New Movements
Recent accomplishments
Jean Paul Prates – CEO

Our choices and value proposition
Jean Paul Prates – CEO

Financial Strategy and Governance
Sergio Caetano Leite – CFO
Mário Spinelli – Chief Governance and Compliance Officer

Exploration & Production
Joelson Falcão – Chief Exploration and Production Officer
Carlos Travassos – Chief Engineering, Technology and Innovation Officer

Refining, Transportation and Marketing
Claudio Schlosser – Chief Logistics, Commercialization and Markets Officer

Decarbonization, Gas & Low Carbon Energies
Mauricio Tolmasquim – Chief Energy Transition and Sustainability Officer

Final Remarks
Jean Paul Prates – CEO
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In addition, this presentation also contains certain financial measures that are not recognized under Brazilian GAAP or IFRS. These measures do not have standardized meanings and may not be comparable to similarly-titled measures provided by other companies. We are providing these measures because we use them as a measure of company performance; they should not be considered in isolation or as a substitute for other financial measures that have been disclosed in accordance with Brazilian GAAP or IFRS.
Recent accomplishments
Recent accomplishments

NEW STRATEGIC DRIVERS
Total attention to people while being the best diversified and integrated energy company in value generation, combining the focus on oil and gas with low-carbon businesses.

STRENGTHENING GOVERNANCE
Creation of management structures for disciplinary accountability and monitoring of integrity systems with an area dedicated to investigating violence reports at work.

NEW SHAREHOLDERS REMUNERATION POLICY
Promoting predictability for shareholders remuneration while preserving Petrobras’ financial sustainability.

DELIVERING SHAREHOLDERS VALUE
Total shareholder return of 75% in 9M23*.

NEW COMMERCIAL STRATEGY
Practicing competitive prices per sales cluster, in balance with domestic and overseas markets, taking into account the best alternative for customers and the profitability of Petrobras' assets.

PRODUCTION RECORDS
• FPSO Almirante Barroso reaches production capacity in less than 5 months
• Monthly record of operated production in September: 4.1 Mmboed.
• 96% refining utilization factor in 3Q23, maintaining light and middle distillates yields.
• Record production and sales of S10 Diesel.

ORGANIZATIONAL ADJUSTMENT
Creation of the Energy Transition and Sustainability Executive Directorship and adjustments to prepare the Company for a just energy transition.

* Source: Bloomberg
Recent accomplishments

**1st PURCHASE OF CARBON CREDITS**
Acquisition of 175,000 carbon credits from the Envira Amazonia Project. (1 carbon credit = 1 ton of CO₂).

**SIGNING OF STRATEGIC PARTNERSHIPS**
Agreements with benchmark companies to strengthen our positioning in low-carbon projects.

**EQUATORIAL MARGIN ENVIRONMENTAL LICENSE**
Ibama has licensed the drilling of two exploratory wells in deep waters of the Potiguar Basin.

**100% RENEWABLE FEEDSTOCK PROCESSING**
A historic milestone: for the first time we processed 100% soybean oil in a refining facility (Riograndense refinery*).

* Petrobras partnership with 33% stake
Our choices and value proposition
151 of the 198 countries in the world have made net zero commitments

Source: Net Zero Tracker - data from Nov/23

Commitments made or proposed

- Emissions: 88%
- Population: 89%
- GDP: 92%
We expect lower demand in the transportation segment and an increase in petrochemical demand.

Note: Petrobras' models, using Wood Mackenzie, IHS and IEA data as a reference. Reference scenario projection used to elaborate the Plan. Petrobras also considers alternative scenarios, with different energy transition paces.
And an increase in the share of electric vehicles in the global fleet

Note: Petrobras’ models, using Wood Mackenzie, IHS and IEA data as a reference.
Reference scenario projection used to elaborate the Plan. Petrobras also considers alternative scenarios, with different energy transition paces.
In E&P, investments in production capacity are necessary to meet global demand

Even with lower global demand, natural production decline will require investment in Exploration & Production to meet demand.

**2028**
Peak production capacity

- **New Discoveries**
- **Probable Development**
- **Under Production and Development**

Note: Petrobras’ models, using Wood Mackenzie, IHS and IEA data as a reference. Reference scenario projection used to elaborate the Plan. Petrobras also considers alternative scenarios, with different energy transition paces.
In this context, fossils dominate the global energy mix, but renewables will surpass oil in 2050

- Oil and gas play a key role, but an increase in renewables in the mix is an inevitable path
- We generate value for society with growing investments in oil and gas and in the energy transition, leveraging our technological and project management expertise

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>2020</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fossils</td>
<td>29%</td>
<td>20%</td>
</tr>
<tr>
<td>Oil</td>
<td>24%</td>
<td>13%</td>
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<tr>
<td>Natural gas</td>
<td>26%</td>
<td>39%</td>
</tr>
<tr>
<td>Coal</td>
<td>16%</td>
<td>20%</td>
</tr>
<tr>
<td>Renewables</td>
<td>5%</td>
<td>8%</td>
</tr>
<tr>
<td>Nuclear</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>2020</td>
<td>79%</td>
<td>53%</td>
</tr>
<tr>
<td>2050</td>
<td>20%</td>
<td>20%</td>
</tr>
</tbody>
</table>

Note: Petrobras’ models, using Wood Mackenzie, IHS and IEA data as a reference.
Reference scenario projection used to elaborate the Plan. Petrobras also considers alternative scenarios, with different energy transition paces.
And we will make use of low-carbon value levers

- Technological expertise and project management skills as assets to explore Brazil's regional competitive advantages
- Investments in partnerships to reduce risk and share knowledge
- Potential synergies with Petrobras' expertises, such as E&P for offshore wind, Refining for biorefining and Gas for hydrogen
Acting safely and sustainably in our business with integrity, seeking to reduce emissions, promoting diversity and social development, contributing to a just energy transition.

**REDUCE CARBON FOOTPRINT**

*Net Zero ambition 2050*

**PROTECTING THE ENVIRONMENT**

*Zero spill ambition*

**CARING FOR PEOPLE**

*Zero fatality ambition*

**ACTING WITH INTEGRITY**

*Ambition to become reference in ethics, integrity and transparency*
And with clear diversity and inclusion targets for our workforce

To be among the top three O&G companies in the Human Rights ranking by 2030

To accomplish HR due diligence in 100% of our operations and 100% of our workers and third parties trained in HR

To promote Diversity, increasing the percentage of women to 25% and the percentage of black people in leadership positions to 25% by 2030

Current level at 20% with actions to increase gender and color/race representation in leadership positions each year

To achieve more than 50% physically active employees, contributing to a healthier and more productive life by 2030

Raising levels of people’s health through a culture of well-being

To implement 100% of the commitments of the UN Global Pact Mind in Focus Movement by 2030

Ensure healthy and safe environments through the management of psychosocial factors at work
Our value proposition

Oil and gas production growth in the short term and value in integration

• Economic and environmental resilience in deep and ultradeep water production
• High return, low breakeven production projects
• Downstream integration to capture additional value

Focus on capital discipline

• Debt under control as a priority
• Investments and business decisions respecting the ideal capital structure
• Solid governance in decision-making processes ensuring profitability, rationality and value generation for all stakeholders
• Value distribution through dividends and buybacks

Value generation with just transition

• Value-driven diversification into profitable low-carbon businesses, prioritizing partnerships
• Increase in profitable investments generating long-term value, with solid governance
• Projects leveraged on Petrobras’ technological expertise
Financial Strategy and Governance
Capital Allocation Priorities

LEVERAGE UNDER CONTROL AND HIGH LIQUIDITY

• Solid balance sheet with debt below US$ 65 billion and cash position of US$ 8 billion
• Access to revolving credit lines
• Financial debt lower than leasings, which are associated to cash generation
• Capex and other obligations financed prioritarily by operating cash flow

VALUE-ACCRETIVE INVESTMENTS

• Robust governance for the approval of projects
• Projects only sanctioned with positive NPVs in the most conservative scenario
• Full accountability of all executives

DIVIDENDS AND BUYBACKS

• 45% of free cash flow
• Potential extraordinary dividends if leverage is respected
Resilient projects with high economic returns

IRR – AVERAGE REAL INTERNAL RATE OF RETURN
%

- **Exploration & Production***: 23%
- **Refining, Transportation and Marketing**: 14%
- **Gas and Low Carbon Energies***: >8%

* Assuming US$ 65/bbl Brent from 2030
** For wind and solar projects
Higher investments in the 2024-2028 timeframe for long-term value Generation

US$ billion

* Does not include US$ 12 billion of leased FPSOs. Includes potential acquisitions

TOTAL CAPEX*

Portfolio under implementation

Portfolio under evaluation

* Exploration & Production
* Refining, Transportation and Marketing
* Gas and Low Carbon Energies
* Corporate
Annual capex under implementation

US$ billion
2024-2028

<table>
<thead>
<tr>
<th>Year</th>
<th>E&amp;P</th>
<th>RTM</th>
<th>Gas and Low Carbon Energies</th>
<th>Corporate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2024</td>
<td>18.5</td>
<td>0.5</td>
<td>18.0</td>
<td>1.9</td>
<td>20.0</td>
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<tr>
<td>2025</td>
<td>21.0</td>
<td>1.0</td>
<td>20.0</td>
<td>2.3</td>
<td>22.3</td>
</tr>
<tr>
<td>2026</td>
<td>19.1</td>
<td>0.9</td>
<td>19.0</td>
<td>2.6</td>
<td>21.6</td>
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<td>2027</td>
<td>17.5</td>
<td>0.6</td>
<td>17.0</td>
<td>2.8</td>
<td>19.8</td>
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<tr>
<td>2028</td>
<td>15.2</td>
<td>0.4</td>
<td>15.0</td>
<td>2.0</td>
<td>17.2</td>
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% Committed

<table>
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<tr>
<th>Year</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
<th>2028</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>94%</td>
<td>83%</td>
<td>70%</td>
<td>56%</td>
<td>49%</td>
</tr>
</tbody>
</table>

Legend:
- **E&P**
- **RTM**
- **Gas and Low Carbon Energies**
- **Corporate**
Projects under evaluation respecting governance for execution

- Projects under evaluation only migrate to portfolio under implementation when approved in our governance
- Approvals also contingent on leverage limits

PORTFOLIO UNDER EVALUATION

- **11 billion**
  - **6 billion** RTM
  - **5 billion** G&P and Low Carbon

ADDITIONAL GOVERNANCE
Increase in investments associated to cost inflation and new projects

- Cost inflation impacting supply chain as a whole
- Increase also associated to assets which are back on the portfolio

CAPEX 2023-2027 vs 2024-2028

- 2023-27 BP: $78 billion
- Inflation: $8 billion
- New Projects: $15 billion
- Others: $1 billion
- 2024-28 BP: $102 billion

Capex under evaluation in 2023-27 Strategic Plan: US$ 1 billion

Capex under evaluation in 2024-28 Strategic Plan: US$ 11 billion
Sources and uses of cash over the next 5 years

US$ billion 2024-28

Sources

- Cash generation after tax and judicial deposits: 180 – 207
- Earn-outs (includes divestments): 0 – 3

Uses

- Cash flows from investments
  - Dividends (may include share buy-backs): 40 – 45
  - Potential extraordinary dividends (may include share buy-backs): 5 – 10
  - Leasings: 35 – 40
  - Financial debt amortization
  - Interest expenses: 5 – 10

Assumptions for the period:

<table>
<thead>
<tr>
<th>Year</th>
<th>Brent (US$/barrel)</th>
<th>Real exchange rate (R$/US$)</th>
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</thead>
<tbody>
<tr>
<td>2024</td>
<td>80</td>
<td>5.05</td>
</tr>
<tr>
<td>2025</td>
<td>78</td>
<td>5.04</td>
</tr>
<tr>
<td>2026</td>
<td>75</td>
<td>5.03</td>
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<td>2027</td>
<td>73</td>
<td>4.98</td>
</tr>
<tr>
<td>2028</td>
<td>70</td>
<td>4.90</td>
</tr>
</tbody>
</table>
Governance
Strengthening Corporate Governance

OUR GOVERNANCE MODEL

- Ensures technical decisions
- Prevents political influence
- Ensures the approval of projects with the expected economic return

Board of Directors defines the overall direction of our business by setting out our mission and strategic goals.

Executive Board responsible for managing the business and achieving results.

Endorsement of statutory committees before Officers, Executive Board and Board of Directors decisions.

Decision-making process supported by technical analysis and legal and compliance opinions.

Independent Governance and Compliance, Internal Audit and Ombudsman structures.

External whistleblowing channel, ensuring anonymity and non-retaliation.

PETROBRAS IS SUPERVISED BY SEVERAL REGULATORS

- CVM and SEC (investor protection)
- CGU (Comptroller General Office)
- TCU (Federal Court of Accounts)
- SEST (control of governance practices)
- CADE (anti-trust body)
Other governance perspectives also underscore rationality in the decision-making process

**VETO POWER**

Veto power of Chief Governance and Compliance Officer over decisions of the Executive Board which are not compliant with the applicable legislation and internal rules.

**INDEPENDENCE**

Chief Governance and Compliance Officer: selection process by headhunter; election by BoD for 2-year tenure; dismissal only by the Board of Directors, with the approval of the majority of board members elected by minority shareholders.

**STRENGTHENING OF GOVERNANCE AND COMPLIANCE**

Creation of new executive position to conduct the disciplinary accountability process, including those established on the Anticorruption Act, segregating the investigation process from the accountability process.
Alongside other legal aspects

**CORPORATE ACT**

The administrators cannot act to the detriment of the Company
*(Law 6404/74 – Lei das S/As, article 245)*

**OIL LAW**

Petrobrás must practice market prices and act in a free and competitive market
*(Law 9478/97 – Lei do Petróleo, article 61)*

**STATE-OWNED COMPANIES ACT AND BYLAWS**

When oriented/guided to pursue public interest, the Government will reimburse the Company in case there are differences to market conditions *
*(eg: realization of investment projects and marketing of fuels)*

* Compensation only required in Petrobrás bylaws
Exploration & Production
Greater diversification, keeping the focus on profitable assets.

**EXPLORATION & PRODUCTION STRATEGY**

- Maximization of portfolio value
- Focus on profitable assets
- Decarbonization of operations
- Reserves replacement
- Increase in gas supply
- New frontiers
With a portfolio with double resilience and high economic value

**ENVIRONMENTAL**
- Greenhouse gas intensity: $15 \text{ Kg } \text{CO}_2/\text{boe}$ by 2030
- **Zero** routine flaring by 2030
- **80 million tCO}_2 by 2025** reinjected through Carbon Capture, Utilization and Storage (CCUS) projects
- **70% reduction** in the intensity of methane emissions (vs 2015), reaching 0.20 tCH4/thousand tHC by 2030

**ECONOMIC**
- **US$ 25/bbl**: Brent for prospective break-even of portfolio* 
- **23%**: average IRR of major E&P projects**
- **10 years**: average discounted payback
- **US$ 6/boe**: lifting cost (2024-2028 average)
- **US$ 17 billion**: E&P free cash flow in 2028

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* Brent for prospective breakeven: the future value of Brent that generates zero prospective NPV for the E&P portfolio
** Real average IRR of major projects in the E&P segment with start-up from 2022 onwards, considering their entire productive life
And generating value at low oil prices

- Capex 100% resilient to a maximum Brent level of US$ 45/bbl
- 75% of capex resilient to a Brent level of US$ 35/bbl

* Brent level to generate zero net present value
Delivering increasing production and generating higher economic value

**TOTAL PRODUCTION**

million boed / Petrobras’ Work Interest (WI) / With variation of +/-4%

<table>
<thead>
<tr>
<th>Year</th>
<th>% Pre-salt</th>
<th>Operated production*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2024</td>
<td>80%</td>
<td>3.9</td>
</tr>
<tr>
<td>2025</td>
<td>77%</td>
<td>3.9</td>
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<td>2026</td>
<td>77%</td>
<td>4.3</td>
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<tr>
<td>2027</td>
<td>77%</td>
<td>4.6</td>
</tr>
<tr>
<td>2028</td>
<td>79%</td>
<td>4.6</td>
</tr>
</tbody>
</table>

*Operated production includes the Federal Government’s production as profit oil from production sharing contracts
The Campos Basin continues to be a pioneer in E&P

Campos Basin’s first revitalization, in the Marlim field, replaced 9 units with 2 new platforms and will reach peak production with 130 thousand boed.

- **40% of production** in 2028 will come from the pre-salt
- **200 new wells** to be connected
- **4 new** production units
  - Integrated Parque das Baleias, Albacora (Revitalization), Barracuda-Caratinga (Revitalization) and BM-C-33 (not operated)
- **US$ 22 billion** of investments in projects
- **40% reduction** in Lifting Costs (compared to 2023)
- We will reduce our emissions by approximately **10 kgCO2e/boe** by 2028, a **drop of more than 35%** compared to 2022

40% of production in 2028 will come from the pre-salt

200 new wells to be connected

4 new production units

Integrated Parque das Baleias, Albacora (Revitalization), Barracuda-Caratinga (Revitalization) and BM-C-33 (not operated)

US$ 22 billion of investments in projects

40% reduction in Lifting Costs (compared to 2023)

We will reduce our emissions by approximately 10 kgCO2e/boe by 2028, a drop of more than 35% compared to 2022
Santos Basin concentrates pre-salt assets and drives production growth

Fields such as Búzios, Mero, Tupi, Iracema, Atapu, Itapu, Berbigão, Sururu and Sapinhoá account for more than 75% of our current production

3.5 million boed of operated production in 2028
99% of production in 2028 will come from the pre-salt

9 new production units* by 2028
+18 MMm³/day in gas supply with the start of the Route 3 pipeline

US$ 41 billion of investment in projects
Operating Cash Flow: US$ 27 billion in 2028

Assets with lower intensity than the portfolio’s average**: 10.0 kgCO₂e/boe (Tupi) and 10.4 kgCO₂e/boe (Búzios)

* Includes FPSO Sepetiba, which is expected to start up in December 2023  ** As reported in 3Q23
Maximizing the value of assets through reservoir management...

**ORGANIC RESERVE REPLACEMENT RATIO**

PETROBRAS vs MAJORS (Average for past 5 years)

Investments of c. US$ 4 billion in the 2024–28 timeframe

**SEISMIC ACQUISITIONS**

Use of advanced digital technologies for more reliable estimates

**IMPROVED RESERVOIR MODELS**

Increased oil and gas recovery, improving the profitability of our assets

**MASTER PLANS**

Reservoir management + Projects (complementary and revitalization)

Source: Evaluate Energy
... and by replacing reserves, through the exploration of new frontiers

INVESTMENT IN EXPLORATION

US$ billion

- Southeast basins (41.4%)
- Equatorial Margin (41.5%)
- Other countries (17.1%)

50 new wells between 2024-2028:
- 25 Southeastern basins
- 16 Equatorial Margin
- 9 Other countries
We will stay focused on the diversification of our portfolio and on the challenge of replacing reserves, with lower emissions, for a just energy transition.

**Operation**

\[ \cong -10\% \text{ per year} \]

**Projects 2022+**

**Replacement Challenges**

**RELEVANCE OF NEW SYSTEMS**

Production systems which started operations in the last 10 years accounts for c. 70% of current production.

It takes 6 to 10 years to implement a production development project, from discovery to first oil.

We constantly map out and incorporate opportunities to reduce the time required to implement projects.
Engineering, Technology and Innovation
Our procurements happen in a more challenging context

- End of lockdowns
- Ukraine war
- Imbalance in supply chains
- Energy security
- Inflation + interest
- Market fundamentals
- Cost escalation and resource constraints

PETROBRAS ANSWERS

- Supply Market Partnerships
- Search for efficiency
- Technological innovations
Underscoring the importance of engaging our suppliers

**ESG**
- ESG requirements in procurement
- Decarbonization solutions
- Financeability of the Supply Chain

**RELATIONSHIPS**
- Active listening to suppliers and other stakeholders
- Improvement of communication channels
- Boosting regional vocations

**INTEGRATION**
- Supply chain integrated approach
- Volume synergy and predictability
- Risk mitigation in business development

**RENEWABLE ENERGIES**
- Value chain mapping
- Supplier base engagement
- Prospecting for opportunities

**QUALITY**
- High-performance partnerships and innovation
- Incentive alignment and performance based rewards
- Encouraging qualification

*C O M P L I A N C E . S A F E T Y . V A L U E G E N E R A T I O N*
We will add 14 FPSOs in the 2024-2028 period, 10 of which already contracted.
And we will demand other critical resources to carry out the plan.

**TOPSIDE**
- FPSO

**LOGISTICS**
- Aircrafts
- Maritime support vessels

**SUBSEA SYSTEM**
- PLSVs
- Other vessels
- Flexible lines
- Rigid lines
- Wet Christmas Trees

**WELLS**
- Rigs
- Materials and services for wells
We are delivering efficiency despite the challenging scenario and the increased complexity of our production units.

• Qualification of new technologies within the Efficiency Program
• Multidisciplinary integration in projects
• Use of integrated contracts with alignment of interests
• Optimization of reservoir data acquisition

AVERAGE COST OF PRE-SALT WELL CONSTRUCTION

-35%

2019 2020 2021 2022 2023

• Subsea layout optimization
• Larger diameter pipelines
• Expansion of integrated contracts with alignment of interests

AVERAGE COST OF PRE-SALT WELL CONNECTIONS

-25%

2019 2020 2021 2022 2023

• Interface reduction
• FPSO completion upon leaving the shipyard
• Alignment of interests

EFFICIENCY OF OWNED UNITS** (%)

+20%

2019 2020 2021 2022 2023

* 2023 projection
** Specific efficiency of the platform in the first 3 years of operation: Replicant Family and Búzios Units
And we have a portfolio of innovations to generate value in a double resilience scenario

R&D PORTFOLIO – E&P
USD 2.3 billion
2024–2028

TOPSIDE SYSTEMS
- Optimized FPSO, with low emissions and higher safety (energy imports)
- Technologies for decarbonization of operations
- Solutions for efficiency maximization and reduction of man-hours exposed to risk

SUBSEA SYSTEMS
- Flexible pipelines for challenging conditions (new depth and pressure levels)
- Subsea processing, pumping, injection and storage systems
- Subsea electrification

WELLS
- Rig automation
- All electric well
- Disruptive well abandonment solutions
Pre-salt continues to account for 67% of our capex

CAPEX E&P
US$ billion

Strategic Plan 2023–27

CAPEX E&P Rates Assumptions Price Level +4 +5 New projects Scope

67% Pre-salt

Strategic Plan 2024–28

67% Pre-salt

Post-Salt Exploration Pre-salt Others

15 41 64

16 47 73

2 6

3 8
Refining Transportation and Marketing
RTM

Refining, Transportation and Marketing

RTM STRATEGY

To be the best option for customers

To provide low-carbon products

To optimize the production chain maximizing asset values
Supplying the Brazilian market is the best way to monetize oil reserves and enable growth in biofuels

Main flows

- Oil
- Oil products

- 8th largest global consumer of oil products
- Energy mix already based on renewables with potential demand
- Brazil: oil surplus and oil products deficit
- Natural vocation for biorefining due to availability of local feedstock
The transition allows for a mix of fossil and biofuel solutions

We will seek to strongly position ourselves to meet both fossil energy demands and by offering products for low-carbon markets
Our Refining facilities among the best in the world* in operational and energy efficiency by 2030

Reliability
Operational Availability ≥ 97%

ENERGY PERFORMANCE
Energy Intensity ≤ 89

SUSTAINABILITY
Emissions intensity ≤ 30kg CO₂eq/CWT

VALUE**
Pre-salt processing capacity = 100%

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RefTOP program expansion
Southeast refineries
All Refineries

PROGRAM GAINS
2021-2023
US$ 589 million

NEW INVESTMENTS
2024-2028***
US$ 776 million

*1st quartile - benchmark USA refiners  
** Does not include lubricant plants  
*** Investments of US$ 1.1 billion until 2030
Investing in the expansion and upgrading of the industrial complex with a focus on high-value, low carbon products

MAIN PROJECTS

- Increase in Processing Capacity: 225 kbpd
- Increase in S-10 diesel production capacity: > 290 kbpd***
- BioRefining*: 34 kbpd
- Lubricants Group II: 12 kbpd
- Petrochemicals and Fertilizers

* 100% Renewable (Diesel R100) | ** Projects 2028+ | *** 80% new capacity / 20% revamps

- RNEST: Revamp Train 1 and implementation of Train 2
- Revamps of current facilities
- New units HDT/HCC GASLUB**
- REPLAN new HDT
- Implementation of RNEST Train 2
- Revamps of current facilities
- Dedicated plant in RPBC (SAF / Diesel R100)**
- Dedicated plant GASLUB**
- New unit HIDW GASLUB**
- Projects under study
A rigorous process for selecting opportunities ensures a profitable and resilient portfolio for RTM

- Projects evaluated under different scenarios
- Hurdle rates adjusted for the risks of each segment
- Individual decisions for the FID of each project and reassessment of the portfolio when Strategic Plan is revised

Opportunities in refining, logistics and biofuels

Decision analysis funnel for projects with hurdle rates of \( \approx 9\% \) per year.

Resulting in a plan with a portfolio with a prospective real IRR > 14\% per year
More investments to adapt and improve the Refining and Logistics complex

CAPEX RTM

US$ billion

Strategic Plan 2023–27

6.4

9.4

1.4

1.6

New projects*

+0.4

Assumptions Adjustments and increase in scope

+2.7

Studies and acquisitions

+4.2

Strategic Plan 2024–28

9.0

16.7

4.2

1.4

2.1

Refining adaptation and upgrading

Logistics

Low Carbon

Studies and acquisitions

* Second biorefining plant, HDT Repar and ships
Decarbonization, Gas & Low Carbon Energies
Promoting decarbonization across the value chain

Ambitions

Operational Emissions (Scope 1 and 2)

- Net Zero by 2050
- 2022 level not to be exceeded in the five-year period (40% reduction since 2015)
- Near Zero Methane 2030

Scope 3: Providing greater products

Expected peak of fossil production in the early 2030s

- Expanding renewable fuels supply
- Renewable electricity integrated with efficient and safe thermoelectricity

Potential to expand biofuel production capacity (by volume) by up to 4x between 2022 and 2030
Potential of 50% of total electricity generation capacity through renewable sources by 2030

Expand share of non-energy products which are transition-resilient (e.g., lubricants, petrochemicals)

Emissions as a variable compensation metric for 100% of executives and employees

Potential for up to 3% reduction in the portfolio’s emissions intensity by 2030, measured in GHG emissions / energy contained in energy products (base year 2022)
## Commitments to reduce carbon footprint

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>2022</th>
<th>Target 2025</th>
<th>Target 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operational Absolute Emissions</strong></td>
<td>Ambition not to exceed the 2022 level between 2024-28</td>
<td>millions tCO₂e</td>
<td>48</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Routine flaring</strong></td>
<td>100% of new projects adopt zero routing flaring concept</td>
<td>millions m³</td>
<td>59</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Reinjection in CCUS projects</strong></td>
<td>World’s largest offshore CO₂ reinjection program</td>
<td>millions tCO₂ (accumulated)</td>
<td>41</td>
<td>80</td>
</tr>
<tr>
<td><strong>GHG intensity in E&amp;P Segment</strong></td>
<td>Operational excellence and energy efficiency</td>
<td>kgCOe/boe</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td><strong>GHG Intensity in Refining Segment</strong></td>
<td>Optimization and improvements in energy performance</td>
<td>kgCO₂e/ CWT</td>
<td>37.9</td>
<td>36</td>
</tr>
<tr>
<td><strong>Upstream methane emissions intensity</strong></td>
<td>Consolidation of 62% reduction*</td>
<td>tCH₄/thousand Thc</td>
<td>0.25</td>
<td>0.25</td>
</tr>
</tbody>
</table>

* Compared to 2015
Carbon Neutral Program: Leveraging Solutions for the Net Zero Trajectory

**SCOPE 1 AND 2 EMISSIONS**
- Operational excellence
  - Elimination of Fugitive Emissions, Flaring and Venting – Near Zero Methane
  - Electrification and large higher performance machines
  - Reduction of primary energy consumption in processes and fleet
  - Renewables and low-carbon energy for own consumption
  - Digitalization and real-time optimization for decarbonization

**Disruption**
- Large-scale electrification and connection to renewables/grid
- Hydrogen
- Shared ecosystems and infrastructures

**Supply Chain**
- Active search and supply of technologies for operational decarbonization
- Procurement of goods and services with low embodied carbon
- Natural NCS solutions and other carbon credits

**Removal**
- Capture, use and storage CCUS

**SCOPE 3 EMISSIONS**
- Assessment of new opportunities with Scope 3 impact, evaluation of the life cycle and emissions of products

Decarbonization Fund - Budget of US$1.0 billion over the next 5 years
Expanding operations in low-carbon businesses

Business assessment based on different dimensions, such as the development of the Brazilian market, technological maturity and adherence to current operational competencies

**SOLAR & ONSHORE WIND**
M&A and investments for the development of projects in Brazil

**OFFSHORE WIND**
Studies in Brazil aiming at participating in bids and environmental licensing in Brazil

**CCUS**
Pilot project CCUS Rio de Janeiro hub
Studies for CCUS projects

**HYDROGEN**
Studies for projects in Brazil
R&D Investments

**BIOREFINING**
Expansion of biorefining projects, focused on Bio Jet Fuel and Diesel R
Diversifying the portfolio profitably and promoting the company's longevity

**SCOPES 1 AND 2**

- **US$ 3.9 billion**
  - **DECARBONIZATION OF OPERATIONS**
  - Investments in emissions mitigation (scope1 and 2)
  - E&P, RTM and G&P
  - US$ 2.9 billion
  - Decarbonization Fund
  - US$ 1.0 billion

**PORTFOLIO - SCOPE 3**

- **US$ 5.5 billion**
  - **LOW-CARBON ENERGIES**
  - Wind and Solar Photovoltaic Energies
  - US$ 5.2 billion
  - Hydrogen, CCUS, Corporate Venture Capital
  - US$ 0.3 billion

- **US$ 1.5 billion**
  - **BIOREFINING**
  - Renewable diesel
  - Bio Jet Fuel

**US$ 11.5 billion** (11% of total CAPEX and 6% of CAPEX in implementation)

**R&D in low-carbon**

- **US$ 0.7 billion**
  - Increasing over the five-year period
  - 15% of the total R&D budget in 2024, reaching 30% by the end of the period
Strengthening low-carbon investments

US$ billion

**2023–27**

- E&P: 2.1
- RefTop: 0.8
- Decarbonization Fund: 0.3
- Biorrefining: 0.6
- R&D: 0.6
- Renewable Generation*: 0.1

**2024–28**

- E&P: 1.0
- RefTop: 1.5
- Decarbonization Fund: 2.2
- Biorrefining: 0.7
- R&D: 5.5
- Renewable Generation*: 0.1

*Includes CCUS, H₂ and Venture Capital

**Considering the portfolio under evaluation

Average CAPEX in low-carbon investment: 2024-2028

- 2024: 6%
- 2025: 10%
- 2026: 12%
- 2027: 13%
- 2028: 16%
- Average: 11%
Natural gas as an energy transition fuel par excellence

Operational Efficiency:
Energy Transition Security

Competitive and Integrated Activity

Optimized Asset Portfolio
Portfolio ensures reliability and safety in the insertion of renewable sources

THERMAL COMPLEX
Petrobras
Capacity
5.3 GW average

IMPORT AND REGASIFICATION
2 Regasification Terminals
Capacity
50 million m³/day

NATURAL GAS TRANSPORTATION PIPELINE

BOLIVIA IMPORTS
Bolivia – Brasil Gas Pipeline

LNG REGASIFICATION TERMINALS
LNG Bahia
LNG Baia de Guanabara

NATIONAL NG PROCESSING
4 NG Treatment Units
Capacity
66 million m³/day

Natural Gas Processing Units
Thermoelectric plants
The #1 choice of the natural gas open market in the 5 regions of Brazil: we will advance in customized solutions to serve Distributors and Free Consumers

*Infrastructure and portfolio expansion to continue operating competitively in natural gas commercialization*

### Main projects and planned dates

<table>
<thead>
<tr>
<th>Year</th>
<th>Project</th>
<th>Gas Pipeline Capacity</th>
<th>Natural Gas Processing Unit Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2024</td>
<td>Route 3 Project</td>
<td>18 million m³/d</td>
<td>21 million m³/d</td>
</tr>
<tr>
<td>2024</td>
<td>BMC-33 Project</td>
<td>16 million m³/d</td>
<td></td>
</tr>
<tr>
<td>2028</td>
<td>SEAP</td>
<td>18 million m³/d</td>
<td></td>
</tr>
<tr>
<td>2028+</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Supply Alternatives

**Brazil and Other Countries**

- **E&P Exploration of New Frontiers**
  - Southeastern Basins
  - Equatorial Margin
  - Other countries

**Southern Countries opportunities**

- LNG
- Biomethane
Investments to ensure reliability and operational and energy performance

US$ billion

Strategic Plan 2023–27

1.4

- 1.1
- 0.1
- 0.2

Assumptions, adjustments and increase in scope

+1.5

New projects

+0.1

Strategic Plan 2024–28

3.0

- 1.0
- 0.7
- 1.3

Stoppages & Improvements
Route 3
UTE Gaslub
Others*

* TBG, SMS, Compliance, New UPCGN Tecab, others
** New projects: adequacies and reliability
Final remarks
Key messages

1. Oil and gas and integration as the main value driver, with economic and environmental resilience, financing the just transition

2. Intensifying profitable low-carbon investments to generate long-term value

3. Building a Petrobras with total focus on people, safety and respect for the environment, through a solid governance, perpetuating value for future generations
Supplemental Information
Governments expand the scope of automotive climate policies

Governments with targets of 100% sales of new cars, vans and light trucks with zero CO₂ emissions

- Target to allow the sale of new BEVs, FCEVs e PHEVs only
- Target to allow the sale of new BEVs and FCEVs only
- ZEV Declaration Governments in Emerging Markets and Developing Economies (signed onto 2.A)**
- ZEV Declaration Governments in Emerging Markets and Developing Economies (signed onto 2.B)***

BEVs: Electric vehicles whose power source is batteries
PHEVs: Plug-in hybrid vehicles
FCEVs: Fuel cell vehicles
ZEV: Vehicles that do not emit greenhouse gases of local pollutants

Canada 2035
California, Massachusetts, New York, Oregon, Vermont, Washington 2035
Costa Rica 2050
Chile 2035
2035 European Economic Area
2035 United Kingdom
2035 Cape Verde
2035 Singapore

Source: International Council on Clean Transportation (2023)
Sources and uses of cash over the next 5 years

**ASSUMPTIONS**

<table>
<thead>
<tr>
<th>Source/expense</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
<th>2028</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brent US$/barril</td>
<td>80</td>
<td>78</td>
<td>75</td>
<td>73</td>
<td>70</td>
</tr>
<tr>
<td>Real FX (R$/US$)</td>
<td>5.05</td>
<td>5.04</td>
<td>5.03</td>
<td>4.98</td>
<td>4.90</td>
</tr>
<tr>
<td>Diesel crackspread US$/barril</td>
<td>22</td>
<td>20</td>
<td>18</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>Gasolina crackspread US$/barril</td>
<td>14</td>
<td>12</td>
<td>12</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

• Descomissioning expenses: US$ 11 billion

**SENSITIVITIES**

<table>
<thead>
<tr>
<th>Source/expense</th>
<th>∆</th>
<th>FCO impact (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brent</td>
<td>US$ 10/barril</td>
<td>≈ 5.0 billion</td>
</tr>
<tr>
<td>FX (R$/US$)</td>
<td>R$ 0.50</td>
<td>≈ 1.5 billion</td>
</tr>
<tr>
<td>Diesel crackspread</td>
<td>US$ 10/barril</td>
<td>≈ 1.8 billion</td>
</tr>
<tr>
<td>Gasolina crackspread</td>
<td>US$ 10/barril</td>
<td>≈ 1.1 billion</td>
</tr>
</tbody>
</table>

*Includes contingent and deferred payments and divestments
**May include buybacks
Governance for the approval of projects

- Technical Statutory Committees advise all decisions for Executive Officers, Executive Board and Board of Directors

- Projects must have strategic alignment and expected positive NPV

- Initial planning stage: does not mean authorization for execution

- Internal procedures establish criteria and phases for investments and divestments

- Proof of technical and economic feasibility: review groups and Technical Statutory Committees, with executives with fiduciary responsibilities on their opinions

- Projects above US$ 1 billion demand Board of Directors’ approval, with an opinion from the Investment Committee
A robust framework for investment projects

CTE-ID: Technical Statutory Committee for Investments and Divestments, composed of 12 executive managers, from various departments within Petrobras, who respond fiduciarily for their opinions.
And acquisitions

Selection of Acquisition Projects (Signing of NDA) → Designation of responsibilities → Preliminary business assessment and non-binding offer → Business assessment, due diligence and binding offer → Negotiation of prices, conditions and contracts + signing → Closing

Phase 1: Project Development
- EXECUTIVE BOARD (EB)
  - Gate 0
  - COINV
    (Communication in up to 30 days)
  - Gate 1
    (in case of non-binding offer)
    - COINV
      (Communication in up to 30 days)

Phase 2:
- Gate 2
- Gate 3

Phase 3: Integration

COINV

EB

BoD

CTE-ID
Supplemental Information

Exploration & Production
High-value portfolio...

91
Assets under production

53
assets in exploratory phase
... with competitive costs

*Does not include exploratory investments and capital costs, mainly. Average for the Strategic Plan 2024-28 period.
Búzios is a super-giant field with excellent oil quality, substantial reserves and low emissions...

- **Reservoir thickness** up to 480m
  Comparable to the height of 13 statues of Christ the Redeemer

- **Oil volume**
  Largest deepwater field in the world

- **Area of** 852 km²
  130 soccer fields

- **Water depth**
  Around 2,000m
  26º to 30º API

- **1 billion boe**
  Produced in just 5 years
... which shall continue to deliver results in the future

With 6 more platforms, production in Búzios will double between 2024 and 2028

- 5 units in operation in 2023
- +6 units by 2028, bringing the field’s production to 1.6 MMboed

- 37% of Petrobras’ oil and gas production in 2028 will come from Búzios

- Drilling +70 wells and ~80 completions by 2028

- CAPEX 2024 - 2028: US$ 22.5 bi
- OCF in 2028: US$ 16.6 billion
- Lifting cost 2024-2028: 4.5 US$/boe
Mero: 3rd largest accumulation of pre-salt oil

10 years after the country’s first sharing agreement was signed, Mero is already contributing to the growth of our production.

**CURRENT CONFIGURATION**

- Alexandre de Gusmão 2025
- Guanabara 2022
- Sepetiba Dez/2023
- Duque de Caxias 2024
- Mero 1
- Mero 2
- Mero 3
- HISEP® Tecnológico 2028
- Pioneiro de Libra 2017
- Mero 4

**OPERATED PRODUCTION**

- ≥ 280 thousand boed
- ≅ 2024 - 2028
- ≅ 600 thousand boed in 2028

**CAPEX 2024 – 2028**

- US$ 2.7 billion

**Avg Lifting Cost**

- US$ 3 / boe
- 2024 - 2028

**OCF in 2028**

- US$ 1.9 billion

**PIONEERING AND TECHNOLOGICAL EVOLUTION**

- Greater operational efficiency, with a 56% reduction in energy demand
- **HISEP®**: More production and less CO₂ emissions
- Cargo Transfer Vessel: Relief for conventional tankers
Onshore assets and shallow waters

Established for more than 70 years as a profitable, sustainable activity that fosters regional development

2 BUSINESS UNITS IN PRODUCTION
28 concessions in production in Bahia and Amazonas
1,300 Active Onshore Wells
+ 70 Complementary Projects

SUSTAINABILITY
98% of the area preserved at the Urucu Cluster
1,400,000 seedlings developed and planted

ESG BEST PRACTICES
7 PLATFORMS in decommissioning
WELLS
+200 abandoned
150 plugged and sealed

CAPEX 2024 – 2028
US$ 1.7 billion

Decommissioning 2024 – 2028
US$ 2.2 billion

The Urucu Cluster is the country’s 3rd largest natural gas producer with continuous ISO 14001 certification for 25 years
Focus on high-capacity production systems leveraging pre-salt competitive advantage

In the horizon for Strategic Plan 2024-28, 8 high-capacity units are planned to start production in pre-salt:

- 4 FPSOs with a capacity of 180 kbdp
- 4 FPSOs of 225 kbdp

High pre-salt productivity and efficiency increase in systems implementation and operation

Reducing the ramp-up period for pre-salt units

FPSO Alm. Barroso - Record of less than 5 months

Búzios (Pre-salt) reaches 1 billion boe of accumulated production twice as fast as Marlim (Post-salt)

- MARLIM: 11 years
- TUPI: 9 years
- BUZIOS: 5 years
Over US$11 billion in decommissioning with a commitment to adopting ESG best practices

Significant portfolio of decommissioning projects

- Campos Basin
- Santos Basin
- North and Northeast

23 Platforms in the five-year period

<table>
<thead>
<tr>
<th>Type</th>
<th>Before 2028</th>
<th>After 2028</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>9</td>
<td>35</td>
</tr>
<tr>
<td>Floating</td>
<td>14</td>
<td>5</td>
</tr>
</tbody>
</table>

~1900 km of flexible lines
~550 wells

Green Decommissioning of Platforms

- Technical criteria to ensure compliance with ESG practices
- Focus on value creation, circular economy, safety and respect for people and the environment

P-32 - auction finalized in Sep/23
P-33 - auction in progress

+ 40 PLATFORMS after 2028
Substantial project portfolio over the next 5 years supports production growth

- **14** New FPSOS
- **> 140** Complementary projects
- **23** Platforms to be decommissioned
- **> 350** Offshore production development wells
- **~550** Offshore wells to be abandoned
- **> 9,000** Km of pipelines (launch and collect)
Breakdown of production profiles*

* Agreements with ANP. Average for the 2024-28 Strategic Plan period
## Main differences among Brazil’s regulatory framework

<table>
<thead>
<tr>
<th>CONTRACT MANAGEMENT</th>
<th>TRANSFER OF RIGHTS</th>
<th>CONCESSION</th>
<th>PROFIT SHARING AGREEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petrobras direct procurement via Law nº 12.276/2010</td>
<td>Joint venture</td>
<td>Government integrates consortia via PPSA (PRÉ-SAL PETRÓLEO S.A.)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTRACT SUPERVISION</th>
<th>ANP</th>
<th>ANP</th>
<th>ANP</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>O&amp;G/RESERVOIR OWNERSHIP</th>
<th>Petrobras</th>
<th>Concession holders</th>
<th>Contractors and Government (PPSA)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>GOVERNMENT TAKE</th>
<th>• Royalties: 10%</th>
<th>• Acquisition value agreed between the parties</th>
<th>• Royalties: 5% to 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Profit oil: N/A</td>
<td>• Profit oil: N/A (depending on water depth, Production Year and Volume)</td>
<td>• Royalties: 15%</td>
</tr>
<tr>
<td></td>
<td>• Special Participation: N/A</td>
<td>• Special Participation: Rate from 10% to 40% (depending on water depth, Production Year and Volume)</td>
<td>• Fixed bonus</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Profit oil offered in each bid (minimum + premium)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Special Participation: N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TENDER CRITERIA</th>
<th>Not applicable</th>
<th>Bonus offer and minimum exploratory program</th>
<th>Offering a percentage of profit oil to the Government</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PREFERENCE RIGHT</th>
<th>Not applicable</th>
<th>Not applicable</th>
<th>Petrobras has preference rights</th>
</tr>
</thead>
</table>

Supplemental Information

Refining, Transportation and Marketing
Innovations in renewable products with a market focus

2023 ACHIEVEMENTS

Premium Gasoline (Podium)

Diesel R

Marine Fuel testing with Renewable Content

Asphalt capPRO

2024-2028 GOALS

Expand sales of existing products

Launch new products with low-carbon footprint such as: Marine Fuel with renewable content, SAF and HVO

Develop ways to obtain low-carbon raw materials for biorefining
BioRefino – Energy transition with more sustainable products

DIESEL R

• REPAR produces, with ISCC certification, Diesel R5 (5% renewable content) through co-processing, with the potential to reach up to 10%.
• 15 million liters of R5 diesel were produced in 2023, with a new monthly sales record in September.
• Completed installations to produce Diesel R in co-processing at REPAR, RPBC and REPLAN. REDUC will complete the co-processing facilities in 2023.
• Development of a voluntary market working with distributors and partnerships
BioRefino Program: we continue investing to increase the production of Biofuels

**DEDICATED PLANTS (2028+)**

<table>
<thead>
<tr>
<th>Product</th>
<th>Capacity (Kbpd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAF RPBC</td>
<td>15</td>
</tr>
<tr>
<td>SAF GASLUB</td>
<td>19</td>
</tr>
</tbody>
</table>

**FLEXIBLE PRODUCTION**

- SAF: 14 Kbpd
- Diesel R 100: 14 Kbpd
- Others: 6 Kbpd

**Other initiatives:**

- Third and fourth plant studies with different technologies
- Development of other oil products with renewable content
- Memorandum of understanding with Mubadala Capital to develop joint studies on future businesses
- Biorefining tests at the Riograndense refinery with Petrobras technology

*Aligned with the demand of CORSIA - Carbon Offsetting and Reduction Scheme for International Aviation*
In partnership and with Petrobras technology, we unveiled a new world frontier for biorefining, processing 100% renewable feedstock

PETROBRAS TECHNOLOGY

- Allows the generation of fully renewable petrochemical products
- The processing of 100% renewable feedstock in a fluid catalytic cracking (FCC) unit is a world first.

Success in industrial-scale tests for the production of petrochemicals and renewable fuels with 100% renewable content

Tests at Riograndense Refinery

Second mineral feedstock co-processing test with bio-oil

With the conclusion of the technology trial

- Riograndense refinery will be able to explore business alternatives for the production of renewable products
- Petrobras will have an alternative of new biorefining products, complementary to SAF and renewable diesel from projects already underway

* Petrobras partnership with 33% stake
Non-Fuel Products

*Improvement of product portfolio, contributing to the reduction of emissions*

**Lubricants**

REDUC-GASLUB HCC/HIDW and HDT integration
Streams dispatch from REDUC to GASLUB;
Production of Group II lubricants;
Production of high quality diesel (*Ultra Low Sulfur*) and Jetfuel

**Petrochemical Products**

Verticalization with profitability;
Seek integration with refining; and
Finding investment alternatives for operations in the production of basic chemicals and resins, in line with the energy transition scenario.

**Fertilizers**

Nitrogenous Fertilizers Unit-3: in reevaluation;
ANSA: Assessment of alternatives for resuming production;
Studies of business partnerships for initiatives in the segment (in current plants and new plants) and in decarbonization production processes
Portfolio of Projects focused on expanding Refining and Logistics capacity

Main projects by year of entry into operation

2024
- RNEST SNOX
- RPBC BLOWDOWN
- REDUC DRAINAGE BASINS

2025
- RNEST TRAIN 1 EXPANSION
- REPLAN HDT
- OSBRA Sen.Canedo Terminal
- OSBRA Uberlândia Terminal

2026
- REVAP HDT

2027
- RECAP Combustion Boiler

2028
- RNEST Train 2

2028+
- REPLAN Coke
- GASLUB HDT, HCC E HIDW
- RPBC SAF
- GASLUB SAF
- OBATI

* Under technical and economic feasibility analysis
Expanding capacity and quality improvement of RNEST oil products

OPERATING SINCE 2014

Train 1
Capacity 100 kbpd

SCOPE IN PROGRESS

2024 Construction in progress
2025 Construction in progress
2028 Under procurement

SNOX +15 kbpd
REVAMP Train 1 +15 kbpd
Train 2 + 130 kbpd

Revamp Train 1: Interventions in the Distillation Unit (UDA), Coke Unit (UCR) and Pipes
Expansion of S10 Diesel capacity

**HDTs for S-10 DIESEL**

*Installation of the vacuum drying tower at REPLAN*

**REPLAN’s new unit**
Operation in 2025
Construction in progress

**REVAP adaptation**
Operation in 2026
Bidding process started July/23
*Replacement of S500 diesel with S10 diesel*

**PLANNING**

**New units**
HDT/HCC GASLUB
Operation after 2028
Basic design in progress

The 3 projects together represent an increase in S10 Diesel production capacity of around 180 kbpd
Logistics project portfolio highlights

**OSBRA**
São Paulo-Brasília oil pipeline

Storage tank expansion and adjustments to increase delivery capacity for market products

*Scope*
- Sen. Canedo (GO) Terminal
- Uberlândia (MG) Terminal

*Construction in progress.*
*Operation after 2028*

**OBATI**
Barueri-Utinga oil pipeline

Ensure operational continuity by relocating the pipeline to a new lane

*Scope*
- Replacement and relocation of OBATI heavier yields

*Operation after 2028*
Strengthening Logistics as a competitive and integration advantage

REMOVING LOGISTICS BOTTLENECKS AND EXPANDING OPERATIONS IN STRATEGIC MARKETS, WITH SAFETY AND EFFICIENCY

US$ billion

New markets and products

- Expansion and efficiency of logistics
  - Operational continuity
  - Infrastructure expansion
  - Ship Construction (4 Handy-2)

Product flow guarantee
- Santos Terminal
- Replacement: OPASA and OBATI
- D&T and Ship Maintenance

Expansion and adaptation of logistics infrastructure
Investment in terminals to optimize and flexibilize operations
Expansion of operating modes and forms of contracting
Ensuring operational efficiency
MEET THE DEMAND OF THE PETROBRAS SYSTEM, ENSURING OPERATIONAL RELIABILITY AND VALUE GENERATION IN THE CABOTAGE SEGMENT

Vessels with low market availability

Strategic view

Safety

ESG Agenda

Mitigate freight price and exchange rate volatility

HANDY 2 (15K)

GAS ships (7K)

MR 1 (35K)

MR 2 (48K)

CAPEX included in the portfolio under implementation of the 2024-28 Strategic Plan

CAPEX for studies
<table>
<thead>
<tr>
<th>Asset</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahia</td>
<td>Own assets leased to Proquigel</td>
<td>Camaçari - BA</td>
</tr>
<tr>
<td>Sergipe</td>
<td>Project mothballed since 2014 (81% built)</td>
<td>Laranjeiras - SE</td>
</tr>
<tr>
<td>UFN-III</td>
<td>Company 100% Petrobras mothballed in 2020</td>
<td>Três Lagoas - MS</td>
</tr>
<tr>
<td>ANSA</td>
<td></td>
<td>Araucária - PR</td>
</tr>
</tbody>
</table>
Inovation
Technological innovation has been the basis for Petrobras' pioneering spirit over 70 years and will drive the construction of the future.

**HIGH CAPACITY FOR INNOVATION**

<table>
<thead>
<tr>
<th>Human Capital</th>
<th>Postdoc</th>
<th>Doctors</th>
<th>Masters</th>
<th>Patents filed</th>
</tr>
</thead>
<tbody>
<tr>
<td>948 Researchers</td>
<td>11 Postdoc</td>
<td>273 Doctors</td>
<td>376 Masters</td>
<td>+1,000</td>
</tr>
</tbody>
</table>

308 k m²

+ 230 partners and 9,000 researchers engaged

- **US$3.6 billion in R&D from 2024 to 2028**
- **Increase participation in decarbonization and new energy to 30% in 2028**

<table>
<thead>
<tr>
<th>Total Area</th>
<th>Laboratories</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>308 k m²</td>
<td>116</td>
<td>4,600</td>
</tr>
</tbody>
</table>

2021 - 119
2022 - 128

National Record of patents for the second consecutive year
13% can impact decarbonization and new energies
## Topics that are the focus of Petrobras' R&D Portfolio

<table>
<thead>
<tr>
<th>Number</th>
<th>Topic</th>
<th>Subtopics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Integrity and Reliability of E&amp;P Assets</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Decommissioning of E&amp;P Assets</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Future Geology for Improving Predictability</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Production and Injection Efficiency in E&amp;P Assets</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Sustainable Geophysics in New Frontiers and Replenishing Reserves</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Gas Efficiency and Competitiveness</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Refining Asset Integrity and Efficiency (REFTOP)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>SCC-CO2</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Safety</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Environment</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Integrated Production Management</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Future Production Systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Decarbonization of operations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• New energy sources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Interventions without rigs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Disruptive completion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Subsea pumping and processing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Future Surface Systems</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>RTM of the Future</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Decarbonization of operations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Operational efficiency and energy performance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduction of dark streams / Products with higher value added</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Integration with petrochemicals</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Low Carbon Products</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bio Jet Fuel and Renewable Diesel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bunker and Green Chemistry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• E-fuels and CO₂ conversion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Renewable raw materials</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Performance and quality of renewable products</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>CCUS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• CCUS Hubs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bioenergy integrated into CCS (BECCS) and direct air capture (DAC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• New technologies for more economical and efficient CO₂ capture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Technologies for converting CO₂ into higher value-added products</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Wind and Solar Generation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Mapping wind potential</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Regional environmental characterization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Competitiveness assessment and optimization of projects</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Connection to offshore E&amp;P assets</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Conceptual design study</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Clean Hydrogen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Geological hydrogen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sustainable hydrogen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sustainable H₂ storage, transport and distribution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• New uses of sustainable H₂ ammonia</td>
<td></td>
</tr>
</tbody>
</table>
Supplemental Information

Decarbonization, Gas & Low Carbon Energies
Downward trajectory of operational absolute emissions

Ambition: Not to exceed the 2022 emissions threshold

Paris Agreement

Million tCO₂e


-30%
Emissions intensity in E&P

KgCO₂/boe

2018 2019 2020 2021 2022

- GHG Intensity (kgCO₂/boe)
- Emissions in E&P Segment (million of tCO₂e)
- Production operated (million boe/d)

MAIN DRIVERS

- High Asset Efficiency
- Reduced Torch Burn, Fugitives, and Venting
- Energy Efficiency
- CCUS - EOR

14% reduction in the last 5 years

Tupi and Búzios

Target 2025
15.0
Target 2030
15.0

2018 2019 2020 2021 2022

- 21
- 17.5
- 3.28

- 22
- 17.3
- 3.46

- 21
- 15.9
- 3.62

- 20.2
- 15.7
- 3.52

- 19.7
- 15.0
- 3.59

- 15.0
- 3.46

- 15.0
- 3.46

- 15.0
- 3.46
Emissions Intensity in Refining

Main Drivers

- Improvements in energy performance
- Load Optimization
- Reduction of gas to torch
- Hydrogen production and use management

10% reduction in the last 5 years
Reduction of methane emissions

METHANE EMISSIONS INTENSITY OF UPSTREAM

1000 tCH₄

MAIN INITIATIVES

• Contribute to the Brazilian commitment (Global Methane Pledge)
• Ambition near zero methane (OGCI)
• Flaring Monitoring (OGCI)
• Adherence to the OGMP 2.0 - Oil and Gas Methane Partnership

Fugitive:
Monitoring of fugitive emissions with infrared cameras (Optical Gas Imaging); valves with emission requirements etc.

Flare:
Gas recovery through the Flare Gas Recovery Unit (FGRU); Zero Flare Routine

Vent:
Gas blanketing; process optimization etc.

Reduction of 62%
Carbon credit as a complementary tool

In addition:
- Voluntary social responsibility portfolio: contribution to 106 conservation units and 20 indigenous lands and quilombola territories
- Investments in protected areas by licensing (SNUC*): ~R$ 3 billion committed

* National System of Nature Conservation Units
Solar renewable generation and onshore and offshore wind

The strategy of acquiring operational assets or under development proves to be an efficient mechanism of initial momentum

For offshore, the studies will support the development of the best projects

<table>
<thead>
<tr>
<th>Potential up to 50m</th>
<th>700 GW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential up to 100m</td>
<td>934 GW</td>
</tr>
<tr>
<td>PETROBRAS</td>
<td>30 GW</td>
</tr>
</tbody>
</table>

Expected return of Petrobras’ renewables projects in line with the Majors

- IRR: Above 8%
- Increase in renewable generation capacity of ~5 GW by the end of 2028

CAPEX of US$ 5.2 bi

(Portfolio under Evaluation)
CCUS: Petrobras at the cutting edge of technology in the process of carbon capture, transport and storage

ACCUMULATED CO2 REINJECTION

\[\text{Million } TCO_2\]

2008 - 2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount (Million TCO₂)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>2.9</td>
</tr>
<tr>
<td>2016</td>
<td>4.5</td>
</tr>
<tr>
<td>2017</td>
<td>7.0</td>
</tr>
<tr>
<td>2018</td>
<td>9.8</td>
</tr>
<tr>
<td>2019</td>
<td>14.4</td>
</tr>
<tr>
<td>2020</td>
<td>21.4</td>
</tr>
<tr>
<td>2021</td>
<td>30.1</td>
</tr>
<tr>
<td>2022</td>
<td>40.8</td>
</tr>
<tr>
<td>2025 target</td>
<td>80.0</td>
</tr>
</tbody>
</table>

**THE WORLD’S LARGEST CCUS-EOR PROJECT**

- Petrobras already has the largest offshore CO2 reinjection program in the world, in the pre-salt fields
- Target to double the cumulative amount of CO2 reinjection by 2025

**CCUS HUB IN RIO DE JANEIRO**

- Opportunity for the first Hub in Brazil
Hydrogen
Studies for projects in Brazil and investments in R&D

Low Carbon Hydrogen
Green and Blue Hydrogen* Projects for:
• Decarbonization of our operations (with gradual replacement of grey hydrogen);
• Supply to industrial customers;
• Green ammonia production;
• E-methanol production;
• Biomethanol production;
• Production of low carbon fuels (SAF and Renewable Diesel)

R&D
• Process development for Hydrogen generation from biomethane and ethanol
• Pilot plant connected to photovoltaic generation
• Production of e-fuels from low carbon hydrogen and bio CO₂
• Evaluation of a high efficiency cell for synthetic fuel production - Low carbon H₂ (electrolysis) integrated in refineries operation

* Green H₂ projects associated with renewable energy generation projects and blue H₂ projects associated with CCUS projects
**Biorefining: investments in dedicated units and integrated with Petrobras’ refining facilities**

<table>
<thead>
<tr>
<th>ROAD TRANSPORTATION</th>
<th>SHIPPING TRANSPORTATION</th>
<th>AIR TRANSPORTATION</th>
<th>GREEN PETROCHEMICALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO-PROCESSING</td>
<td>BIOBUNKER</td>
<td>RPBC AND GASLUB DEDICATED PLANTS*</td>
<td>PROCESSING</td>
</tr>
</tbody>
</table>
| Integrated to current Downstream operations to produce oil products with renewable content | Marine fuel with renewable content | • Aligned with CORSIA’s demands  
• Flexibility of raw materials (tallow and vegetable oil)  
• Segregated production of 100% renewable derivatives  
• SAF’s decarbonization potential will depend on the raw materials | Vegetable oil in FCC at RPR for bioaromatics  
**CO-PROCESSING**  
Bio-Oil (RPR) or Ethanol (RECAP) in FCC for green HLR, Propene and Ethylene with renewable content |

**PARTNERSHIPS – Integration to the supply chain of more sustainable raw materials**

*Units have flexibility for renewable diesel production*
With competitive products, we remain the #1 choice of the natural gas open market in the 5 regions of Brazil

We will advance in customized solutions to meet distributors and free consumers demand.

We have improved our natural gas products, diversifying terms, indexes and flexibilities compatible with the market opening.

We added 18 new contracts with the sale of additional 14 MM of m³ in 2024 and a total value of R$ 103 bi, by 2034.
Energy portfolio ensures safe growth of renewables

**COMMERICAL ACTIVITIES**

- International certification - 100% renewable origin of the electricity used in our operations
- Recontracting of the thermoelectric park in the bids
- Generating value in short-term opportunities

**ASSETS**

- 5.3 GW capacity (to meet the demand of ~20 million inhabitants)
- ~90% flexibility
- High efficiency
- Energy security for the system, complementing renewables
Other ESG Targets
ESG Drivers

REDUCE OUR CARBON FOOTPRINT

- Promote intrinsic decarbonization, striving for operational emissions neutrality by 2050, considering the origination and acquisition of competitive and high-quality carbon credits as a complementary strategy.
- Expand supply of and access to low-carbon energy and products in a cost-effective transition, contributing to the reduction of energy poverty and the reduction of the portfolio’s exposure to GHG emissions.
- Leveraging ecosystems of knowledge and innovation in low-carbon solutions.
- Collaborate with stakeholders to accelerate opportunities that expand inclusion and sustainable development.

PROTECT THE ENVIRONMENT

- To be “Water Positive” in the areas of water criticality where we operate, by reducing freshwater withdrawal and improving local water availability, contributing to water security.
- Minimize generation and maximize reuse, recycling, and recovery of wastes, promoting circular economy practices and seeking zero landfills destination.
- Promote actions of conservation, restoration and gains in Biodiversity seeking a net positive impact in the regions in which we operate.
- Improve process safety, readiness, and response to contingencies, preventing and mitigating accidents, leaks, and environmental impacts.

CARE FOR PEOPLE

- To be a socio-environmental development vector.
- To be a reference in human rights and in the promotion of diversity, equity and inclusion.
- Promote the well-being and the comprehensive health care of the workforce.
- Promote people’s safety through practices that incorporate human factors, with a focus on organizational learning.

ACT WITH INTEGRITY

- Strengthen our governance model, by promoting diversity.
- To be a reference in ethics, integrity and transparency.
- Foster the adoption of ESG practices among our stakeholders.
Protect the environment

**Commitments**

- 40%* reduction in our freshwater withdrawal by 2030 (91 MM m3/year)

- 30%* reduction in process solid waste generated by 2030 (195 mil ton/year)

  Destination of 80% of solid waste generated in processes for RRR** routes by 2030

- Achieve biodiversity gains by 2030, with a focus on forests and oceans
  - 100% of our facilities with biodiversity action plan by 2025
  - Net positive impact on vegetated areas by 2030
  - 30% increase in biodiversity conservation efforts

* Base year: 2021
** Reuse, recycling and recovering
Water security

40% reduction in our freshwater withdrawal by 2030

Freshwater use in 2022 (MM m³)

WITHDRAWAL 70%
122

REUSE 30%
51

- 2.5% of the water use of the Brazilian industrial sector
- 30% of demand fulfilled by reuse
- DJSI Top Score Water Safety 2019-2022

FRESHWATER WITHDRAWAL
MM m³/year

2018 182
2021 151
2022 122
2023 132
2030 91

REUSE AND LOSS REDUCTION (2018-30):
~ 50 projects/ actions
Reduction of about 45 MM m³ (annual consumption of 820 thousand inhabitants)

NEW FRONTS:
EXTERNAL REUSE
WATER GENERATION - Environmental projects for the preservation and recovery of water springs and riparian forests

PROTECT THE ENVIRONMENT
Circular economy

30% reduction in solid waste generation by 2030

Destination of 80% of solid waste from processes for reuse, recycling and recovery routes by 2030

SOLID WASTE GENERATED
Thousand tons/year

% OF REUSE, RECYCLING OR RECOVERY OF SOLID WASTE

- Diagnosis and actions to minimize and optimize the destination for RRR* routes of the main hazardous and non-hazardous wastes
- Recycling and recovery of construction waste, biological sludge, used catalysts, organics, reverse logistics of packaging and chemicals, sustainable contracting, training and awareness

RRR* - Reuso, Reciclagem e Recuperação
Gains in biodiversity

100% of Petrobras facilities with a biodiversity action plan by 2025

Net positive impact on vegetated areas by 2030

30% increase in biodiversity conservation efforts

ACHIEVE BIODIVERSITY GAINS BY 2030, WITH A FOCUS ON FORESTS AND OCEANS

Expansion of resources for social and environmental investments with organic growth of the project portfolio

Acting in all biomes of Brazil and a holistic approach with integration of the biodiversity theme in all environmental projects

Vegetated areas increasing

100% OF OUR FACILITIES WITH A BIODIVERSITY ACTION PLAN BY 2025

33% 60% 100%

2022 2023 2024

30% INCREASE IN BIODIVERSITY CONSERVATION EFFORTS THROUGH SOCIO ENVIRONMENTAL INVESTMENT BY 2030

Protection of endangered wildlife

Recovery and conservation of biomes

Strengthening the management of environmental protection areas

Net gain of vegetated areas

in 2025 100% BAPs

in 2030 >0 Net gain of vegetated areas

in 2030 +30% Biodiversity efforts

56 species 70 species
125 thousand ac 220 thousand ac
25 million ac 32 million ac

ac: acres
Social and Environmental Projects

Commitment: Provide a return to society of at least 150% of the amount invested in voluntary socio-environmental projects* by 2030

1st Phase (completed):
31 projects already selected
R$ 212 million

2nd Fase (in progress):
28 opportunities
Southeast Region
Forecast of R$ 220 million

Investments of R$ 1 billion over the next four years
Convergence target to 0.1% of Revenue

*SROI Methodology - per project, measurable (3 years))
**DES: Sustainable Economic Development
Act with integrity

- Promote diversity in Petrobras’ Nominations for our equity holdings:
  - Reach 30% of women in Board of Directors, Executive Board and Fiscal Board by 2026
  - Increase by 10% the nominations of black people for the Board of Directors, Executive Board and Fiscal Board by 2030
- Conclude sexual violence investigations with an average term of 60 days by 2024
- 100% of relevant suppliers trained in Integrity and/or Privacy by 2030
- Conduct Human Rights Due Diligence on 100% of our relevant suppliers by 2030
- Evaluate the expansion of ESG requirements in 100% of strategic categories hiring
- Establish that 70% of relevant suppliers have their emissions inventory (GHG) published
PROGRAM OF OPEN INNOVATION

- Accelerate Innovation at Petrobras
- Integration with the Innovation Ecosystem
- Establish New Partnerships
- Development of New Technologies
Technological Transfers
Licensing of technologies to use third parties in our business

Acquisition of solutions
Search for start-ups and other innovative companies that present solutions already validated or being validated in the market

Startups
Search for innovative solutions with startups from different segments

Technological Partnerships
Partnerships with universities, companies and science and technological institutions from Brazil and abroad

Open Lab
Software development in open source

Residents
To attract professionals and accelerate the learning curve

Technological Orders
Joint development with supply already pre-established

Technological Transfers
Licensing of technologies to use third parties in our business