Brazilian Business Council for Sustainable Development (CEBDS), National Confederation of Industry (CNI), Industry Federations of Brazilian States, and the Brazilian Climate Change Forum (FBMC).

We cooperate with associations of automobile manufacturers and other actors in the value chain in some OGCI groups, such as the Transport Workstream. We also interact with the Brazilian Automotive Engineering Association (AEA), an entity that promotes the development of automotive engineering and public policies in the sector, with actions supported by pillars such as scientific knowledge, technology, vehicular emissions, energy efficiency and sustainability.

Petrobras connections for innovation

One of the forms of engagement we use is our open innovation program, Petrobras Connections for Innovation. Through this program, we connect with different actors in the innovation ecosystem (universities, science and technology institutes, startups, and large companies) to establish partnerships to develop new technologies. This includes technologies aimed at reducing emissions and renewable energy, helping to meet our decarbonization commitments with efficiency gains in operations. The program has seven modules to publicize opportunities, which represent the different associative models we offer, depending on the type of partner.

Positioning on Climate Policy

The policies and laws on energy transition approved in 2024 in Brazil play a crucial role in developing and implementing low-carbon technologies.

In 2024, we worked for the approval of legal and regulatory frameworks on energy transition, of which we highlight:

1. **In Law No. 14,993/2024 (Fuel of the Future):** we actively engaged with the Federal Legislative Branch to incorporate improvements before the enactment of the Law, such as conducting tests to assess the feasibility of raising the biodiesel and ethanol blending mandate, and analyzing the regulatory impact of increasing the biomethane mandate in natural gas, to avoid imposing excessive burdens on end users.
2. **In Law 14,949/2024 (Legal Framework for Hydrogen):** we collaborated with the Federal Legislative Branch and representative associations of the sector to ensure that the legislation focused on carbon emissions and not "colors." We contend that the law should not incorporate European regulatory criteria indiscriminately, but rather with the necessary adaptations to the Brazilian reality, avoiding aspects such as additionality and temporality. We advocate against the creation of a hydrogen blending mandate in the natural gas network as a regulatory incentive. Finally, we advocated for the National Petroleum, Natural Gas and Biofuels Agency (ANP) as the sole regulatory agency for Low-Emissions Hydrogen (HBEC).
3. **Law No. 15,042/2024 (Carbon Market):** we engaged with our stakeholders in the federal public sector, reinforcing the need for a Legal Framework that establishes the governance and basic principles of the emissions trading system; emphasizing the importance of defending the legal nature of carbon credits and their relationship with other pricing mechanisms; and highlighting the necessity for a clear and transparent governance structure for the system.

In line with our commitment to transparency and accountability, we reaffirm that all activities described are intended to contribute to the national energy transition. We will continue to defend our climate positions in a manner consistent with our climate commitments.

Workforce Engagement

Our progress in tackling climate change is also attributed to the dedication of our workforce to building a fair energy transition. We recognize that sustainability and decarbonization are strategic priorities reflected in the initiatives we promoted to engage our employees in this process.

One of the main approaches adopted by the company was implementing a variable compensation system, which is linked to the Greenhouse Gas Emissions Target Achievement Indicator (IAGEE). This system covers the entire company and encourages employees to participate actively in reducing GHG emissions. By aligning financial incentives with sustainability objectives, we seek not only to meet targets but also to cultivate a culture of climate responsibility among all our employees.

We also invest in training initiatives focused on climate change and the energy transition. Our corporate university has developed a training portfolio that includes essential training on climate change mitigation. The training on Climate Change Mitigation was mandatory for all employees at the time of its launch and is currently part of the onboarding process for new hires.

Among the initiatives, we highlight a knowledge pathway dedicated to decarbonization, particularly aimed at the upstream segment. This program offers a variety of online and in-person courses covering everything from the fundamentals of climate change to practical aspects of operational decarbonization, such as flare reduction and fugitive emissions. Similarly, we have various training programs focused on downstream decarbonization, in addition to other training on relevant topics such as renewable energy and hydrogen, with the aim of preparing our workforce for the challenges of the energy transition and fostering a culture of climate responsibility throughout the organization.

To identify and explore decarbonization opportunities, we organized a series of workshops under the Carbon Neutral Program over the past two years. These meetings were designed to connect people from different sectors, facilitating the sharing of knowledge and experiences. In total, the company held 20 workshops that brought together more than 1,000 employees. During these sessions, 2,621 ideas with the potential to become decarbonization opportunities were generated. Of these, 955 were consolidated for analysis and possible implementation, which demonstrates the effectiveness of our collaborative engagement approach.

The workshops served as a vital platform to foster an open debate on best practices and strategies for climate change mitigation. They also allowed practitioners to contribute to the construction of an integrated strategy actively, reflecting the particularities and challenges of their respective areas of activity. After each workshop, the ideas generated were analyzed using an Effort vs. Impact Matrix. This helped prioritize the opportunities to be considered first, considering both technical and financial aspects.

ADAPTATION WORKING GROUP

Another successful initiative by our workforce was forming a Working Group (WG) on Adaptation, mobilizing a multidisciplinary team that involved several operational and corporate areas. This WG was created after extreme weather events in Brazil, such as the floods that affected Rio Grande do Sul, and aimed to develop a comprehensive Climate Adaptation Plan. The initiative not only reinforced the company's commitment to operational resilience but also highlighted the active engagement of its employees on a critical topic regarding climate change.

The workshops and meetings held by the WG allowed more than 100 employees to actively participate in identifying climate vulnerabilities and risks that the company faces. This included mapping risks such as water scarcity, meteorological and oceanic changes, landslides, floods, extreme drought, fires, and heat waves.

Intersectoral collaboration was essential to develop customized adaptation strategies for Petrobras' different assets, with a focus on ensuring the protection of operations, workers, and communities.

The WG's actions were organized into Adaptation, Response, and Recovery. On the Adaptation front, the teams prioritized measures that could be implemented over different time horizons – short, medium, and long term – to respond to the identified needs adequately. Immediate measures, such as increasing tank capacity to deal with droughts and training health professionals for climate emergencies, were quickly implemented. In the medium term, actions were planned such as updating hydrological studies and developing corporate guidelines for heat waves. Over the long term, we are committed to making structural adaptations, such as environmental conditioning and expanding green areas.

The impact of the WG was not limited to Petrobras, as the initiatives under evaluation also aim to **contribute to the resilience of the communities surrounding our assets.** The collaborative work and engagement of various areas within the company in the construction and implementation of the plan indicate that climate adaptation can be more effective when treated as a shared responsibility. Furthermore, the guidelines under development for external action have the potential to enhance the inclusion of local communities in the process, strengthening our relationship with society.

Since its formation, the Adaptation Working Group has demonstrated the ability of our workforce to mobilize in the face of climate challenges. This internal movement has been generating practical solutions for the company and can contribute to developing pathways that align with the adaptation and resilience of the communities around us.

Engagement with Suppliers

The mapping of GHG emissions for decarbonization and climate change mitigation of suppliers has been carried out since 2022, through CDP Supply Chain, inviting around 400 suppliers, selected based on financial representativeness criteria and critical role for our operations. Among the results reported by CDP for the 2024 cycle, it is worth highlighting that more than 50% of the responding suppliers have active decarbonization targets and the percentage of responding suppliers that publish their Scope 1 emissions inventories increased from 74%, in 2022, to 79%, in 2023. Through CDP Supply Chain, we indirectly consult suppliers about their total emissions and emissions related to products and services purchased by Petrobras. We also directly consult with service providers whose emissions are classified as Petrobras' operational emissions. In 2024, we made progress in estimating our suppliers' emissions, using a methodology based on expenditures, which allowed us to identify the categories with the most significant impact in our inventory (Scope 3 – Categories 1 and 2).

Our Carbon Neutral Program includes a front related to the Supply Chain and has initiatives that support the engagement of suppliers in decarbonization, expanding our initiatives in sustainable contracting. The internal processes for mapping opportunities and analyzing the GHG emissions performance of our supply chain are managed in partnership between our Climate Change, Procurement, and other operational areas.

Our procurement area works with the supply chain to engage the market and provide contractual solutions that enable the development of new technologies that are aligned with our ambition for emissions neutrality.

The governance that supports the management of the sustainability of the supply chain relies on internal standards, channels for interacting with the supplier market,[29] training actions, technical and contractual requirements, and a system for evaluating supplier performance. We have procedures for analyzing and including sustainability requirements in the contracting processes, including market consultation to assess the respective maturity levels,[30] under our Strategic Plan.

[29] Several channels are available, such as the *Supplier Channel* and the direct channel for suppliers who wish to present new ideas and technological solutions focused on decarbonization (cc-suprimentosasg@petrobras.com.br).

[30] Procedures: Managing sustainability in Supplies; Guidelines for implementing sustainability requirements in the procurement of goods and services.

Currently, the main contract requirements related to emissions for our suppliers have been implemented through the following programs:

» **PEOTRAM (Operational Excellence Program for Air and Maritime Transport):** This is the system of annual audits on our air and maritime transport operations, aimed at seeking operational excellence in the provision of helicopter services and support and special maritime vessels. This program is used as a criterion for judgment in the company's contracting processes, and since 2021, the system has been adapted to consider the GHG emissions requirements of the companies.

» **PEO-SONDAS (Operational Excellence Program for Maritime Drilling):** This program aims to increase operational and process safety through improved management quality of the contracted maritime drilling companies, valuing continuous improvement practices and excellence in management. To achieve these objectives, the program includes third-party audits at the bases and maritime units of the contractors to assess the management systems of the contracted companies regarding Human Resources, Asset Management, Integration, HSE, Operations, and Supplier Management.

» **PEOTER (Operational Excellence Program for Land Operations):** this program seeks to develop service providers for land operations in the areas of Operational Excellence and Safety, standardizing and improving management practices and land operations, taking into account their characteristics and associated risks, contributing to strengthening the culture of accident prevention, environmental preservation, and health promotion.

Our decarbonization commitments and goals are shared through the "Supplier Service" channel with our supply chain. Since 2022, we have had the ESG Journey for suppliers,[31] an initiative of distance learning and podcasts on topics associated with sustainability, including Climate Change.[32]
The commitment to decarbonization of suppliers is also included in the SMS appendix for contracts and in the code of ethical conduct for suppliers.
In addition, we have carried out a voluntary questionnaire on ESG topics for all suppliers, including other environmental aspects, apart from emissions, with more than 800 respondents to date (out of a total of 10,000 active suppliers).

Every year, the Best Suppliers Award recognizes our suppliers that have stood out in their market segments for their high performance in the supply of goods and services, based on several criteria, including those related to ESG issues.

[31] https://canalfornecedor.petrobras.com.br/programa-asg-para-fornecedores.
[32] Examples of topics covered: The importance of scope 3 in the acquisition of goods and services; Importance of Supply Chain Emissions at Petrobras.

The award has a special category dedicated to Decarbonization, addressing good practices in topics such as: quantification, monitoring and reduction of GHG emissions; use of renewable energy; and development of technological and logistics solutions.[33]

To improve and share knowledge related to decarbonization and sustainability of the supply chain, we participate in working groups of two external reference organizations: the "Sustainable Procurement" group of the OGCI and the "Carbon management and Scope 3 emissions in the supply chain" group of the IPIECA. In 2024, we also established a Community of Practices (CoP) among large national companies (which represent 8% of Brazil's GDP) from different market sectors to discuss leadership and innovation practices on ESG issues, strengthening relationships and leveraging ideas for sustainable hiring.

In 2024, we highlight the recognition of our work towards sustainability and decarbonization within the supply chain by different external institutions. In March, Petrobras was champion among more than 400 companies in South America for its leadership in decarbonization in the "Schneider Electric Sustainability Impact Awards." il October, Petrobras was declared the winner of the "Golden Peacock Global Award for Sustainability" by the "Institute of Directors" of India, highlighting our commitment to sustainability based on Petrobras' public report. In November, Petrobras was recognized for its excellence in Purchasing and "Supply Chain" by the INBRASC award in the ESG Projects category with the ESG Journey for Suppliers initiative.

[33] Details of this award can be found at: Supplier Channnel. In its 7th Edition, held in September 2024, during the ROG-e event (formerly Rio Oil and Gas), all national and foreign companies that supplied goods or provided services to us in the period from January 1, 2023 to June 30, 2024 participated, with 30 companies being awarded in the various categories.

Appendices

APPENDIX 1 · Note No. 5 to the 2024 Financial Statements

5. CLIMATE CHANGE

Climate change may result in both negative and positive effects for the Company. Potential negative effects of climate change for the Company are referred to as climate-related risks (climate risks). Conversely, potential positive effects arising from climate change for the Company are referred to as climate-related opportunities.

Climate risks are categorized as: (i) climate-related transition risks (transition risks); and (ii) climate-related physical risks (physical risks).

5.1 Potential effects of climate risks on accounting estimates

Accounting estimates are monetary amounts in financial statements that are subject to measurement uncertainty.

The following information used in relevant accounting estimates of the Company is largely determined based on the assumptions and projections of the Petrobras Business Plan (PN):

- **value in use for impairment of assets testing purposes (note 4.2.1);**
- **timing and costs used in measuring the provision for decommissioning costs (note 4.6);**
- **highly probable future exports used in cash flow hedge accounting involving the Company's future exports (note 4.8);**
- **useful life of PP&E and intangible assets used in measuring depreciation, depletion and amortization expenses (notes 23 and 24).**

As presented in the following topic, the Company considered the effects related to climate risks in its Business Plan approved by the Board of Directors, which is updated annually, including actions to achieve its climate commitments and its long-term ambition to neutralize Greenhouse Gas (GHG) emissions in activities under its control (scopes 1[34] and 2[35]) by 2050.

The aforementioned ambition and commitments are not guarantees of future performance by the Company and are subject to assumptions that may prove incorrect and to risks and uncertainties that are difficult to predict.

a) Transition risk to low carbon economy

Transition risks arise from efforts to the transition to a low-carbon economy. In this category, the Company has identified the following risks that can reasonably be expected to affect its cash flows, access to financing or cost of capital:

[34] Direct GHG emissions, which occur from energy sources that are owned or controlled by the Company.
[35] Indirect GHG emissions, which come from energy sources purchased and consumed by the Company, which occur at the facilities where the energy sources are generated.

RISK	DESCRIPTION	TIME LENGTH (2)
Market	Increasing demand for energy and products with lower carbon intensity leading to a reduction in oil demand, a consequent decline in prices of fossil fuel products. Preference for fossil fuel products with lower GHG intensity in production processes. In Brazil: the demand for our products may be affected, for example, by the increase in demand for alternative fuels, also stimulated by public policies such as the Fuel of the Future Law (1) program, among others.	Medium to long-term
Technological	Loss of competitiveness due to the non-implementation or implementation of inefficient or non-effective technologies to reduce emissions from our operations and products.	Medium to long-term
Regulatory	Stricter regulations for controls over GHG emissions and other requirements related to climate change, which may cause operational restrictions and financial penalties for our activities. In Brazil, one example is the regulation for the adoption of a carbon pricing instrument, considering Law No. 15,042 in 2024, which establishes the Brazilian Greenhouse Gas Emissions Trading System (SBCE), resulting in additional costs for our operations.	Medium to long-term
Legal and Reputational	Litigation and/or reputational damage due to non-compliance with climate commitments.	Medium-term

The risks above were considered in the development of the Company's Business Plan 2025-2029 (PN 25-29). Such consideration was based on the following external environment assumptions that reflect the dynamics of the energy sector:

- **Moderate economic growth compared to the recent past;**
- **Shifts in consumption habits and behaviors;**
- **Public policies focusing on mobility, air quality and adaptation of urban infrastructure to climate change;**
- **International coordination in efforts to reduce GHG emissions;**
- **Reduction in the GHG emissions;**
- **Regulations in favor of energy transition and decarbonization, which will drive the reduction of fossil fuel consumption; and**
- **Diffusion of end-use technologies that reduce the need for fossil fuel consumption.**

(1) Legislation that aligns a series of initiatives to stimulate and guide the production of biofuels and reduce greenhouse gas (GHG) emissions, encompassing the National Program for Sustainable Aviation Fuel (ProBioQAV), the National Green Diesel Program (PNDV), and the National Decarbonization Program for Natural Gas Producers and Importers and Incentives for Biomethane. Additionally, it modifies the maximum and minimum limits of the ethanol blend in gasoline and the biodiesel blend in diesel fuel and provides for the regulation and oversight of carbon dioxide capture and geological storage activities, as well as the regulation of synthetic fuel production and commercialization. It also promotes the integration of initiatives and measures adopted under the National Biofuels Policy (RenovaBio), the Green and Innovation Mobility Program (Programa Mover), the Brazilian Vehicle Labeling Program (PBEV), and the Vehicle Emissions Control Program (Proconve).
(2) Criteria adopted for the time horizon: short term (1 year), medium term (between 1 and 5 years), and long term (more than 5 years).

As a result of this, demand and prices, both domestic and international, of the main products considered in the PN 25-29 are negatively affected.

In 2024, the Company adopted three distinct scenarios that are used for different purposes in its planning activities. These scenarios are called Adaptation, Negotiation, and Commitment. In all of them, there is a slowdown and subsequent contraction of fossil fuel sources. The Negotiation scenario, which is used as a reference scenario for quantifying the Company's Business Plan, considers that fossil fuels, which currently represent approximately 80% of the world's primary energy sources, will represent around 48% by 2050. The share of oil will decrease from the current 30% to around 20% of the world's primary energy sources.

The Brent price considered in the reference scenario of the Business Plan decreases from US$80 per barrel in 2024 to US$65 per barrel in 2050. For additional information about the behavior of the Brent price, considered in the Company's Business Plan reference scenario, please see note 25. The following table compares the oil price used in the reference scenario of the Strategic Plan for the years 2030 and 2050 with those projected in the Announced Pledges Scenario (APS) and Net Zero Emission (NZE) scenarios by the International Energy Agency (IEA), even though they are not directly used by the Company:

BRENT PRICE US$/BARREL	2030	2050
PN	**65**	**65**
APS	**72**	**58**
NZE	**42**	**25**

According to the IEA, the APS scenario considers that all climate commitments made by governments around the world, including Nationally Determined Contributions (NDCs), as well as long-term net-zero targets, will be met in full and on time, with an increase of approximately 1.7°C in temperature by 2100 (with a 50% probability of occurrence). As for the NZE scenario, according to the IEA, it presents a pathway for the global energy sector to achieve net-zero CO_2 emissions by 2050, consistent with limiting the temperature increase to 1.5 °C (with at least a 50% probability of occurrence).

The Business Plan also includes Company's actions to achieve the carbon sustainability commitments, such as low-carbon Research and Development (R&D) projects and decarbonization projects for operations. These actions aim to address transition risks as well as reflect climate opportunities.

The Company's accounting estimates did not incorporate the effect of carbon pricing. Currently, there are uncertainties regarding the structure and dynamics of a future carbon market in Brazil, and there is no sufficient and reliable information available to assess the effects of carbon price.

The Company's accounting estimates did not incorporate the effect of carbon pricing. Currently, due to uncertainties regarding the implementation and dynamics of the carbon market in Brazil, the Company considers it necessary to await the regulation of Law No. 15,042 in 2024, which establishes the SBCE. This regulation will provide the necessary and sufficient details to reliably and reasonably assess the impact on the cash flows of Petrobras's assets and its CGUs.

a.1) Potential effects on the value in use in impairment tests

When measuring the value in use of its assets, the Company bases its cash flow projections on reasonable and supportable assumptions that represent management's best estimate of the range of economic conditions.

A faster transition to a low-carbon economy than projected in the Business Plan could result in Brent prices and demand for the Company's products that are lower than the ones considered to estimate the value in use of the Company's assets for impairment testing purposes.

The reduction in the value in use of the Company's assets may result in the recognition of losses due to the non-recoverability of the carrying amounts of these assets.

Given that the oil price is a variable that decisively influences the recoverable amount of assets, the Company carried out a sensitivity analysis of the effect of using the Brent prices considered in the APS and NZE scenarios, for the impairment test of the Company's E&P assets in Brazil.

Using the prices in the APS and NZE scenarios to perform a sensitivity analysis on projected gross revenues deducted of production taxes, net of income taxes, and keeping unchanged all other components, variables, assumptions and data for calculating the recoverable amount, the Company's E&P segment, regarding the impairment loss recognized by the Company, as disclosed in note 25, would have additional impairment reversal of R$ 2.710 in the APS scenario and additional impairment losses R$ 69.505 in the NZE scenario, concentrated in the Campos basin fields.

The Company does not consider this sensitivity analysis, based on APS and NZE Brent price scenarios, to be the best estimates to determine expected effects on the recoverable amount of assets, sales revenues or net income.

Considering that the Company did not incorporate in its accounting estimates the carbon price effects, the Company carried out a sensitivity analysis of the effect of GHG emissions pricing costs on the impairment test of assets in the E&P segment in Brazil, considering a monetary charge per ton of CO_2 emission starting from 2030, and the existence of free emission allowances.

In this context, using a base price of US$ 10/CO_2 in 2030, US$ 49.7/CO_2 in 2035, US$ 68/CO_2 in 2040, US$ 84.8/CO_2 in 2045, and US$ 100.3/CO_2 in 2050, including gradual emission exemptions, to simulate additional cash outflows (net of income taxes), and keeping all other components, variables, assumptions and data for the calculation of recoverable amount unchanged, the E&P segment would have an additional R$ 1.439 impairment loss.

The Company does not consider this sensitivity analysis of the effect of greenhouse gas emissions pricing costs on the impairment test of assets to be the best estimate to determine expected effects on the recoverable amount, neither the estimated effects on expenses nor net income.

a.2) Potential effects on decommissioning costs

Due to its operations, the Company has legal obligations to remove equipment and restore onshore and offshore areas. On December 31, 2024, the provision for decommissioning costs recognized by the Company totaled R$ 161.647, as set out in Note 20. On an undiscounted basis the nominal amount would be R$ 321.709.

The estimated timing used by the Company to account for decommissioning costs are consistent with the useful lives of the related assets. The average decommissioning period of oil and gas assets weighted by the carrying amounts of such assets is 14 years.

During 2024, there were no issuances of government regulations related to climate matters that changed or had potential to change the period for decommissioning the Company's assets, as well as no identification any triggers that would accelerate the expected dates for decommissioning the Company's assets due to the Company's climate goals and ambition to neutralize GHG emissions in activities under its control (scopes 1 and 2) by 2050.

A transition to a low-carbon economy that is faster than anticipated by the Company may accelerate the timing to remove equipment and restore onshore or offshore areas. Such acceleration would increase the present value of the decommissioning obligations recognized by the Company.

To illustrate the effect of a possible acceleration of the transition to a low-carbon economy, the Company estimates that the provision for decommissioning costs would increase by R$ 6.786, R$ 22.001 and R$ 36.612 if the timing currently used were brought forward by one, three and five years, respectively. This sensitivity analysis assumed that all other components, variables, assumptions and data for calculating the provision remained unchanged. The year ranges used are not intended to be predictions of likely future events or outcomes.

a.3) Potential effects on "highly probable future exports" used in cash flow hedge accounting involving the Company's future exports

A transition to a low-carbon economy that is faster than it was anticipated by the Company may negatively effect the Company's future exports. Such effect may result in certain exports, whose foreign exchange gains or losses were designated for hedge accounting, no longer be considered highly probable, but remain forecasted, or, depending on the magnitude of the transition and its speed, cease to be considered forecasted. The consequences of such effects are described in the accounting policy of note 33.4.1 (a) involving the Company's future exports.

The calculation of "highly probable future exports" is based on the projected exports in the Strategic Plan, as set out in note 4.8. The Company considers only a portion of its projected exports as "highly probable future exports". When determining future exports as highly probable, and therefore eligible as a hedged item for application of cash flow hedge accounting, the Company considers the effects related to the transition to a low-carbon economy. Carbon prices were not incorporated in such estimates.

Using the prices in the APS and NZE scenarios we carried out a sensitivity analysis to simulate the need to reclassify the foreign exchange gains or losses recorded in equity to the statement of income. Such analysis simulated a new future cash flow from exports, changing only the oil price, keeping all other components, variables, assumptions and data unchanged. In such an analysis, it would be necessary to reclassify the foreign exchange losses, in the amount of R$ 61 million, recorded in equity to the statement of income in the NZE scenario.

The simulations used to perform such sensitivity analysis, based on Brent prices of the scenarios APS and NZE, are not considered by the Company as the best estimates to determine expected effects of the reclassification of foreign exchange variation recorded in equity to the statement of income.

a.4) Potential effects on the useful lives of PP&E

A transition to a low-carbon economy that is faster than the Company anticipates may reduce the useful life of its assets, which could lead to an increase in annual depreciation, depletion and amortization expenses.

Assets directly related to the production of oil and gas in a contracted area are depleted using the units of production method and depreciated or amortized using the straight-line method. As of December 31, 2024, the carrying amount of these assets in operation in Brazil is R$ 560.103. Such assets do not have a useful life ending in or after 2050.

As mentioned in item "Transition risk to low carbon economy", the reference scenario of the Strategic Plan indicates that there will be persistent global demand for oil in the coming decades. Additionally, calculations of expected production and oil and gas reserves in this scenario consider the effects of the transition to a low-carbon economy.

The Company's refining plants consist of 10 refineries in Brazil. Based on the current depreciation rates of the assets in operation applied to the respective carrying amounts at December 31, 2024, which amounts to R$ 57.096, and assuming no additional investment, these refineries would have no material depreciation amounts after 2050.

The Company estimates persistent demand for oil products in the coming decades, although decreasing, which should be progressively supplied by models with lower carbon intensity. Thus, the depreciation rates used by the Company for the refining plants are in line with the transition to a low-carbon economy.

The Gas and Energy assets in Brazil, including thermoelectric power plants, are depreciated using the linear method. Based on the current depreciation rates of the assets in operation applied to their respective carrying amounts as of December 31, 2024, totaling R$ 21.408, and assuming no additional investment, these assets would have no material depreciation amounts after 2050.

In this context, based on available information, the Company does not foresee significant changes in the useful life of its refineries, assets directly related to oil and gas production, and those related to the Gas and Energy arising from the transition to a low-carbon economy. Such assets represent 92% of the Company's total assets in operation.

b) Physical Risks

Physical risks result from climate change that can be event-driven (acute physical risk) or from long-term shifts in climate patterns (chronic physical risk). In this category, the Company does not foresee that changes caused by climate change will have a material effect on accounting estimates, considering the risks currently identified.

APPENDIX 2 · Metrics Table · *The table presents the metrics we employ to assess carbon risks and opportunities.*

INDICATOR	UNIT	COVERAGE	DESCRIPTION	USE OF THE METRIC
Total Absolute Operational Greenhouse Gas Emissions	tCO_2e	100% of activities with operational control	Total GHG emissions, including Scope 1 and Scope 2, in terms of CO_2 equivalent (CO_2e) from us and our equity interests in which we have operational control.	Public Commitment: 30% reduction by 2030 (base year 2015)
Operational Emissions from Oil and Gas Activities	tCO_2e	Oil and Gas Exploration and Production, Gas Processing and Treatment, and Oil Refining Activities with operational control	Total GHG emissions, including Scope 1 and Scope 2, in terms of CO_2 equivalent (CO_2e), excluding GHG emissions from the operations of Thermoelectric Plants.	Internal Monitoring
Greenhouse Gas Emissions Intensity of E&P	$kgCO_2e/boe$	Oil and gas exploration and production activities with operational control	GHG emissions, in terms of CO_2e, from E&P activities concerning the total operated oil and gas production (wellhead) recorded in the same period. Scope 1 and 2 GHG emissions are considered. This indicator represents the rate of greenhouse gas emissions per unit of barrel of oil equivalent produced and is used to analyze the carbon performance of assets in our current and future portfolio.	Public Commitment: 15 $kgCO_2e/boe$ by 2025, maintained until 2030.
Upstream methane emissions intensity (IOGP)	tCH_4/ thousand t hydrocarbons	Oil and gas exploration and production activities and gas processing and treatment activities with operational control	The indicator uses the IOGP metric that represents the ratio between methane emissions and total operated hydrocarbon production.	Public Commitment: 0.25 tCH_4/thousand t hydrocarbons in 2025 and 0.20 tCH_4/thousand t hydrocarbons in 2030
Upstream methane emissions intensity (OGCI)	%	Oil and gas production activities and gas processing and treatment activities with operational control	The indicator uses the OGCI metric that represents the ratio between the volume of methane emissions and the volume of gas delivered to the market.	Internal Monitoring

INDICATOR	UNIT	COVERAGE	DESCRIPTION	USE OF THE METRIC
Associated Gas Utilization Index	%	Oil and gas exploration and production activities and gas processing and treatment activities with operational control	The indicator represents the percentage of the volume of associated gas used in relation to the total volume of associated gas produced.	Internal Monitoring
Greenhouse Gas Emission Intensity in Maritime Transport per ton transported x mile	gCO_2e/ (ton x mile)	Maritime Transport Activities of vessels chartered under the Time Charter Party (TCP) modality	Ratio between the total mass of CO_2e emitted on vessels and the product of the cargo effectively transported on vessels by the distance sailed in nautical miles (ton x mile).	Internal Monitoring
Greenhouse Gas Emission Intensity in Maritime Transport by cargo capacity x mile	gCO_2e/ (DWT x mile)	Maritime Transport Activities of vessels chartered under the Time Charter Party (TCP) modality	Ratio between the total mass of CO_2e emitted on vessels and the product of the vessels' capacity (DWT) by the distance sailed in nautical miles.	Internal Monitoring
Greenhouse Gas Target Compliance Index for E&P Logistics	-	Operations providing maritime support for cargo transportation, air transportation of people and small cargo, and land transportation operations for cargo	Relative quantity of greenhouse gas emissions from E&P Logistics, considering the weighting by the volume of maritime (75%), air (20%) and land (5%) operations.	Internal Monitoring
Intensity of Greenhouse Gas Emissions from Maritime Cargo Transportation Vessels in E&P Logistics	gCO_2e/ (ton x mile)	Operations of support vessels that transport cargo (Platform Supply Vessel - PSV) to the Maritime Units	The ratio between the total mass of CO_2e emitted by support vessels that transport cargo and the product of the cargo moved per nautical mile sailed.	Used to compose the Greenhouse Gas Target Compliance Index for E&P Logistics

INDICATOR	UNIT	COVERAGE	DESCRIPTION	USE OF THE METRIC
Greenhouse Gas Emission Intensity of Air Transport Operations in E&P Logistics	gCO_2e/ (passenger flown x hours flown)	Air transport operations for people and small cargo to Maritime Units	The ratio between the total mass of CO_2e emitted and the product of the number of passengers transported by the hours flown.	Used to compose the Greenhouse Gas Target Compliance Index for E&P Logistics
Greenhouse Gas Emission Intensity of Land Operations in E&P Logistics	gCO_2e/ton of cargo	Land freight transportation operations in E&P Logistics	The ratio between the total mass of CO_2e emitted and the cargo transported by land mode	Used to compose the Greenhouse Gas Target Compliance Index for E&P Logistics
Intensity of Greenhouse Gas Emissions from Refining	$kgCO_2e$/CWT	Refining activities with operational control	GHG emissions, in terms of CO_2e, from refining activities in relation to the activity unit called CWT (Complexity Weighted Tonne). CWT represents a measure of activity that considers both the effect of the processed cargo and the complexity of each refinery, allowing the comparison of the potential for GHG emissions between refineries with different profiles and sizes. This indicator is part of the analysis of the carbon performance of the assets in our current and future portfolio.	Public Commitment: 36 $kgCO_2e$/CWT by 2025 and 30 $kgCO_2e$/CWT by 2030.
Energy Intensity Index	-	Refining activities with operational control	Considers the relationship between the total primary energy consumption of a refinery and a standard energy consumption that takes into account the volume of processed load, the quality of the load, the complexity, and the severity of the process units.	Public Commitment: 89 to 2030
Intensity of Greenhouse Gas Emissions in Thermal Power Plants	tCO_2e/MWh	Commercial thermoelectric power generation activity with operational control	GHG emissions, in terms of CO_2e, from the processes of Thermal Power Plants per electrical energy generated. Scope 1 and 2 GHG emissions are considered. This indicator is part of the analysis of the carbon performance of the assets in our current and future portfolio.	Internal Monitoring

INDICATOR	UNIT	COVERAGE	DESCRIPTION	USE OF THE METRIC
Greenhouse Gas Target Compliance Index for TPPs	%	Commercial thermoelectric power generation activity with operational control	GHG emissions performance of the Thermoelectric Park relative to its respective reference performance previously determined by the design conditions and operational situations of serving the electrical system and steam export, related to the energy efficiency achieved, and the reference of the TTPs. The total relative performance of the park is calculated as the weighted average of the energy generated by each TPP in the period.	Internal Monitoring
Emissions from the value chain	tCO_2e	-	Sum of the main GHG emissions present in the Petrobras value chain, including emissions classified as scope 1, scope 2, and scope 3 in categories 10 and 11 (indirect emissions from the processing of products sold and indirect emissions related to the use of products sold).	Internal Monitoring
Portfolio GHG emissions intensity (IP)	gCO_2e/MJ	Operational emissions: 100% of activities with operational control; Products: energy products sold on an equity basis by Petrobras	Sum of emissions from operated assets (100% of Scope 1 and 2 emissions) and end-use emissions (Scope 3, category 11) related to the combustion of energy products sold on an equity basis by Petrobras[1] divided by the sum of the energy (in MJ fossil equivalent[2]) of the energy products sold on an equity basis by Petrobras.[3] *[1] Using, whenever possible, the average emission factors indicated in the technical note "CDP Technical Note: Guidance methodology for estimation of Scope 3 category 11 emissions for oil and gas companies"* *[2] The sold electricity is transformed into equivalent fossil energy to take into account conversion losses during the generation process, using a factor of 0.45, which represents the average efficiency in electrical generation from fossil sources expected for 2050 (Energy Institute, 2023)* *[3] The energy of fuel products is calculated, whenever possible, based on the lower calorific value of each product, also derived from the CDP technical note.*	Internal Monitoring

INDICATOR	UNIT	COVERAGE	DESCRIPTION	USE OF THE METRIC
Evolution of low-carbon fuel production capacity	-	Low-carbon fuel production activities on a Petrobras equity basis	Low-carbon fuel production capacity on a Petrobras equity basis in relation to the low-carbon fuel production capacity in 2022. The assessment is carried out in terms of equivalent energy (boed). In cases of co-processing, only the capacity related to the production of the renewable fraction is considered in the calculation of the metric.	Internal Monitoring
Percentage capacity of renewable electricity generation	%	Activities for electricity generation on a Petrobras equity basis	Installed capacity for renewable electricity generation (on a Petrobras equity basis) in relation to the installed capacity for renewable electricity generation and in thermoelectric plants (on a Petrobras equity basis).	Internal Monitoring
Carbon break-even pricing	USD	Projects undergoing evaluation	The indicator represents the value of a carbon tax that would bring the NPV of the project under analysis to zero using a simplified internal methodology.	Internal Monitoring
NPV sensitivity to carbon price	% or monetary unit	Projects undergoing evaluation	The indicator represents the impact on the NPV of the project under analysis derived from a possible carbon pricing, using a simplified internal methodology.	Internal Monitoring
Portfolio NPV loss	%	Company Portfolio	The indicator represents the impact on the NPV of the Company's Portfolio when compared with international scenarios listed in this Supplement, based on the effect of oil and carbon price assumptions during the evaluated periods.	Internal Monitoring

APPENDIX 3 · Glossary

AR4 – Fourth Assessment Report
The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), published in 2007, presents projections of global temperature increase based on six emission scenarios, assessing the impacts, vulnerabilities, and possible strategies for mitigation and adaptation to climate change.

CDP
CDP, formerly known as the Carbon Disclosure Project, is a global non-profit organization with an environmental impact disclosure system for the public and private sectors. The self-declaration of data and information allows investors, stakeholders and other audiences to monitor the progress of companies in their environmental policies.

DJSI – Dow Jones Sustainability Index
The DJSI is an index, launched in 1999, that acts as a global sustainability benchmark. With the participation of industries and members around the world, the index serves as a map for investors on the corporate environmental responsibility of companies. The assessments are made annually and report on the progress of the participants in relation to the ESG criteria.

FPSO - Floating Production Storage and Offloading
It is a ship-platform (or unit) that can produce, store, and transfer oil and gas, providing definitive oil production systems.

GHG Protocol – Greenhouse Gas Protocol
The GHG Protocol establishes global frameworks for measuring and managing GHG emissions from the private and public sectors, value chain, and mitigation actions. The protocol works with governments, industry associations, NGOs, companies and other organizations.

ISCC – International Sustainability and Carbon Certification
ISCC is an independent organization with global operations in certification systems that endorse the sustainability of renewable raw materials and products, through the evaluation of sustainability criteria throughout the production chain. The ISCC certification system is a multi-step process, applied to all types of agricultural, forestry, and waste materials that contribute to the circular economy and the bioeconomy. Across the world, various products, such as food, feed, chemical compounds and fuels, as well as energy, can be certified by ISCC.

LCA – Life Cycle Assessment
LCA is a technique that identifies and quantifies the resources used and emissions into the air, land and water, enabling the assessment of the environmental impacts associated with a product throughout its production chain or useful life, that is, throughout its entire life cycle. Its principles and calculation procedures are described in ISO 14040 and ISO 14044 standards. The life cycle of mineral fuels involves the stages of oil exploration and production, oil transportation, processing in refineries, distribution and use of products.

MACC Curve – Marginal Abatement Curve
This methodology allows evaluating and comparing different opportunities for mitigating emissions through their Marginal Abatement Costs (ratio between the net present value of the opportunity and its GHG abatement potential). Based on this ratio, it is possible to order the opportunities, facilitating the identification of solutions with the best cost-benefit for implementation.

ANEXO 3 · Glossário

OGMP 2.0 – Oil and Gas Methane Partnership
OGMP 2.0 is a global initiative coordinated by the UN for the quantification, reporting, and management of methane emissions, focusing on mitigating climate change in the oil and gas sector. The initiative brings together more than 100 companies from this industry, coordinated by the United Nations Environment Programme (UNEP).

Organizational unit
A unit that manages operations related to the company's core activities.

Paris Agreement
The Paris Agreement is a global treaty adopted in December 2015 by the signatory countries of the United Nations Framework Convention on Climate Change (UNFCCC) during the 21st Conference of the Parties (COP21). Through this agreement, governments committed to taking action to keep the global average temperature "well below" 2 °C above pre-industrial levels and to make efforts to limit the increase to 1.5 °C. To this end, countries presented comprehensive national action plans to reduce their emissions through the formulation of their Nationally Determined Contribution (NDC).

Scope 1 emissions
Direct GHG emissions occur as a result of the company's own operations in emission sources that are owned or controlled by the company.

Scope 2 emissions
Scope 2 accounts for GHG Indirect emissions related to emissions from the production of electrical and/or heat energy purchased for consumption by the company. These occur at third-party sources.

Scope 3 emissions
Scope 3 for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the company's activities but occur from sources that are not owned or controlled by the company.

Steam reforming units
Industrial facilities used to produce hydrogen from hydrocarbons such as natural gas, ethanol, or biogas.

Sustainable products
Products classified as sustainable are those that consider the environmental impact at all stages of production, from raw material extraction to final disposal.

Zero Routine Flaring
Zero Routine Flaring (ZRF) is an initiative by the World Bank that aims to establish a commitment with governments and oil companies to eliminate routine flaring by 2030. The goal is to support cooperation among stakeholders so that solutions for gas flaring can be found through appropriate regulation, technology implementation, and financial agreements.

APPENDIX 4 · Map to TCFD Requirements

TCFD RECOMMENDATION	DISCLOSURE	LOCATION
Governance: *Disclose the organization's governance around climate-related risks and opportunities.*		
a) Describe the board's oversight of climate-related risks and opportunities.	Climate Change-Related Governance Risk Management Process	Pg. 44-45 Pg. 32-33
b) Describe management's role in assessing and managing risks and opportunities.	Climate Change-Related Governance Risk Management Process	Pg. 44-45 Pg. 32-33
Strategy: *Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.*		
a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	Risks Related to Climate Change and Energy Transition Opportunities from Climate Change	Pg. 34-42 Pg. 62-72; 76-79
b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	Risks Related to Climate Change and Energy Transition Analysis of the Portfolio's Financial Resilience	Pg. 34-42 Pg. 26-30
c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	Analysis of the Portfolio's Financial Resilience	Pg. 26-30

TCFD RECOMMENDATION	DISCLOSURE	LOCATION
Risk Management: *Disclose how the organization identifies, assesses, and manages climate-related risks.*		
a) Describe the organization's processes for identifying and assessing climate-related risks.	Risk Management Process	Pg. 32-33
b) Describe the organization's processes for managing climate-related risks.	Risk Management Process	Pg. 32-33
c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	Risk Management Process	Pg. 32-33
Targets and Metrics: *Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material.*		
a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	Ambitions and Commitments to Reduce Carbon Footprint Appendix 1 - Metrics Table	Pg. 56 Pg. 144-148
b) Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.	Emission Performance	Pg. 88; 96
c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	Ambitions and Commitments to Reduce Carbon Footprint Emission performance	Pg. 56 Pg. 88-96

APPENDIX 5 · References

Agência Gov. November 15, 2024. Petrobras and four other Brazilian public companies send letter with proposals to the G20. Available at: <https://agenciagov.ebc.com.br/noticias/202411/petrobras-e-mais-quatro-empresas-publicas-brasileiras-enviam-carta-com-propostas-ao-g20>.

Brazilian Indicators for the Sustainable Development Goals (SDGs). Available at: < https://odsbrasil.gov.br/>.

BRAZIL. Law No. 14,948, of August 2, 2024. Establishes the legal framework for low-carbon hydrogen; provides for the National Policy for Low-Carbon Hydrogen; establishes incentives for the low-carbon hydrogen industry; establishes the Special Incentives Regime for Low-Carbon Hydrogen Production (Rehidro); creates the Low-Carbon Hydrogen Development Program (PHBC). Available at: <https://www.presidencia.gov.br/ccivil_03/_Ato2023-2026/2024/Lei/L14948.htm>.

_____. Law No. 14,993, of October 8, 2024. Establishes the National Sustainable Aviation Fuel Program (ProBioQAV), the National Green Diesel Program (PNDV), and the National Decarbonization Program for Natural Gas Producers and Importers and Biogas Incentive Program. Available at: <https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2024/lei/L14993.htm>.

_____. Law No. 15,042, of December 11, 2024. Establishes the Brazilian System for Greenhouse Gas Emission Trading (SBCE). Available at: <https://www.planalto.gov.br/ccivil_03/_Ato2023-2026/2024/Lei/L15042.htm >.

_____. Presidency of the Republic. Dispatch from the President of the Republic. Official Gazette of the Union, August 28, 2024. Resolution No. 5, of August 26, 2024, from the National Energy Policy Council - CNPE. Available at: <https://www.gov.br/mme/pt-br/assuntos/conselhos-e-comites/cnpe/resolucoes-do-cnpe/2024/RESOLSIN.PDF>.

EDGAR – Emissions Database for Global Atmospheric Research. Joint Research Centre, GHG emissions of all world countries (JRC/IEA). Luxembourg, 2023. Available at: <https://edgar.jrc.ec.europa.eu/booklet/GHG_emissions_of_all_world_countries_booklet_2023report.pdf>.

ENERGY INSTITUTE. Statistical Review of World Energy 2024, 73st edition, 2024. Available at: <https://www.energyinst.org/statistical-review>.

EPE – EMPRESA DE PESQUISA ENERGÉTICA. National Energy Balance 2024: Base year 2023. Rio de Janeiro: EPE, 2024. Available at: <https://www.epe.gov.br/pt/publicacoes-dados-abertos/publicacoes/balanco-energetico-nacional-2024>.

APPENDIX 5 · References

_____. Ten-Year Energy Expansion Plan. Available at: <https://www.epe.gov.br/pt/publicacoes-dados-abertos/publicacoes/plano-decenal-de-expansao-de-energia-pde>.

IEA – INTERNATIONAL ENERGY AGENCY. World Energy Outlook (WEO) 2024, 2024. Available at: <https://www.iea.org/reports/world-energy-outlook-2024>.

IRENA – INTERNATIONAL RENEWABLE ENERGY AGENCY. World Energy Transitions Outlook 2023: 1.5º Pathway, 2023. Available at: <https://www.irena.org/Publications/2024/Nov/World-Energy-Transitions-Outlook-2024>.

IOGP – INTERNATIONAL ASSOCIATION OF OIL AND GAS PRODUCERS. Environmental performance indicators – 2020 data, 2020. Available at: <https://www.iogp.org/bookstore/product/environmental-performance-indicators-2020-data/>.

MCTI/SIRENE – Ministério da Ciência, Tecnologia e Inovação/Sistema de Registro Nacional de Emissões. Métrica GWP-AR5.. SIRENE 2025: Base year 2022. Available at: <https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/sirene>.

OUR WORLD IN DATA. Energy use per person vs. GPD per capita. United Kingdom, 2023. Available at: <https://ourworldindata.org/grapher/energy-use-per-person-vs-gdp-per-capita>.

UNEP – UNITED NATIONS ENVIRONMENT PROGRAMME. Emissions Gap Report 2024: No more hot air... please! Nairobi, 2024. Available at: <https://www.unep.org/resources/emissions-gap-report-2024>.

_____. Emissions Gap Report 2023: Broken Record – Temperatures hit new highs, yet world fails to cut emissions (again). Nairobi, 2023. Available at: <https://www.unep.org/resources/emissions-gap-report-2023>.

WORLD BANK GROUP. World Bank national accounts data, GDP per capita (current US$). Washington, 2023. Available at: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?name_desc=true&view=chart>.

DISCLAIMER

This document may contain forecasts about future events, which reflect only the expectations of the Company's management regarding future conditions of the economy, in addition to the industry in which it operates, the performance, and the financial results of the Company, among others. The terms "anticipates", "believes", "expects", "forecasts", "intends", "plans", "projects", "aims at", "should", as well as other similar terms, are intended to identify those predictions, which, evidently, involve risks and uncertainties foreseen or not by the Company (such as risks related to changes in general economic and commercial conditions, prices of crude oil and other commodities, refining margins and current exchange rates, uncertainties inherent to estimates of our oil and gas resources and reserves, risks related to our Strategic Plan and our ability to implement it, events in the Brazilian and international political, economic, legal, and social scenarios, obtaining governmental approvals and licenses, and our ability to obtain financing) and, consequently, are not guarantees of the Company's future results. Therefore, the results may differ from current expectations, and the reader should not rely exclusively on the information herein.

The Company is not obliged to update the presentations and forecasts in light of new information or future developments. The values reported for 2025 and onwards are estimates.

The goals, commitments, ambitions, and perspectives presented throughout this Climate Change Supplement may be affected by external and/or internal factors. The commitments presented herein do not constitute guarantees of future performance by the Company and are subject to assumptions that may not materialize, as well as risks and uncertainties that are difficult to predict. Among the factors that may cause future results to differ materially from our expectations, we refer to the factors described in the "Risk Factors" section on Form 20-F and on Petrobras' Reference Form, as of the base date of December 31, 2024. Additionally, this document contains some financial indicators that are not recognized by BR GAAP or IFRS. These indicators do not have standardized meanings and may not be comparable to similarly described indicators used by other companies. We provide these indicators because we use them as measures of the Company's performance, and, therefore, they should not be considered in isolation or as a substitute for other financial metrics that have been disclosed in accordance with BR GAAP or IFRS.

The performance results in emissions in 2024 presented in this Climate Change Supplement will still be verified by a third party; therefore, variations may occur, and no significant changes are expected.

This Climate Change Supplement follows the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

PETROBRAS