

PETROBRAS - PETROLEO BRASILEIRO SA

Form 20-F

April 18, 2018

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**UNITED STATES SECURITIES AND EXCHANGE COMMISSION**

**WASHINGTON, D.C. 20549**

**FORM 20-F**

**ANNUAL REPORT**

**PURSUANT TO SECTION 13 OR 15(D)**

**OF THE SECURITIES EXCHANGE ACT OF 1934**

**for the fiscal year ended December 31, 2017**

**Commission File Number 001-15106**

**Petróleo Brasileiro S.A. Petrobras**

**(Exact name of registrant as specified in its charter)**

**Brazilian Petroleum Corporation Petrobras**

**(Translation of registrant's name into English)**

**The Federative Republic of Brazil**

**(Jurisdiction of incorporation or organization)**

**Avenida República do Chile, 65**

**20031-912 Rio de Janeiro RJ Brazil**

**(Address of principal executive offices)**

**Ivan de Souza Monteiro**

**Chief Financial Officer and Chief Investor Relations Officer**

**(55 21) 3224-4477 ivanmonteiro@petrobras.com.br Avenida República do Chile, 65 23 Floor 20031-912 Rio de Janeiro RJ Brazil**

**(Name, telephone, e-mail and/or facsimile number and address of company contact person)**

**Securities registered or to be registered pursuant to Section 12(b) of the Act:**

<b>Title of each class:</b>	<b>Name of each exchange on which registered:</b>
Petrobras Common Shares, without par value* Petrobras American Depositary Shares, or ADSs  (evidenced by American Depositary Receipts, or ADRs), each representing two Common Shares	New York Stock Exchange*
Petrobras Preferred Shares, without par value* Petrobras American Depositary Shares  (as evidenced by American Depositary Receipts), each representing two Preferred Shares	New York Stock Exchange New York Stock Exchange*
5.750% Global Notes due 2020, issued by PGF (successor to PifCo)	New York Stock Exchange
5.375% Global Notes due 2021, issued by PGF (successor to PifCo)	New York Stock Exchange
6.875% Global Notes due 2040, issued by PGF (successor to PifCo)	New York Stock Exchange
6.750% Global Notes due 2041, issued by PGF (successor to PifCo)	New York Stock Exchange
4.375% Global Notes due 2023, issued by PGF	New York Stock Exchange
5.625% Global Notes due 2043, issued by PGF	New York Stock Exchange
Floating Rate Global Notes due 2019, issued by PGF	New York Stock Exchange
4.875% Global Notes due 2020, issued by PGF	New York Stock Exchange
6.250% Global Notes due 2024, issued by PGF	New York Stock Exchange
7.250% Global Notes due 2044, issued by PGF	New York Stock Exchange
Floating Rate Global Notes due 2020, issued by PGF	New York Stock Exchange
6.850% Global Notes due 2115, issued by PGF	New York Stock Exchange
8.375% Global Notes due 2021, issued by PGF	New York Stock Exchange
8.750% Global Notes due 2026, issued by PGF	New York Stock Exchange
6.125% Global Notes due 2022, issued by PGF	New York Stock Exchange

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7.375% Global Notes due 2027, issued by PGF

New York Stock Exchange

5.750% Global Notes due 2029, issued by PGF

New York Stock Exchange

\* Not for trading, but only in connection with the registration of American Depositary Shares pursuant to the requirements of the New York Stock Exchange.

**Securities registered or to be registered pursuant to Section 12(g) of the Act: None**

**Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: None**

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The number of outstanding shares of each class of stock as of December 31, 2017 was:

7,442,454,142 Petrobras Common Shares, without par value

5,602,042,788 Petrobras Preferred Shares, without par value

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined by Rule 405 of the Securities Act.

Yes No

If this report is an annual or transitional report, indicate by check mark if the registrant is not required to file reports pursuant to section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See the definitions of large accelerated filer, accelerated filer, and emerging growth company in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer Accelerated filer Non-accelerated filer Emerging growth company

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP International Financial Reporting Standards as issued by the International Accounting Standards Board Other

If Other has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.

**Item 17      Item 18**

**If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).**

**Yes      No**

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**FORWARD-LOOKING STATEMENTS**

This annual report includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or Exchange Act, that are not based on historical facts and are not assurances of future results. The forward-looking statements contained in this annual report, which address our expected business and financial performance, among other matters, contain words such as believe, expect, estimate, anticipate, intend, plan, aim, will, would, likely, potential and similar expressions.

**Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date on which they are made. There is no assurance that the expected events, trends or results will actually occur.**

We have made forward-looking statements that address, among other things:

our marketing and expansion strategy;

our exploration and production activities, including drilling;

our activities related to refining, import, export, transportation of oil, natural gas and oil products, petrochemicals, power generation, biofuels and other sources of renewable energy;

our projected and targeted Capital Expenditures According to Our Plan Cost Assumptions, commitments and revenues;

our liquidity and sources of funding;

our pricing strategy and development of additional revenue sources; and

the impact, including cost, of acquisitions and divestments.

Our forward-looking statements are not guarantees of future performance and are subject to assumptions that may prove incorrect and to risks and uncertainties that are difficult to predict. Our actual results could differ materially from those expressed or forecast in any forward-looking statements as a result of a variety of assumptions and factors. These factors include, but are not limited to, the following:

our ability to obtain financing;

general economic and business conditions, including crude oil and other commodity prices, refining margins and prevailing exchange rates;

global economic conditions;

our ability to find, acquire or gain access to additional reserves and to develop our current reserves successfully;

uncertainties inherent in making estimates of our oil and gas reserves, including recently discovered oil and gas reserves;

competition;

technical difficulties in the operation of our equipment and the provision of our services;

changes in, or failure to comply with, laws or regulations, including with respect to fraudulent activity, corruption and bribery;

receipt of governmental approvals and licenses;

international and Brazilian political, economic and social developments;

natural disasters, accidents, military operations, acts of sabotage, wars or embargoes;

the cost and availability of adequate insurance coverage;

our ability to successfully implement assets sales under our divestment program;

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the outcome of ongoing corruption investigations and any new facts or information that may arise in relation to the Lava Jato investigation;

the effectiveness of our risk management policies and procedures, including operational risk; and

litigation, such as class actions or enforcement or other proceedings brought by governmental and regulatory agencies.

For additional information on factors that could cause our actual results to differ from expectations reflected in forward-looking statements, see **Risk Factors** in this annual report.

All forward-looking statements attributed to us or a person acting on our behalf are qualified in their entirety by this cautionary statement. We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information or future events or for any other reason.

The crude oil and natural gas reserve data presented or described in this annual report are only estimates, and our actual production, revenues and expenditures with respect to our reserves may materially differ from these estimates.

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Unless the context indicates otherwise, the following terms have the meanings shown below:

ADR	American Depositary Receipt.
ADS	American Depositary Share.
AMS	Our health care plan ( <i>Assistência Multidisciplinar de Saúde</i> ).
ANP	The <i>Agência Nacional de Petróleo, Gás Natural e Biocombustíveis</i> (National Petroleum, Natural Gas and Biofuels Agency), or ANP, is the federal agency that regulates the oil, natural gas and renewable fuels industry in Brazil.
API	Standard measure of oil density developed by the American Petroleum Institute.
Assignment Agreement	An agreement under which the Brazilian federal government assigned to us the right to explore and produce oil, natural gas and other fluid hydrocarbons in specified pre-salt areas in Brazil. See Item 10. Additional Information Material Contracts Assignment Agreement.
B3	The São Paulo Stock Exchange.
Bahiagás	Companhia de Gás da Bahia, the natural gas distribution company for the State of Bahia.
Banco do Brasil	Banco do Brasil S.A.
Bank of New York Mellon	The Bank of New York Mellon, which serves as depositary for both our common and preferred ADSs.
Barrels	Standard measure of crude oil volume.
Braskem	Braskem S.A.
Brent Crude Oil	A major trading classification of light crude oil that serves as a major benchmark price for commercialization of crude oil worldwide.
BNDES	The <i>Banco Nacional de Desenvolvimento Econômico e Social</i> (the Brazilian Development Bank).
<i>Câmara de Arbitragem do Mercado</i>	An arbitration chamber governed and maintained by B3.
Capital Expenditures According to Our Plan Cost Assumptions	Capital expenditures based on the cost assumptions and financial methodology adopted in our 2018-2022 Plan, which include items that do not necessarily qualify as cash flows used in investing activities, primarily geological and geophysical expenses, research and development expenses, pre-operating charges, purchase of property, plant and equipment on credit, borrowing costs directly attributable to works in progress and investments in investees.
CCEE	The <i>Câmara de Comercialização de Energia Elétrica</i> (Electric Energy Trading Chamber).
CDB	China Development Bank.
CEG Rio	<i>Gas Natural Fenosa</i> , the natural gas distribution company for the State of Rio de Janeiro.
<i>Central Depositária</i>	The <i>Central Depositária de Ativos e de Registro de Operações do Mercado</i> , which serves as the custodian of our common and preferred shares (including those represented by ADSs) on behalf of our shareholders.

CMN	The <i>Conselho Monetário Nacional</i> (National Monetary Council), or CMN, is the highest authority of the Brazilian financial system, responsible for the formulation of the Brazilian currency, exchange and credit policy, and for the supervision of financial institutions.
CNODC	CNODC Brasil Petróleo e Gás Ltda.
CNOOC	CNOOC Petroleum Brasil Ltda.

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Condensate	Hydrocarbons that are in the gaseous phase at reservoir conditions but condense into liquid as they travel up the wellbore and reach separator conditions.
COMPERJ	The <i>Complexo Petroquímico do Rio de Janeiro</i> (Petrochemical Complex of Rio de Janeiro).
CONAMA	The <i>Conselho Nacional do Meio Ambiente</i> (National Council for the Environment in Brazil).
COSO	Committee of Sponsoring Organizations of the Treadway Commission.
COSO-ERM	Committee of Sponsoring Organizations of the Treadway Commission Enterprise Risk Management Integrated Framework.
CNPE	The <i>Conselho Nacional de Política Energética</i> (National Energy Policy Council), or CNPE, is an advisory body of the President of the Republic assisting in the formulation of energy policies and guidelines.
CVM	The <i>Comissão de Valores Mobiliários</i> (Brazilian Securities and Exchange Commission), or CVM.
D&M	DeGolyer and MacNaughton.
Deepwater	Between 300 and 1,500 meters (984 and 4,921 feet) deep.
Distillation	A process by which liquids are separated or refined by vaporization followed by condensation.
DoJ	The U.S. Department of Justice.
Eletrobras	Centrais Elétricas Brasileiras S.A. Eletrobras.
ERP	Enterprise Resource Planning.
EWT	Extended well test.
Exploration area	A region under a regulatory contract without a known hydrocarbon accumulation or with a hydrocarbon accumulation that has not yet been declared commercial.
Fitch	Fitch Ratings Inc., a credit rating agency.
FPSO	Floating production, storage and offloading unit.
Gaspetro	Petrobras Gás S.A.
GSA	Long-term Gas Supply Agreement entered into with the Bolivian state-owned company Yacimientos Petrolíferos Fiscales Bolivianos.
GTB	Gas Transboliviano S.A.
HSE	Health, Safety and Environmental.
IASB	International Accounting Standards Board.
IBAMA	The <i>Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis</i> (Brazilian Institute of the Environment and Renewable Natural Resources).
IBGC	The <i>Instituto Brasileiro de Governança Corporativa</i> (Brazilian Institute of Corporate Governance).
IBGE	The <i>Instituto Brasileiro de Geografia e Estatística</i> (Brazilian Institute of Geography and Statistics).
IOF	<i>Imposto sobre Operações Financeiras</i> (Brazilian taxes over financial transactions).
IPCA	The <i>Índice Nacional de Preços ao Consumidor Amplo</i> (National Consumer Price Index).
ISO	The International Organization for Standardization.

Lava Jato investigation	See Item 3. Key Information Risk Factors Compliance, Legal and Regulatory Risks and Item 8. Financial Information Legal Proceedings Lava Jato Investigation.
LFTs	<i>Letras Financeiras do Tesouro</i> (Brazilian federal government bonds).
LNG	Liquefied natural gas.

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LPG	Liquefied petroleum gas, which is a mixture of saturated and unsaturated hydrocarbons, with up to five carbon atoms, used as domestic fuel.
Mitsui	Mitsui Gás e Energia do Brasil Ltda.
MME	The <i>Ministério de Minas e Energia</i> (Ministry of Mines and Energy) of Brazil.
Moody's	Moody's Investors Service, Inc., a credit rating agency.
MPDM	<i>The Ministério do Planejamento, Desenvolvimento e Gestão</i> (Ministry of Planning, Development and Management) of Brazil.
MT-CGU	The <i>Ministério da Transparência e Controladoria Geral da União</i> (General Federal Inspector's Office), or MT-CGU, is an advisory body of the Brazilian Presidency, responsible for assisting in matters related to the protection of federal public property ( <i>patrimônio público</i> ) and the improvement of transparency in the Brazilian executive branch, through internal control activities, public audits, and the prevention and combat of corruption, among others.
NGLs	The liquid resulting from the processing of natural gas and containing the heavier gaseous hydrocarbons.
NYSE	The New York Stock Exchange.
NTS	Nova Transportadora do Sudeste S.A.
OHSAS	Occupational Health and Safety Management Systems.
Oil	Crude oil, including NGLs and condensates.
ONS	The <i>Operador Nacional do Sistema Elétrico</i> (National Electric System Operator) of Brazil.
OPEC	Organization of the Petroleum Exporting Countries.
OSRL	The Oil Spill Response Limited.
PESA	Petrobras Argentina S.A.
Petros	Petrobras employee pension fund.
Petros 2	Petrobras sponsored pension plan.
PFC Energy	A global energy research and consultancy group.
PGF	Petrobras Global Finance B.V.
PifCo	Petrobras International Finance Company S.A.
PLSV	Pipe laying support vessel.
PO&G	Petrobras Oil & Gas.
Post-salt reservoir	A geological formation containing oil or natural gas deposits located above a salt layer.
PPSA	Pré-Sal Petróleo S.A.
Pre-salt reservoir	A geological formation containing oil or natural gas deposits located beneath a salt layer.



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Proved reserves	<p>Consistent with the definitions in Rule 4-10(a) of Regulation S-X, proved oil and gas reserves are those quantities of oil and gas, which, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be economically producible from a given date forward, from known reservoirs, and under existing economic conditions, operating methods, and government regulations. Existing economic conditions include prices and costs at which economic producibility from a reservoir is to be determined. The price is the average price during the 12-month period prior to December 31, unless prices are defined by contractual arrangements, excluding escalations based upon future conditions. The project to extract the hydrocarbons must have commenced or we must be reasonably certain that we will commence the project within a reasonable time.</p> <p>Reserves which can be produced economically through application of improved recovery techniques (such as fluid injection) are included in the proved classification when successful testing by a pilot project, or the operation of an installed program in the reservoir, provides support for the engineering analysis on which the project or program was based.</p>
Proved developed reserves	<p>Reserves that can be expected to be recovered: (i) through existing wells with existing equipment and operating methods or for which the cost of the required equipment is relatively minor compared to the cost of a new well; and (ii) through installed extraction equipment and infrastructure operational at the time of the reserve estimate if the extraction is by means not involving a well.</p>
Proved undeveloped reserves	<p>Reserves that are expected to be recovered from new wells on undrilled acreage, or from existing wells where a relatively major expenditure is required. Reserves on undrilled acreage are limited to those directly offsetting development spacing areas that are reasonably certain of production when drilled, unless evidence using reliable technology exists that establishes reasonable certainty of economic producibility at greater distances.</p> <p>Undrilled locations are classified as having undeveloped reserves only if a development plan has been adopted indicating that they are scheduled to be drilled within five years, unless the specific circumstances justify a longer time. Proved undeveloped reserves do not include reserves attributable to any acreage for which an application of fluid injection or other improved recovery technique is contemplated, unless such techniques have been proved effective by actual projects in the same reservoir or an analogous reservoir or by other evidence using reliable technology establishing reasonable certainty.</p>

PTAX	The reference exchange rate for the purchase and sale of U.S. dollars in Brazil, as published by the Brazilian Central Bank.
PwC	PricewaterhouseCoopers Auditores Independentes.
RNEST	The <i>Refinaria Abreu e Lima</i> (Abreu e Lima Refinery).
S&P	Standard & Poor's Financial Services LLC, a credit rating agency.
SDNY	The United States District Court for the Southern District of New York.
SEC	The United States Securities and Exchange Commission.
SELIC	The Brazilian Central Bank base interest rate.
Sete Brasil	Sete Brasil Participações, S.A.
Suape Petrochemical Complex	The <i>Complexo Industrial Petroquímica Suape</i> , an industrial complex with facilities owned by Companhia Petroquímica de Pernambuco PetroquímicaSuape and Companhia Integrada Têxtil de Pernambuco Citepe.

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Shell	Shell Brasil Petróleo Ltda.
SPE	The Society of Petroleum Engineers.
SS	Semi-submersible unit.
Synthetic oil and synthetic gas	A mixture of hydrocarbons derived by upgrading (i.e., chemically altering) natural bitumen from oil sands, kerogen from oil shales, or processing of other substances such as natural gas or coal. Synthetic oil may contain sulfur or other non-hydrocarbon compounds and has many similarities to crude oil.
TAG	Transportadora Associada de Gás S.A.
TCU	The <i>Tribunal de Contas da União</i> (Federal Auditor's Office), or TCU, is an advisory body of the Brazilian Congress, responsible for assisting it in matters related to the supervision of the Brazilian executive branch with respect to accounting, finance, budget, operational and public property ( <i>patrimônio público</i> ) matters.
TBG	Transportadora Brasileira Gasoduto Bolívia-Brasil S.A. (TBG).
TLWP	Tension Leg Wellhead Platform.
Total	Total E&P do Brasil Ltda.
Total depth	Total depth of a well, including vertical distance through water and below the mudline.
Transfer of Rights Agreement	An agreement under which a concessionaire sells, assigns or transfers by any means, in whole or in part, indivisible rights and obligations provided for in the concession agreement to a new third-party concessionaire, provided that the new concessionaire meets technical, economic and legal requirements established by the ANP.
Transpetro	Petrobras Transporte S.A.
Ultra-deepwater	Over 1,500 meters (4,921 feet) deep.
YPFB	Yacimientos Petroliferos Fiscales Bolivianos.

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1 acre	=	43,560 square feet	=	0.004047 km <sup>2</sup>
1 barrel	=	42 U.S. gallons	=	Approximately 0.13 t of oil
1 boe	=	1 barrel of crude oil equivalent	=	6,000 cf of natural gas
1 m <sup>3</sup> of natural gas	=	35.315 cf	=	0.0059 boe
1 km	=	0.6214 miles		
1 meter	=	3.2808 feet		
1 t of crude oil	=	1,000 kilograms of crude oil	=	Approximately 7.5 barrels of crude oil (assuming an atmospheric pressure index gravity of 37° API)

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bbbl	Barrels
bcf	Billion cubic feet
bn	Billion (thousand million)
bnbbbl	Billion barrels
bncf	Billion cubic feet
bnm3	Billion cubic meters
boe	Barrels of oil equivalent
bnboe	Billion barrels of oil equivalent
bbbl/d	Barrels per day
cf	Cubic feet
GWh	One gigawatt of power supplied or demanded for one hour
km	Kilometer
km2	Square kilometers
m3	Cubic meter
mbbl	Thousand barrels
mbbl/d	Thousand barrels per day
mboe	Thousand barrels of oil equivalent
mboe/d	Thousand barrels of oil equivalent per day
mcf	Thousand cubic feet
mcf/d	Thousand cubic feet per day
mm3	Thousand cubic meters
mm3/d	Thousand cubic meters per day
mm3/y	Thousand cubic meter per year
mmbbl	Million barrels
mmbbl/d	Million barrels per day
mmboe	Million barrels of oil equivalent
mmboe/d	Million barrels of oil equivalent per day
mmcf	Million cubic feet
mmcf/d	Million cubic feet per day
mmm3	Million cubic meters
mmm3/d	Million cubic meters per day
mmt	Million metric tons
mmt/y	Million metric tons per year
MW	Megawatts
MWavg	Amount of energy (in MWh) divided by the time (in hours) in which such energy is produced or consumed
MWh	One megawatt of power supplied or demanded for one hour
ppm	Parts per million
R\$	Brazilian <i>reais</i>
t	Metric ton
Tcf	Trillion cubic feet
US\$	United States dollars
/d	Per day

/y

Per year

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**PRESENTATION OF FINANCIAL AND OTHER INFORMATION**

This is the annual report of Petróleo Brasileiro S.A. Petrobras, or Petrobras. Unless the context otherwise requires, the terms Petrobras, we, us, and our refer to Petróleo Brasileiro S.A. Petrobras and its consolidated subsidiaries, operations and structured entities.

We currently issue notes in the international capital markets through our wholly-owned finance subsidiary Petrobras Global Finance B.V., or PGF, a private company with limited liability incorporated under the law of The Netherlands. We fully and unconditionally guarantee the notes issued by PGF. In the past, we used our former wholly-owned subsidiary, Petrobras International Finance Company S.A., or PifCo, as a vehicle to issue notes that we fully and unconditionally guaranteed. On December 29, 2014, PifCo merged into PGF, and PGF assumed PifCo's obligations under all outstanding notes originally issued by PifCo (together with the notes issued by PGF, the PGF notes), which continue to benefit from our full and unconditional guarantee. PGF is not required to file periodic reports with the U.S. Securities and Exchange Commission, or SEC. See Note 36 to our audited consolidated financial statements.

In this annual report, references to *real*, *reais* or R\$ are to Brazilian *reais* and references to U.S. dollars or US\$ are to United States dollars. Certain figures included in this annual report have been subject to rounding adjustments; accordingly, figures shown as totals in certain tables may not be an exact arithmetic aggregation of the figures that precede them.

Our audited consolidated financial statements as of and for each of the three years ended December 31, 2017, 2016 and 2015 and the accompanying notes contained in this annual report have been presented in U.S. dollars and prepared in accordance with International Financial Reporting Standards, or IFRS, issued by the International Accounting Standards Board, or IASB. See Item 5. Operating and Financial Review and Prospects and Note 2 to our audited consolidated financial statements. We apply IFRS in our statutory financial statements prepared in accordance with Brazilian Corporate Law and regulations promulgated by the CVM.

Our IFRS financial statements filed with the CVM are presented in *reais*, while the presentation currency of the audited consolidated financial statements included herein is the U.S. dollar. Our functional currency and that of all our Brazilian subsidiaries is the *real*. The functional currency of most of our other entities that operate internationally, such as PGF, is the U.S. dollar. As described more fully in Note 2.2 to our audited consolidated financial statements, the U.S. dollar amounts for the periods presented have been translated from the *real* amounts in accordance with the criteria set forth in IAS 21 The effects of changes in foreign exchange rates. Based on IAS 21, we have translated all assets and liabilities into U.S. dollars at the exchange rate as of the date of the balance sheet, all accounts in the statement of income, other comprehensive income and statement of cash flows at the average rates prevailing during the corresponding year. Equity items are translated at the exchange rates prevailing at the dates of the transactions. All exchange differences arising from the translation are recognized as cumulative translation adjustments (CTA) within consolidated shareholders' equity.

Unless the context otherwise indicates:

data contained in this annual report regarding capital expenditures, investments and other expenditures during the corresponding year that were not derived from the audited consolidated financial statements have been translated from *reais* at the average rates prevailing during such corresponding year;

historical data contained in this annual report regarding balances of investments, commitments or other related expenditures that were not derived from the audited consolidated financial statements have been translated from *reais* at the period-end exchange rate;

forward-looking amounts, including estimated future capital expenditures and investments, have all been based on our 2018-2022 Business and Management Plan, as approved in December 2017 ( 2018-2022 Plan ), and have been projected on a constant basis. Future calculations involving an assumed price of crude oil have been calculated using an average Brent crude oil price of US\$53 per barrel for 2018, US\$58 per barrel for 2019, US\$66 per barrel for 2020, US\$70 per barrel for 2021 and US\$73 per barrel for 2022. In addition, in accordance with our 2018-2022 Plan, we have used an estimated average nominal exchange rate of R\$3.44 to US\$1.00 for 2018, R\$3.55 to US\$1.00 for 2019, R\$3.62 for US\$1.00 for 2020, R\$3.69 to US\$1.00 for 2021 and R\$3.80 to US\$1.00 for 2022. For further information on our 2018-2022 Plan, see Item 4. Information on the Company 2018-2022 Plan and Strategic Monitoring Process. ; and

information related to oil and gas reserves and production includes our participation in consortia and joint operations agreements in which we don t own 100% working interest. For refining activities, the information presented in this document refers to total production, as we currently hold 100% of refining capacity.



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**PRESENTATION OF INFORMATION CONCERNING RESERVES**

We apply the SEC rules for estimating and disclosing oil and natural gas reserve quantities included in this annual report. In accordance with those rules, we estimate reserve volumes considering for the economics the average prices calculated as the unweighted arithmetic average of the first-day-of-the-month price for each month within the 12-month period prior to the end of the reporting period, except for reserves in certain fields for which volumes have been estimated using gas prices as set forth in our contractual arrangements for the sale of gas. Reserve volumes of non-traditional reserves, such as synthetic oil and gas, are also included in this annual report in accordance with SEC rules.

DeGolyer and MacNaughton (D&M) used our reserve estimates to conduct a reserves audit of 95% of our net proved crude oil, condensate and natural gas reserves as of December 31, 2017 in Brazil. In addition, D&M used our reserve estimates to conduct a reserves audit of 100% of the net proved crude oil, condensate and natural gas reserves as of December 31, 2017 in properties we operate in the United States. D&M also used our reserve estimates to conduct a reserves audit of 93% of the net proved crude oil, condensate and natural gas reserves as of December 31, 2017 in our total proved reserves. See Item 4. Information on the Company Additional Reserves and Production Information. The reserve estimates were prepared in accordance with the reserves definitions in Rule 4-10(a) of Regulation S-X. All reserve estimates involve some degree of uncertainty. See Item 3. Key Information Risk Factors Risks Relating to Our Operations for a description of the risks relating to our reserves and our reserve estimates.

On January 31, 2018, we filed proved reserve estimates for Brazil with the ANP, in accordance with Brazilian rules and regulations, totaling net volumes of 10.4 bnbbbl of crude oil, condensate and synthetic oil and 11.1 tcf of natural gas and synthetic gas. The reserve estimates filed with the ANP were approximately 28% higher than those provided herein in terms of oil equivalent. This difference is due to: (i) the fact that the ANP permits the estimation of proved reserves through the technical-economical abandonment of production wells, as opposed to limiting reserve estimates to the life of the concession contracts as required by Rule 4-10 of Regulation S-X; and (ii) different technical criteria for booking proved reserves, including the use of our projected future oil prices as opposed to the SEC requirement that the 12-month average price be used to determine the economic producibility of the reserves.

We also file reserve estimates from our international operations with various governmental agencies under the guidelines of the SPE. The aggregate reserve estimates from our international operations, under SPE guidelines, amounted to 0.2 bnbbbl of crude oil and condensate and 0.2 tcf of natural gas as of December 31, 2017, which is approximately 2% higher than the reserve estimates calculated under Regulation S-X, as provided herein. This difference is due to different technical criteria for booking proved reserves, including the use of our projected future oil prices as opposed to the SEC requirement that the 12-month average price be used to determine the economic producibility of the reserves.

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**PART I**

**Item 1. Identity of Directors, Senior Management and Advisers**

Not applicable.

**Item 2. Offer Statistics and Expected Timetable**

Not applicable.

**Item 3. Key Information**

**Selected Financial Data**

This section contains selected consolidated financial data presented in U.S. dollars and prepared in accordance with IFRS as of and for each of the five years ended December 31, 2017, 2016, 2015, 2014, and 2013, derived from our audited consolidated financial statements. The selected consolidated financial data as of and for the year ended December 31, 2017 derive from our year-end financial statements audited by KPMG Auditores Independentes and the selected consolidated financial data as of and for the years ended December 31, 2016, 2015, 2014 and 2013 derive from the respective year-end financial statements audited by PricewaterhouseCoopers Auditores Independentes ( PwC ).

The information below should be read in conjunction with, and is qualified in its entirety by reference to, our audited consolidated financial statements and the accompanying notes and Item 5. Operating and Financial Review and Prospects.

**Table of Contents****STATEMENT OF FINANCIAL POSITION****IFRS Summary Financial Data**

	2017	As of December 31,			2013
		2016	2015	2014	
		(US\$ million)			
<b>Assets:</b>					
Cash and cash equivalents	22,519	21,205	25,058	16,655	15,868
Marketable securities	1,885	784	780	9,323	3,885
Trade and other receivables, net	4,972	4,769	5,554	7,969	9,670
Inventories	8,489	8,475	7,441	11,466	14,225
Assets classified as held for sale	5,318	5,728	152	5	2,407
Other current assets	3,948	3,808	4,194	5,414	6,600
Long-term receivables	21,450	20,420	19,426	18,863	18,782
Investments	3,795	3,052	3,527	5,753	6,666
Property, plant and equipment	176,650	175,470	161,297	218,730	227,901
Intangible assets	2,340	3,272	3,092	4,509	15,419
<b>Total assets</b>	<b>251,366</b>	<b>246,983</b>	<b>230,521</b>	<b>298,687</b>	<b>321,423</b>
<b>Liabilities and equity:</b>					
Total current liabilities	24,948	24,903	28,573	31,118	35,226
Non-current liabilities(1)	42,871	36,159	24,411	30,373	30,839
Non-current finance debt(2)	102,045	108,371	111,482	120,218	106,235
<b>Total liabilities</b>	<b>169,864</b>	<b>169,433</b>	<b>164,466</b>	<b>181,709</b>	<b>172,300</b>
<b>Equity</b>					
Share capital (net of share issuance costs)	107,101	107,101	107,101	107,101	107,092
Reserves and other comprehensive income (deficit)(3)	(27,299)	(30,322)	(41,865)	9,171	41,435
Shareholders' equity attributable to the shareholders of Petrobras	79,802	76,779	65,236	116,272	148,527
Non-controlling interests	1,700	771	819	706	596
<b>Total equity</b>	<b>81,502</b>	<b>77,550</b>	<b>66,055</b>	<b>116,978</b>	<b>149,123</b>
<b>Total liabilities and equity</b>	<b>251,366</b>	<b>246,983</b>	<b>230,521</b>	<b>298,687</b>	<b>321,423</b>

(1) Excludes non-current finance debt.

(2) Excludes current portion of long-term finance debt.

(3) Capital transactions, profit reserve and accumulated other comprehensive income (deficit).



**Table of Contents****STATEMENT OF INCOME DATA****IFRS Summary Financial Data**

	<b>For the Year Ended December 31,</b>				
	<b>2017(1)</b>	<b>2016(1)</b>	<b>2015 (1)</b>	<b>2014 (1)</b>	<b>2013</b>
	<b>(US\$ million, except for share and per share data)</b>				
Sales revenues	88,827	81,405	97,314	143,657	141,462
Net income (loss) before finance income (expense), results in equity-accounted investments and income taxes	11,219	4,308	(1,130)	(7,407)	16,214
Net income (loss) attributable to the shareholders of Petrobras	(91)	(4,838)	(8,450)	(7,367)	11,094
Weighted average number of shares outstanding:					
Common	7,442,454,142	7,442,454,142	7,442,454,142	7,442,454,142	7,442,454,142
Preferred	5,602,042,788	5,602,042,788	5,602,042,788	5,602,042,788	5,602,042,788
Net income (loss) before finance income (expense), results in equity-accounted investments and income taxes per:					
Common and Preferred shares	0.86	0.33	(0.09)	(0.57)	1.24
Common and Preferred ADS	1.72	0.66	(0.18)	(1.14)	2.48
Basic and diluted earnings (losses) per:					
Common and Preferred shares	(0.01)	(0.37)	(0.65)	(0.56)	0.85
Common and Preferred ADS	(0.02)	(0.74)	(1.30)	(1.12)	1.70
Cash dividends per(2):					
Common shares					0.22
Preferred shares					0.41
Common ADS					0.44
Preferred ADS					0.82

(1) In 2014, we wrote-off US\$2,527 million of incorrectly capitalized overpayments. In 2017, 2016, 2015 and 2014, we recognized impairment losses of US\$1,191 million, US\$6,193 million, US\$12,299 million and US\$16,823 million, respectively. See Notes 3 and 14 to our audited consolidated financial statements for further information. In 2017, we recognized US\$3,449 as other expenses, due to the provision for

legal proceedings relating to the agreement to settle the Consolidated Securities Class Action (as defined in Note 30.4.1 to our audited consolidated financial statements and in Item 8. Financial Information Legal Proceedings Class Action ) before the United States District Court for the Southern District of New York..

(2) Pre-tax interest on capital and/or dividends proposed for the year. Amounts were translated from the original amounts in *reais* considering the balance sheet date exchange rate.

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**RISK FACTORS**

**Risks Relating to Our Operations**

*We are exposed to risks of health, environment and safety in our operations, which may lead to accidents, significant losses, administrative proceedings and legal liabilities.*

Some of our main activities, operated by us or our partners, present risks capable of leading to accidents, such as oil spills, product leaks, fires and explosions. In particular, deepwater and ultra-deepwater activities present various risks, such as oil spills and explosions in drilling or production units. These events may occur due to technical failures, human errors or natural events, among other factors. The occurrence of one of these events, or other related incidents, may result in various damages such as death, serious environmental damage and related expenses (including, for example, cleaning and repairing expenses), may have an impact on the health of our workforce or on communities, and may cause environmental or property damage, loss of production, financial losses and, in certain circumstances, judicial liability in civil, labor, criminal and administrative lawsuits. As a consequence, we may incur expenses to repair or remediate damages caused. Further, we may face difficulties in obtaining or maintaining operating licenses and may suffer damages to our reputation.

Our insurance policies do not cover all types of risks and liabilities associated with our activities. There can be no guarantee that incidents will not occur in the future, that there will be insurance to cover the damages or that we will not be held responsible for these events, all of which may negatively impact our results. See Item 4. Information on the Company Health, Safety and Environmental Initiatives and Insurance, as well as Note 33.7 to our audited consolidated financial statements for further information.

*We rely on suppliers and service providers to operate and expand our business and, as a result, we are susceptible to performance risks, product quality deterioration and the financial condition of those suppliers and service providers.*

We rely upon various key third party suppliers, vendors and service providers to provide us with parts, components, services and critical resources, which we need to operate and expand our business. We are susceptible to the risks of performance, product quality and financial condition of our key suppliers, vendors and service providers. If these key suppliers, vendors and service providers critically fail to deliver, or are delayed in delivering, equipment, service or critical resources to our major projects, we may not meet our operating targets in the timeframe we expected. We may ultimately need to delay one or more of our major projects, which could have an adverse effect on our results of operations and financial condition.

In addition, we are subject to minimum local content requirements in some of our concession agreements, in the Assignment Agreement and in the Production Sharing Agreements. Although there has been occasional flexibility in certain large projects it is difficult to meet the full range of requirements in the domestic market in an economically feasible way, adding risk to contracting processes, which has the potential to impact our operating and financial results.

*We are not insured against business interruption for our Brazilian operations, and most of our assets are not insured against war or sabotage.*

We generally do not maintain insurance coverage for business interruptions of any nature for our Brazilian operations, including business interruptions caused by labor disputes. If, for instance, our workers or those of our key third-party suppliers, vendors and service providers were to strike, the resulting work stoppages could have an adverse effect on

us. In addition, we do not insure most of our assets against war or sabotage. See Risks Relating to Our Operations Strikes, work stoppages or labor unrest by our employees or by the employees of our suppliers or contractors could adversely affect our results of operations and our business , Item 4. Information of the Company Insurance and Note 33.7 to our audited consolidated financial statements. Therefore, an attack or an operational incident causing an interruption of our business could have a material adverse effect on our results of operations and financial condition.

***Strikes, work stoppages or labor unrest by our employees or by the employees of our suppliers or contractors, as well as potential shortages of skilled personnel, could adversely affect our results of operations and our business.***

Approximately 42% of our employees are represented by labor unions. Disagreements on issues involving divestments or changes in our business strategy, reductions in our personnel, as well as potential employee contributions to a Petros shortfall, could lead to labor unrest. Strikes, work stoppages or other forms of labor unrest at any of our major suppliers, contractors or their facilities could impair our ability to complete major projects and impact our ability to achieve our long-term objectives.



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In addition, we could experience potential shortages of skilled personnel. In the past, we announced a voluntary separation incentive program open to all of our employees. For further information on this program, see Item 6.

Directors, Senior Management and Employees Employees and Labor Relations Voluntary Separation Incentive Program PIDV. If the voluntary separation incentive program is successfully implemented, and we are unable to timely replace the key skilled personnel that decide to enroll in such program, there could be an adverse effect on our results of operations and our business. Our success also depends on our ability to continue to successfully train and qualify our personnel so they can assume qualified senior positions in the future. We cannot assure you that we will be able to properly train, qualify or retain senior management personnel, or do so without costs or delays, nor can we assure you that we will be able to find new qualified senior managers, should the need arise. Any such failure could adversely affect our results of operations and our business.

***The mobilization and demobilization of our employees as a result of our partnership and divestment program may adversely affect the results of our business and operations.***

Our 2018-2022 Plan includes, among other initiatives, a divestment program that contemplates partnerships and the sale of approximately US\$21 billion in assets during the period 2017-2018, with the goal of improving our short-term liquidity position and allowing us to deleverage. For further information on our divestments, see Item 4. Information on the Company Overview of the Group. Many of the assets that we have sold, or expect to sell, utilize our employees, that could be relocated to other areas and projects and we may have to train these employees to perform other tasks. Potential difficulties could arise from the need to relocate portions of our employees related to these assets and may generate additional costs, judicial inquiries related to labor lawsuits, strikes and may negatively impact our reputation.

***Failures in our information technology systems, information security (cybersecurity) systems and telecommunications systems and services can adversely impact our operations and reputation.***

Our operations are heavily dependent on information technology and telecommunication systems and services. Interruptions in these systems, caused by obsolescence, technical failures or intentional acts, can disrupt or even paralyze our business and adversely impact our operations and reputation. In addition, security failures related to sensitive information due to intentional or unintentional actions, such as cyberterrorism, or internal actions, including negligence or misconduct of our employees, may have a negative impact on our reputation, our relationship with external entities (government, regulators, partners and suppliers, among others), our strategic positioning with relation to our competitors, and our results, due to the leakage of information or unauthorized use of such information.

## **Financial Risks**

***We have substantial liabilities and may be exposed to significant liquidity constraints in the near and medium term, which could materially and adversely affect our financial condition and results of operations.***

We have incurred a substantial amount of debt in order to finance the capital expenditures needed to meet our long-term objectives, 48% of which (principal), or US\$53 billion, will mature in the next five years. For more information about our debt, see Item 5. Operating and Financial Review and Prospects Liquidity and Capital Resources. Since there may be liquidity restrictions on the debt market to finance our planned investments and the principal and interest obligations under the terms of our debt, any difficulty in raising significant amounts of debt capital in the future may impact our results of operations and the ability to fulfill our 2018-2022 Business Plan.

Between 2015 and mid-2016, we lost our investment grade ratings. Our Moody's, S&P and Fitch ratings have fluctuated substantially over the past three years. The loss of our investment grade credit rating and any further

lowering of our credit ratings has had, and may continue to have, adverse consequences on our ability to obtain financing in the market for our debt and equity securities, or may impact our cost of financing, also making it more difficult or costly to refinance maturing obligations. The impact on our ability to obtain financing and the cost of financing may adversely affect our results of operations and financial condition. For further information on our rating, see Item 5 Operating and Financial Review and Prospects Liquidity and Capital Resources Rating.

In addition, despite the fact that the Brazilian federal government (as our controlling shareholder) is not responsible or liable for any of our liabilities, any further lowering of the Brazilian federal government's credit ratings may have additional adverse consequences on our ability to obtain financing or the cost of our financing, and consequently, on our results of operations and financial condition.

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***We are vulnerable to increased debt service resulting from depreciation of the real in relation to the U.S. dollar and increases in prevailing market interest rates.***

As of December 31, 2017, 80% of our financial debt was denominated in currencies other than the *real* (73% was denominated in U.S. dollars). A substantial portion of our indebtedness is, and is expected to continue to be, denominated in or indexed to the U.S. dollar and other foreign currencies. A further depreciation of the *real* against these other currencies will increase our debt service in *reais*, as the amount of *reais* necessary to pay principal and interest on foreign currency debt will increase with this depreciation. See Item 5. Operating and Financial Review and Prospects Inflation and Exchange Rate Variation Exchange Rate Variation for further information.

Foreign exchange variations may have an immediate impact on our reported income, except for a portion of our obligations denominated in U.S. dollars that are designated as hedging instruments in cash flow hedging relationships. According to our cash flow hedge accounting policy, hedging relationships are designated for the existing natural hedge between our U.S. dollar denominated future exports that are considered to be highly probable (hedged item) and U.S. dollar denominated financial debt (hedging instruments). See Item 5. Operating and Financial Review and Prospects Critical Accounting Policies and Estimates for further information.

Following a devaluation of the *real*, some of our operating expenses, capital expenditures, investments and import costs will increase. As most of our revenues are denominated in *reais*, unless we increase the prices of our products to reflect the depreciation of the *real*, our cash generation relative to our capacity to service debt may decline.

Additionally, we have a substantial amount of debt maturing during the next five years, a portion of which may be refinanced by issuing new debt. To the extent we refinance our maturing obligations with newly contracted debt, we may incur additional interest expense.

As of December 31, 2017, 49% of our total indebtedness consisted of floating rate debt. We generally do not enter into derivative contracts or similar financial instruments or make other arrangements with third parties to hedge against the risk of an increase in interest rates. To the extent that such floating rates rise, we may incur additional expenses. Additionally, as we refinance our existing debt in the coming years, the mix of our indebtedness may change, specifically as it relates to the ratio of fixed to floating interest rates, the ratio of short-term to long-term debt, and the currencies in which our debt is denominated or to which it is indexed. Changes that affect the composition of our debt and cause rises in short- or long-term interest rates may increase our debt service payments, which could have an adverse effect on our results of operations and financial condition.

***Our commitment to meet the obligations of our pension plan ( Petros ) and health care benefits ( AMS ) may be higher than what is currently anticipated, and we may be required to make additional contributions of resources to Petros.***

The criteria used for determining commitments relating to pension and health care plan benefits are based on actuarial and financial estimates and assumptions with respect to (i) the calculation of projected short-term and long-term cash flows and (ii) the application of internal and external regulatory rules. Therefore, there are uncertainties inherent in the use of estimates that may result in differences between the predicted value and the actual realized value. For further information on Petros and AMS, see Item 6. Directors, Senior Management and Employees Employees and Labor Relations Pension and Health Care Plan and Item 5. Operating and Financial Review and Prospects Critical Accounting Policies and Estimates Pension and other post-retirement benefits.

In addition, the financial assets held by Fundação Petros to cover pension obligations are subject to risks inherent to investment management and such assets may not generate the necessary returns to cover the relevant liabilities, in

which case extraordinary contributions from us, as sponsor, and the participants, may be required.

These risks may result in an increase in our liabilities and adversely affect our results of operations and our business. See Note 22 to our audited consolidated financial statements for further information about our employee benefits, including pension and health care plans.

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***We are exposed to the credit risks of certain of our customers and associated risks of default. Any material nonpayment or nonperformance by some of our customers could adversely affect our cash flow, results of operations and financial condition.***

Some of our customers may experience financial constraints or liquidity issues that could have a significant negative effect on their creditworthiness. Severe financial issues encountered by our customers could limit our ability to collect amounts owed to us, or to enforce the performance of obligations owed to us under contractual arrangements.

For example, as of December 31, 2017, certain subsidiaries of Centrais Elétricas Brasileiras S.A. Eletrobras owed us US\$5,247 million under energy supply agreements. In 2017 and 2016, we recognized an allowance for impairment of trade receivables from the isolated electricity sector in the Northern region of Brazil amounting to US\$250 million and US\$307 million, respectively, mostly to cover certain trade receivables due by Eletrobras's subsidiaries. For further information on our trade receivable in the electricity sector, see Note 8.4 to our audited consolidated financial statements.

In addition, many of our customers finance their activities through their cash flows from operations, the incurrence of short- and long-term debt. Declining financial results and economic conditions in Brazil, and resulting decreased cash flows, combined with a lack of debt or equity financing for our customers may affect us, since many of our customers are Brazilian, and may have significantly reduced liquidity and limited ability to make payments or perform their obligations to us. This could result in a decrease in our cash flows from operations and may also reduce or curtail our customers' future demand for our products and services, which may have an adverse effect on our results of operations and financial condition.

## **Compliance, Legal and Regulatory Risks**

***We are exposed to behaviors incompatible with our ethics and compliance standards, and failure to timely detect or remedy any such behavior may have a material adverse effect on our results of operations and financial condition.***

In the past, some of our senior managers and contractors have engaged in fraudulent activities incompatible with our ethics and compliance standards. Although we have adopted measures to identify, monitor, mitigate and remediate such actions, we are subject to the risk that our management, employees, contractors or any person doing business with us may engage in fraudulent activity, corruption or bribery, circumvent or override our internal controls and procedures or misappropriate or manipulate our assets for their personal or business advantage to our detriment. This risk is heightened by the fact that we have a large number of complex, valuable contracts with local and foreign suppliers, as well as the geographic distribution of our operations and the wide variety of counterparties involved in our business.

Our business, including relationships with third parties, is guided by ethical principles. We have adopted a Code of Ethics, a Conduct Guide and a number of internal policies designed to guide our management, employees and contractors and reinforce our principles and rules for ethical behavior and professional conduct. For further information on our Code of Ethics, see Item 16B. Code of Ethics. We offer an external whistleblower channel overseen by our General Ombudsman Office for employees, contractors and other third parties. See Item 6. Directors, Senior Management and Employees Ombudsman.

It is difficult for us to ensure that all of our employees and contractors, around 185,000, will comply with our ethical principles. Any failure—real or perceived—to follow these principles or to comply with applicable governance or regulatory obligations could harm our reputation, limit our ability to obtain financing and otherwise have a material adverse effect on our results of operations and financial condition.



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***In the past, our management has identified material weaknesses in our internal control over financial reporting. Although our management has concluded that our internal control over financial reporting was effective as of December 31, 2017, we are subject to the risk that our controls may become inadequate in the future because of changes in conditions, or that our degree of compliance with our policies and procedures may deteriorate.***

Our management identified a number of material weaknesses in our internal control over financial reporting in prior years. As a result, due to the identified material weaknesses, our management concluded that our internal control over financial reporting was not effective as of December 31, 2015 and December 31, 2016. We have developed and implemented several measures to remedy these material weaknesses, and our management has concluded that our internal control over financial reporting was effective as of December 31, 2017. However, because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. It is also difficult to project the effectiveness of internal control over financial reporting for future periods, as our controls may become inadequate because of changes in conditions, or because our degree of compliance with our policies or procedures may deteriorate.

Any failure to maintain our internal control over financial reporting could adversely impact our ability to report our financial results in future periods accurately and in a timely manner, and to file required forms and documents with government authorities, including the SEC. We may also be unable to detect accounting errors in our financial reporting, and we cannot be certain that in the future additional material weaknesses will not exist or otherwise be discovered in a timely manner. Any of these occurrences may adversely affect our business and operation, and may generate negative market reactions, potentially leading to a decline in the price of our shares, ADSs and debt securities.

***Ongoing SEC and DoJ investigations regarding the possibility of non-compliance with the U.S. Foreign Corrupt Practices Act could adversely affect us. Violations of this or other laws may require us to pay fines and expose us and our employees to criminal sanctions and civil suits.***

In November 2014, we received a subpoena from the SEC requesting certain documents and information about us relating to, among other things, the Lava Jato investigation and any allegations regarding a violation of the U.S. Foreign Corrupt Practices Act. The DoJ is conducting a similar inquiry, and the internal investigation and related government inquiries concerning these matters remain ongoing. While we are cooperating fully with these investigations, there is a risk that the scope of the investigations could be expanded or that the authorities could decide to bring civil or criminal charges or that there could be other adverse developments in connection with these investigations. Such adverse developments could negatively impact us and could divert the efforts and attention of our management team from our ordinary business operations. In connection with the resolution of the SEC or DoJ investigations, or any other investigation carried out by any other authority, we may be required to pay fines or other financial relief, or consent to injunctions or orders on future conduct or suffer other penalties, any of which could have a material adverse effect on us. It is also possible that further information damaging to us and our interests will come to light in the course of the ongoing investigations of corruption by Brazilian authorities. See Item 8. Financial Information Legal Proceedings.

***Our methodology to estimate the overpayments incorrectly capitalized, uncovered in the context of the Lava Jato investigation, involves some degree of uncertainty. If substantive additional information comes to light in the future that would make our estimate for the overstatements of our assets appear, in retrospect, to have been materially underestimated or overestimated, this could require a restatement of our financial statements and may have a material adverse effect on our results of operations and financial condition and affect the market value of our securities.***

As a result of the findings of the Lava Jato investigation, in the third quarter of 2014, we wrote off US\$2,527 million of capitalized costs representing amounts that we overpaid for the acquisition of property, plant and equipment in prior years.

See Note 3 to our audited consolidated financial statements and Item 5. Operating and Financial Review and Prospects Critical Accounting Policies and Estimates Estimation Methodology for Determining Write-Off for Overpayments Incorrectly Capitalized for further information about the Lava Jato investigation, the overpayments charged by certain contractors and our suppliers and our methodology to estimate the overstatement of our assets.



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We concluded that a portion of our costs incurred to build property, plant and equipment that resulted from contractors and suppliers in the cartel overcharging us to make improper payments should not have been capitalized in our historical costs of property, plant and equipment. As it is impracticable to identify the specific periods and amounts for the overpayments made by us, we considered all the available information to determine the impact of the overpayments charged to us. As a result, to account for these overpayments, we developed a methodology to estimate the aggregate amount that we overpaid under the payment scheme, in order to determine the amount of the write-off representing the overstatement of our assets resulting from overpayments used to fund improper payments.

The Lava Jato investigation is still ongoing and it could be a significant amount of time before the Brazilian federal prosecutors conclude their investigation. As a result of this investigation, substantive additional information might come to light in the future that would make our estimate for overpayments appear, in retrospect, to have been materially low or high, which may require us to restate our financial statements to further adjust the write-offs representing the overstatement of our assets recognized in our interim consolidated financial statements for the nine-month period ended September 30, 2014.

We believe that we have used the most appropriate methodology and assumptions to determine the amounts of overpayments incorrectly capitalized based on the information available to us, but our estimation methodology involves some degree of uncertainty. There can be no assurance that the write-offs representing the overstatement of our assets, determined using our estimation methodology, and recognized in our interim consolidated financial statements for the nine-month period ended September 30, 2014, are not underestimated or overestimated. In the event that we are required to write-off additional historical costs from our property, plant and equipment or to reverse write-offs previously recognized in our financial statements, this might impact the total value of our assets and we may be subject to negative publicity, credit rating downgrades, or other negative material events, which may have a material adverse effect on our results of operations and financial condition and affect the market value of our securities. For more information, see Item 5. Operating and Financial Review and Prospects Critical Accounting Policies and Estimates *Write-off* for overpayments incorrectly capitalized and Note 3 to our audited consolidated financial statements.

### ***We may incur losses and spend time and financial resources defending pending litigations and arbitrations.***

We are currently party to numerous legal proceedings relating to civil, administrative, tax, labor, environmental and corporate claims filed against us. These claims involve substantial amounts of money and other remedies. Several individual disputes account for a significant part of the total amount of claims against us. See Item 8. Financial Information Legal Proceedings and Note 30 to our audited consolidated financial statements included in this annual report for a description of the legal proceedings to which we are subject.

In the event that claims involving a material amount and for which we have no provisions were to be decided against us, or in the event that the losses estimated turn out to be significantly higher than the provisions made, the aggregate cost of unfavorable decisions could have a material adverse effect on our results of operations and financial condition. We may also be subject to litigation and administrative proceedings in connection with our concessions and other government authorizations, which could result in the revocation of such concessions and government authorizations. In addition, our management may be required to direct its time and attention to defending these claims, which could prevent them from focusing on our core business. Depending on the outcome, litigation could result in restrictions on our operations and have a material adverse effect on some of our businesses.

In addition, employees and unions have filed actions against us to require a review of the method adopted for calculating the Minimum Remuneration by Level and Regime (RMNR) complement. The claims involve substantial amounts of money and the costs derived from unfavorable decisions may have an adverse effect on our results of



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***We may face additional civil proceedings related to the Lava Jato investigation.***

We are subject to a number of civil proceedings relating to the Lava Jato investigation, including the Consolidated Securities Class Action and 13 Pending Individual Actions (as defined in Note 30.4.1 to our audited consolidated financial statements and in Item 8. Financial Information Legal Proceedings Class Action ) before the United States District Court for the Southern District of New York ( SDNY ). See Item 8. Financial Information Legal Proceedings and Note 30.4 to our audited consolidated financial statements for a description of the U.S. securities class action litigation and other civil proceedings. As detailed in Item 8. Financial Information Legal Proceedings and Note 30.4 to our audited consolidated financial statements, our board of directors has approved agreements to settle the Consolidated Securities Class Action, which is still subject to the SDNY s approval, as well as agreements to settle several of the Individual Actions. In 2017, we provisioned US\$3,449 million to reflect the settlement reached in the Consolidated Securities Class Action (including expected withholding taxes). We also provisioned US\$448 million to reflect Settled Individual Actions and Pending Individual Actions in advanced stages of negotiations, of which US\$76 million was provisioned in 2017, and US\$372 million had been provisioned in 2016.

The Pending Individual Actions involve highly complex issues that are subject to substantial uncertainties and depend on a number of factors. Except as set forth above, the possible loss or range of losses, if any, arising from the Pending Individual Actions cannot be estimated and consequently we have made no provisions with respect to these litigations. In the event that these litigations are decided against us, or we enter into an agreement to settle such matters, we may be required to pay substantial amounts. Depending on the outcome, such litigations could also result in restrictions on our operations and have a material adverse effect on our business We will continue to defend ourselves vigorously in all Pending Individual Actions.

We are also currently a party to class actions commenced in Holland, and to arbitration and judicial proceedings commenced in Brazil, all of which are currently in their initial stages. In each case, the proceedings were brought by investors that purchased our shares traded in B3 or other securities issued by us outside of the United States, alleging damages caused by facts uncovered in the Lava Jato investigations. In addition, EIG Management Company filed a complaint against us on February 23, 2016 in connection with their investment in Sete Brasil Participações, S.A., or Sete Brasil, also arising out of the allegations related to the Lava Jato investigation.

It is possible that additional complaints or claims might be filed in the United States, Brazil or elsewhere against us relating to the Lava Jato investigation in the future. It is also possible that further information damaging to us and our interests will come to light in the course of the ongoing investigations of corruption by Brazilian authorities. Our management may be required to direct its time and attention to defending these claims, which could prevent them from focusing on our core business.

***Differing interpretations of tax regulations or changes in tax policies could have an adverse effect on our financial condition and results of operations.***

We are subject to tax rules and regulation that may be interpreted differently over time, or that may be interpreted differently by us and Brazilian tax authorities (including the federal, state and municipal authorities), both of which could have a financial impact on our business. For example, in 2017, we recognized material charges related to settlements of certain tax liabilities (see Notes 21.2 and 21.3 to our audited financial statement ended December 31, 2017). Although unanticipated, these charges relate to the settlement of disputes relating to tax regulations that allowed for certain tax contingencies to be settled at a reduced value. In some cases, when we have exhausted all administrative appeals relating to a tax contingency, further appeals must be made in the judicial courts, which may require that, in order to appeal, we provide collateral to judicial courts, such as the deposit of amounts equal to the potential tax liability in addition to accrued interest and penalties. In certain of these cases, settlement of the matter

may be a more favorable option for us.

In the future, we may face similar situations in which our interpretation of a tax regulation may differ from that of tax authorities, or tax authorities may dispute our interpretation and we may eventually take unanticipated provisions and charges. In addition, the eventual settlement of one tax dispute may have a broader impact on other tax disputes. Changes in interpretation or differing interpretations as to tax regulations, as well as our decision to settle any claims relating to such regulations, could have a material adverse effect on our financial condition and results of operations.

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***Differences in interpretations and new regulatory requirements by the agencies in our industry may result in our need for increased investments, expenses and operating costs, or may cause delays in production.***

Our activities are subject to regulation and supervision by regulatory agencies, including the ANP. Issues such as local content policies, procedures for the unitization of areas, definition of reference prices for the calculation of royalties and governmental participation, among others, are under the ANP's control.

Changes in the regulations applicable to us, as well as differences of interpretation between us and the agencies that regulate our industry, may have a material adverse effect on our financial condition and results of operations. For example, we filed four arbitrations with the ICC against the ANP's decision to unify unconnected oil fields belonging to us (Lula and Cernambi; Baúna and Piracaba; Tartaruga Verde and Tartaruga Mestiça; and Parque das Baleias). As a result, we have been granted a favorable precautionary decision in the arbitration proceedings established before the ANP in connection with Parque das Baleias, which addresses the possibility of unifying the fields. However, we will continue to discuss the legal merits of the unification of the Parque das Baleias fields before the arbitral tribunal, which corresponds to the difference in special participation between the second quarter of 2014 and the fourth quarter of 2017, in the amount of US\$2.4 billion. For more information, see Item 8. Financial Information Legal Proceedings Other Legal Proceedings.

Any future differences in interpretation between us and these regulatory agencies may materially impact our results of operations, since such interpretations directly affect the economic and technical premises that guide our investment decisions. In particular, there is no guarantee that we will not be subject to any assessment by the ANP related to the local content requirements or other decisions that impact our business.

***We are subject to the granting of new environmental licenses and permits that may result in delays to deliver some of our projects and difficulties to reach our crude oil and natural gas production objectives.***

Our activities are subject to and depend on the granting of new environmental licenses and permits by a wide variety of federal, state and local laws, relating to the protection of human health, safety and the environment, both in Brazil and in other jurisdictions in which we operate. As environmental, health and safety regulations become increasingly complex, it is possible that our efforts to comply with such laws and regulations will increase substantially in the future.

We cannot ensure that the planned schedules and budgets of our projects will not be affected by internal procedures of the regulatory body or that the relevant licenses and permits will be issued in a timely manner, and this could impact our crude oil and natural gas production objectives, negatively influencing our results of operations and financial condition. For example, in April 2017, although the production unit P-66 was ready to operate at the Lula Field, in the pre-salt Santos Basin, the implementation of that project was delayed until the applicable operating license from the environmental federal authority (IBAMA) was issued.

***The Assignment Agreement we entered into with the Brazilian federal government is a related party transaction subject to future price revision.***

We entered into an Assignment Agreement in 2010 with the Brazilian federal government, our controlling shareholder, to obtain oil and gas exploration and production rights for specific pre-salt areas, subject to a maximum production of five billion boe. At the time the Assignment Agreement was negotiated, the initial contract price paid by us was based on an assumed Brent oil crude price of approximately US\$80 per barrel. However, the Assignment Agreement includes provisions for a subsequent revision of certain of its terms, including the price we paid for the rights we acquired, maximum volume, maturity and local content percentages.

Negotiations with the Brazilian federal government to revise the Assignment Agreement began in December 2013, and are still ongoing. Once the revision process is concluded pursuant to the terms of the Assignment Agreement, if the revised contract price is higher than the initial contract price, we will either make an additional payment to the Brazilian federal government or reduce the amount of barrels of oil equivalent subject to the Assignment Agreement.

We do not know when this negotiation will be completed, nor can we assure that the terms of this new agreement would be favorable to us, which could negatively impact our operating and financial results. See Item 4. Information on the Company Exploration and Production-Santos Basin Assignment Agreement, Item 10. Material Contracts Assignment Agreement Additional Production in the Assignment Agreement Areas and Note 12.3 to our audited consolidated financial statements for further information.

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### ***Operations with related parties may not be properly identified and handled.***

Generally, transactions with related parties are part of the business of large companies. For further information on our related party transactions, see Item 7. Major Shareholders and Related Party Transactions Related Party Transactions. Such transactions must follow market standards and generate mutual benefit. Decision processes surrounding such transactions must be objective and documented. Further, we must comply with the rules of competition and adequate disclosure of information, in accordance with the applicable legislation and as determined by the CVM and the SEC. The possible failure of our process to identify and deal with these situations may adversely affect our economic and financial condition, as well as lead to regulatory assessments by agencies.

### ***Differing interpretations and numerous environmental, health and safety regulations and industry standards that are becoming more stringent may result in increased capital and operating expenditures and decreased production.***

Our activities are subject to evolving industry standards and best practices, and a wide variety of federal, state and local laws, regulations and permit requirements relating to the protection of human health, safety and the environment, both in Brazil and in other jurisdictions in which we operate. In addition, we are subject to environmental laws that require us to incur significant costs to cover any damages that a project may cause to the environment. These additional costs may have a negative impact on the profitability of the projects we intend to implement or may make such projects economically unfeasible. See Item 4. Information on the Company Regulation of the Oil and Gas Industry in Brazil Environmental Regulations.

As environmental, health and safety regulations become more stringent with evolving industry standards, and as new laws and regulations relating to climate change, including carbon controls, become applicable to us, it is possible that our capital expenditures and investments to comply with such laws and regulations and industry standards will increase substantially in the future. Any substantial increase in expenditures for compliance with environmental, health or safety regulations or reduction in strategic investments and significant decreases in our production from unplanned shutdowns may have a material adverse effect on our results of operations and financial condition.

### ***We may be required by law to guarantee the supply of products or services to defaulted counterparties.***

As a company controlled by the federal government and operating throughout Brazil, we may be required by the Brazilian courts to provide products and services to clients, and public and private institutions, with the purpose of guaranteeing supplies to the domestic oil market, even in situations where these clients and institutions are in default with contractual or legal obligations. Such supply in exceptional situations may adversely affect our financial position.

## **Risks Relating to our Strategy**

### ***Our divestment program depends on external factors that could impede its successful implementation.***

Our 2018-2022 Plan includes, among other initiatives, a divestment program that contemplates partnerships and the sale of US\$21 billion in assets for the 2017-2018 period, with the goal of improving our short-term liquidity position (by increasing our cash balance) and allowing us to deleverage. For further information on our cash flow, see Item 5.

Operating and Financial Review and Prospects Liquidity and Capital Resources Sources of Funds Our Cash Flow. However, external factors, such as the sustained decline in oil prices, exchange rate fluctuations, the deterioration of Brazilian and global economic conditions, the Brazilian political crisis and judicial decisions, among other factors, may reduce or hinder sale opportunities for our assets or affect the price at which we can sell our assets, and may force us to alter the terms of our divestment program.

For the period from 2015-2016, we were unable to successfully implement all of the goals of our divestment program, due to administrative and judicial decisions. If we are unable to successfully implement our divestment program, this may negatively impact our business, results of operations and financial condition, including by potentially exposing us to short and medium-term liquidity constraints. In addition, the sale of strategic assets under our divestment program will result in a decrease in our cash flows from operations, which could negatively impact our long-term operating growth prospects and consequently our results of operations in the medium and long-term. For further information, see Item 8. Financial Information Legal Proceedings Legal Proceedings and Preliminary Procedure on TCU Divestments and Note 10 to our audited consolidated financial statements.



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***Many of our projects and operations are conducted in joint arrangements which may not perform as expected, negatively impacting our results.***

In our 2018-2022 Plan, we plan to establish partnerships to reduce risks in exploration and production, refining, transportation, logistics, distribution and commercialization activities. In cases where we are not the operator, we have limited influence and control over the behavior, performance and costs of operation of such joint arrangements or associations. Despite not having control, we could still be exposed to the risks associated with these operations, including reputational, litigation (where joint and several liability could apply) and government sanction risks, which could have a material adverse effect on our operations, cash flow and financial condition.

For example, our partners or members of a joint arrangement may not be able to meet their financial or other obligations, threatening the viability of the relevant project. Where we are the operator of a joint arrangement, the other partner(s) could still veto or block certain decisions, which could be to our overall detriment.

***The selection and development of our investment projects involve risks that may affect our originally expected results of operation.***

We have numerous project opportunities in our portfolio of investments. Since most projects are characterized by a long development period, we may face changes in market conditions, such as changes in prices, consumer preferences and demand profile, exchange rates, and financing conditions of projects that may jeopardize our expected rate of return on these projects.

In addition, we face specific risks for oil and gas projects. Despite our experience in the exploration and production of oil in deepwater and ultra-deepwater and the continuous development of studies during the planning stages, the quantity and quality of oil produced in a certain field will only be fully known in the phases of deployment and operation, which may require adjustments throughout the project life cycle.

In addition, we are not immune to potential risks arising from problems in contracting goods and services and in relationships with suppliers, partners, governments and local representatives. All these factors can impact our business and results of operation.

***Our projects and operations may affect, and be affected by, the expectations and dynamics of the communities where we operate, impacting our business, reputation and image.***

As part of our policy, we respect human rights and we maintain responsible relationships with the local communities located where we operate. However, the various locations where we operate are exposed to a wide range of issues related to political, social and economic instability, as well as intentional acts, such as illegal diversion, crime, theft, sabotage, terrorism, roadblocks and protests. We cannot control the changes in local dynamics and the expectations of the communities where we operate and establish our businesses. Social impacts that result from our decisions and direct and indirect activities – especially those related to divestments – and disagreements with these communities and local governments may affect the schedule or budget of our projects, hinder our operations due to potential lawsuits, have a negative financial impact and harm our reputation and image.

***The performance of companies licensed to use our brand may negatively impact our image and reputation.***

In our 2018-2022 Plan, we plan to continue to carry out divestitures and partnerships. Some of these transactions may involve licensing our brand for future buyers and partners. Recently, in line with our 2018–2022 Plan, we sold our distribution businesses in Argentina and Chile and licensed our brand for a certain period after the transfer of control

of operations to the buyers. Once a licensee holds the right to display our brand in products, services and communications, it can be perceived by stakeholders as our legitimate representative or spokesperson. Licensees failures, accidents, errors in the performance of their businesses, environmental crises, corruption scandals and improper use of our brand, among other factors, may negatively impact our image and reputation.

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***We have assets and investments in other countries, where the political, economic and social situation may negatively impact our business.***

We operate and have businesses in several countries, particularly in the Gulf of Mexico, in the U.S., in South America, in Europe, in Asia and in Africa, in areas where there may be political, economic and social instabilities. For further information on our operations abroad, see Item 4. Information on the Company Exploration and Production. In such regions, external factors may adversely affect the operating results and the financial condition of our subsidiaries in these countries, including: (i) the imposition of price controls; (ii) the imposition of restrictions on hydrocarbon exports; (iii) the fluctuation of local currencies against the *real*; (iv) nationalization of our oil and gas reserves and our assets; (v) increases in export tax and income tax rates for oil and oil products; and (vi) unilateral (governmental) and contractual institutional changes, including controls on investments and limitations on new projects.

If one or more of the risks described above occurs, we may lose part or all of our reserves in the affected country and may also fail to achieve our strategic objectives in these countries, or in our international operations as a whole, which may negatively impact our operating results and financial resources.

***The ability to develop, adapt, access new technologies, and take advantage of opportunities related to innovations in digital technology, is fundamental to our competitiveness.***

The oil industry is characterized by a strong technological base. Development and accessibility of, and adaptability to, technological change is essential for our competitiveness. In the event some disruptive technology is introduced into the oil industry, changing performance standards, it would be important for us to have access to this technology, which may impact our competitiveness in relation to other companies. Digital technologies are already a relevant part of our processes and operations. Recent advances in data acquisition and analysis, connectivity, artificial intelligence, robotics and other technologies are changing the sources that create competitive advantage. Failure to capture these opportunities may have an impact on our competitiveness in the oil and gas market and our long term objectives.

In addition, the availability of technologies that ensure the maintenance of our reserve rates and the viability of production in an efficient manner, as well as the development of new products and processes that respond to environmental regulations and new market trends, play a key role in maintaining our long-term competitiveness. Our pre-salt operations require continuous technological development for exploration, production and continuous cost reduction, which impact our competitiveness in the market.

***Climate change could impact our operating results and strategy.***

Climate change poses new challenges and opportunities for our business. More stringent environmental regulations can result in the imposition of costs associated with greenhouse gas emissions, either through environmental agency requirements relating to mitigation initiatives or through other regulatory measures such as greenhouse gas emissions taxation and market creation of limitations on greenhouse gas emissions that have the potential to increase our operating costs.

The risks associated with climate change could also manifest in difficulties accessing capital due to public image issues with investors; changes in the consumer profile, with reduced consumption of fossil fuels; and energy transitions in the world economy, such as increasing electrification in urban mobility. These factors may have a negative impact on the demand for our products and services and may jeopardize or even impair the implementation and operation of our businesses, adversely impacting our operating and financial results and limiting some of our growth opportunities.

## Business Risks

*We are exposed to the effects of fluctuations in the prices of oil, gas and oil products.*

Most of our revenue in Brazil is from sales of crude oil products and, to a lesser extent, natural gas. International prices for oil and oil products are volatile and the prices of our products are strongly influenced by conditions and expectations of world supply and demand. Volatility and uncertainty in international prices for crude oil, oil products and natural gas will most likely continue. See Item 5. Operating and Financial Review and Prospects Sales Volumes and Prices for further information on the variation of oil, oil products and gas prices. Changes in oil prices usually result in changes in the prices of oil products and natural gas.

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In October 2016, our board of directors approved a new diesel and gasoline pricing policy. For further information on our current pricing policy, see Item 5. Operating and Financial Review and Prospects Sales Volumes and Prices. Since one of the goals of our new pricing policy is to maintain fuel prices in parity with international market trends, substantial or extended declines in international crude oil prices may have a material adverse effect on our business, results of operations and financial condition, and may also affect the value of our proved reserves and lead to a decision to cancel or extend our projects.

In the past, we did not always adjust our prices to reflect parity with the international market trends or reflect exchange rate volatility. Our pricing policy is adapted from time to time by our management; we cannot assure you that our pricing policy will not be changed in the future. In the event our pricing policy changes based on the decisions of the Brazilian federal government, as our controlling shareholder, we may have periods in the future during which our prices for diesel and gasoline will not be at parity with international product prices (See Risks Relating to Our Relationship with the Brazilian Federal Government The Brazilian federal government, as our controlling shareholder, may pursue certain macroeconomic and social objectives through us that may have a material adverse effect on us ). Such change in policy could have a material adverse effect on our businesses, results of operations and financial condition.

***Market fluctuations, related to political instability, acts of terrorism, armed conflict and war in various regions of the world, may have a material adverse effect on our business.***

Geopolitical risk factors have recently become more prominent in the world. Events such as the increasing tension between the U.S. and other countries, the escalation of the conflict in Syria, the terrorist attacks and political movements in Europe indicate the growing possibility that new events may occur that affect, directly or indirectly, markets related to the oil industry, which could negatively impact our business and result in substantial losses.

***Developments in the oil and gas industry and other factors have resulted, and may result, in substantial write-downs of the carrying amount of certain of our assets, which could adversely affect our results of operations and financial condition.***

We evaluate on an annual basis, or more frequently when the circumstances require, the carrying amount of our assets for possible impairment. Our impairment tests are performed by a comparison of the carrying amount of an individual asset or a cash-generating unit with its recoverable amount. Whenever the recoverable amount of an individual asset or cash-generating unit is less than its carrying amount, an impairment loss is recognized to reduce the carrying amount to the recoverable amount.

Changes in the economic, regulatory, business or political environment in Brazil or other markets where we operate, such as the recent significant decline in international crude oil and gas prices, the devaluation of the *real* and lower projected economic growth in Brazil, as well as changes in financing conditions, such as deterioration of risk perception and interest rates, for such projects, among other factors, may affect the original profitability estimates of our projects. For information about the impairment of certain of our assets, see Item 5. Operating and Financial Review and Prospects Results of Operations 2017 compared to 2016 and Item 5. Operating and Financial Review and Prospects Results of Operations 2016 compared to 2015 , Item 5. Operating and Financial Review and Prospects Critical Accounting Policies and Estimates and Notes 5.2 and 14 to our audited consolidated financial statements.

Future developments in the economic environment, in the oil and gas industry and other factors could result in further substantial impairment charges, adversely affecting our operating results and financial condition.

***Maintaining our long-term objectives for oil production depends on our ability to successfully obtain and develop oil reserves.***

Our ability to maintain our long-term objectives for oil production is highly dependent upon our ability to successfully develop our existing reserves, and to obtain additional reserves. The development of the sizable reservoirs in deepwater and ultra-deepwaters, including the pre-salt reservoirs that have been licensed and granted to us by the Brazilian federal government, has demanded and will continue to demand significant capital investments. See Item 4.

Information on the Company Exploration and Production and Information on the Company Additional Reserves and Production Information, for further information on the capital investments required for exploration and production. We cannot guarantee that we will have or will be able to obtain, in the time frame that we expect, sufficient resources and financing necessary to exploit the reservoirs in deepwater and ultra-deepwaters that have been licensed and granted to us, or that may be licensed and granted to us in the future.

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Our ability to obtain additional reserves depends upon exploration activities, which exposes us to the inherent risks of drilling, and may not lead to the discovery of commercially productive crude oil or natural gas reserves. Drilling wells often yields uncertain results, and numerous factors beyond our control (such as unexpected drilling conditions, equipment failures or incidents, and shortages or delays in the availability of drilling rigs and the delivery of equipment) may cause drilling operations to be curtailed, delayed or cancelled. In addition, increased competition in the oil and gas sector in Brazil and our own capital constraints may make it more difficult or costly to obtain additional acreage in bidding rounds for new concessions and to explore existing concessions.

Also, our ability to maintain our long-term objectives for oil production partially depends on conducting major projects and operations in joint arrangements or in partnership with other oil and gas companies. If we or our partners fail or are unable to meet with respective payment obligations under applicable contractual arrangements, this may threaten the viability of a given project, and may result either in a delay in, or cancellation of, such project, which could bring regulatory sanctions to the relevant joint arrangement or partnership, an increase or dilution of our interest in such project or our withdrawal from such project, any of which could have a material adverse effect on our results of operations and financial condition. These factors could impede us from participating in further bidding rounds in the future and limit future exploration. We may not be able to maintain our long-term objectives for oil production unless we conduct successful exploration and development activities of our large reservoirs in a timely manner.

***Our crude oil and natural gas reserve estimates involve some degree of uncertainty, which could adversely affect our ability to generate income.***

Our proved crude oil and natural gas reserves set forth in this annual report are the estimated quantities of crude oil and natural gas that geological and engineering data demonstrate with reasonable certainty to be recoverable from known reservoirs under existing economic and operating conditions (i.e. prices and costs as of the date the estimate is made) according to applicable regulations. Reserve estimates presented are based on assumptions and interpretations, which present uncertainties and contingencies that are beyond our control. If the geological and engineering data that we use to measure our reserves are not accurate, our reserves may be significantly lower than the ones currently indicated in the volume estimates of our portfolio and reported by the certification companies. Substantial downward revisions in our reserve estimates could lead to lower future production, which could have an adverse effect on our results of operations and financial condition. For further information relating to our crude oil and natural gas estimates, see Item 4. Information on the Company Additional Reserves and Production Information , Item 5. Operating and Financial Review and Prospects Critical Accounting Policies and Estimates , Note 5.1 and Supplementary information on Oil and Gas Exploration and Production to our audited consolidated financial statements.

***We do not own any of the subsoil accumulations of crude oil and natural gas in Brazil.***

Under Brazilian law, the Brazilian federal government owns all subsoil accumulations of crude oil and natural gas in Brazil and the concessionaire owns the oil and gas it produces from those subsoil accumulations pursuant to applicable agreements executed with the Brazilian federal government. We possess, as a concessionaire of certain oil and natural gas fields in Brazil, the exclusive right to develop the volumes of crude oil and natural gas included in our reserves pursuant to concession and other agreements. For further information, see Item 4. Information on the Company Regulation of the Oil and Gas Industry in Brazil Concession Regime for Oil and Gas.

Access to crude oil and natural gas reserves is essential to an oil and gas company's sustained production and generation of income, and our ability to generate income would be adversely affected if the Brazilian federal government were to restrict or prevent us from exploiting these crude oil and natural gas reserves.

### **Risks Relating to Brazil and Our Relationship with the Brazilian Federal Government**

*The Brazilian federal government, as our controlling shareholder, may pursue certain macroeconomic and social objectives through us that may have a material adverse effect on us.*

Our board of directors is composed of a minimum of seven and a maximum of ten members, elected at the annual general meeting for a term of up to two years, with a maximum of three consecutive reelections permitted. The majority of nominations of candidates for our board of directors depends on appointment by the federal government, our controlling shareholder.



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Elections in Brazil occur every four years, and changes in elected representatives may lead to a change of the members of our board of directors appointed by the controlling shareholder, which may further impact the management of our business strategy and guidelines.

Moreover, the Brazilian federal government may pursue certain of its macroeconomic and social objectives through us. Brazilian law requires that the Brazilian federal government own a majority of our voting stock, and so long as it does, the Brazilian federal government will have the power to elect a majority of the members of our board of directors and, through them, a majority of the executive officers who are responsible for our day-to-day management. As a result, we may engage in activities that give preference to the objectives of the Brazilian federal government rather than to our own economic and business objectives.

Accordingly, we may make investments, incur costs and engage in sales with parties or on terms that may have an adverse effect on our results of operations and financial condition. In particular, we may have to assist the Brazilian federal government in ensuring that the supply and pricing of crude oil and oil products in Brazil meets Brazilian consumption requirements. In the past, we did not always adjust our prices to reflect parity with international market trends or reflect exchange rate volatility. Our pricing policy is adapted from time to time by our management; we cannot assure you that our pricing policy will not be changed in the future.

***Our planned investment budget is subject to approval by the Brazilian federal government, and failure to obtain approval of our planned investments may adversely affect our operations and financial condition.***

As a federal state-owned company, we are subject to certain rules that limit our investments, and we must submit our proposed annual budget to the MPDM and MME. Following review by these governmental authorities, the Brazilian Congress must approve our annual budget. Our approved budget may reduce or alter our proposed investments and incurrence of new debt, and we may be unable to obtain financing that does not require Brazilian federal government approval. As a result, we may not be able to make all the investments we envision, including those we have agreed to make to expand and develop our crude oil and natural gas fields, which may adversely affect our results of operations and financial condition.

***Fragility in the performance of the Brazilian economy, instability in the political environment, regulatory changes and investor perception of these conditions may adversely affect the results of our operations and our financial performance and may have a material adverse effect on us.***

Our activities are strongly concentrated in Brazil. The Brazilian federal government's economic policies may have important effects on Brazilian companies, including us, and on market conditions and prices of Brazilian securities. Our financial condition and results of operations may be adversely affected by the following factors and the Brazilian federal government's response to these factors:

exchange rate movements and volatility;

inflation;

financing of government fiscal deficits;

price instability;

interest rates;

liquidity of domestic capital and lending markets;

tax policy;

regulatory policy for the oil and gas industry, including pricing policy and local content requirements;

allegations of corruption against political parties, elected officials or other public officials, including allegations made in relation to the Lava Jato investigation; and

other political, diplomatic, social and economic developments in or affecting Brazil.

Uncertainty over whether the Brazilian federal government will implement changes in policy or regulations that may affect any of the factors mentioned above or other factors in the future may lead to economic uncertainty in Brazil and increase the volatility of the Brazilian securities market and securities issued abroad by Brazilian companies, which may have a material adverse effect on our results of operations and financial condition.

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Historically, the country's political scenario has influenced the performance of the Brazilian economy and political crises have affected the confidence of investors and the general public, which resulted in economic downturn and heightened volatility in the securities issued abroad by Brazilian companies. Although Brazilian authorities have publicly described us as a victim of the alleged illegal conduct identified during the Lava Jato investigation, any developments in the Lava Jato investigation (foreseeable and unforeseeable) could have a material adverse effect on the Brazilian economy and on our results of operations and financial condition.

Brazil has historically experienced high rates of inflation, particularly prior to 1995. Inflation, as well as government efforts to combat inflation, had significant negative effects on the Brazilian economy. More recently, inflation rates were 2.95% in 2017, 6.29% in 2016, 10.67% in 2015 and 6.41% in 2014, as measured by the IPCA, the National Consumer Price Index (*Índice Nacional de Preços ao Consumidor Amplo*), compiled by IBGE. Brazil may experience high levels of inflation in the future and the Brazilian government may introduce policies to reduce inflationary pressures, which could have the effect of reducing the overall performance of the Brazilian economy. Some of these policies may have an effect on our ability to access foreign capital or reduce our ability to execute our future business and management plans, particularly for those projects that rely on foreign partners.

The Brazilian government's measures to control inflation have often included maintaining a tight monetary policy with high *real* interest rates. These policies have contributed to limiting the size and attractiveness of the local debt markets, requiring borrowers like us to seek foreign currency funding in the international capital markets. To the extent that there is economic uncertainty in Brazil, which weakens our ability to obtain external financing on favorable terms, the local Brazilian market may be insufficient to meet our financing needs, which in turn may have a material adverse effect on us.

Additionally, since 2011, Brazil has been experiencing an economic slowdown culminating in a Gross Domestic Product, or GDP, increase of 1.0% in 2017. GDP growth rates were -3.6% in 2016, -3.8% in 2015, 0.5% in 2014, 3.0% in 2013 and 1.9% in 2012 (according to the GDP review released by IBGE). Our results of operations and financial condition have been, and will continue to be, affected by the growth rate of GDP in Brazil because a substantial portion of our oil products are sold in Brazil. We cannot ensure that GDP will increase or remain stable in the future. Future developments in the Brazilian economy may affect Brazil's growth rates and, consequently, the consumption of our oil products. As a result, these developments could impair our results of operations and financial condition.

### ***Allegations of political corruption against members of the Brazilian government could create economic and political instability.***

In the past, members of the Brazilian federal government and the Brazilian legislative branch have faced allegations of political corruption. As a result, a number of politicians, including senior federal officials and congressmen, resigned or have been arrested. Currently, elected officials and other public officials in Brazil are being investigated for allegations of unethical and illegal conduct identified during the Lava Jato investigation being conducted by the Office of the Brazilian Federal Prosecutor. The potential outcome of these investigations is unknown, but they have already had an adverse impact on the image and reputation of the implicated companies (including us), in addition to the adverse impact on general market perception of the Brazilian economy. These proceedings, their conclusions or further allegations of illicit conduct could have additional adverse effects on the Brazilian economy. Such allegations may lead to further instability, or new allegations against Brazilian government officials and others may arise in the future, which could have a material adverse effect on us. We cannot predict the outcome of any such allegations nor their effect on the Brazilian economy.

## **Risks Relating to Our Equity and Debt Securities**

***The size, volatility, liquidity or regulation of the Brazilian securities markets may curb the ability of holders of ADSs to sell the common or preferred shares underlying our ADSs.***

Our shares are among the most liquid traded on the São Paulo Stock Exchange, or B3, but overall, the Brazilian securities markets are smaller, more volatile and less liquid than the major securities markets in the United States and other jurisdictions, and may be regulated differently from the way in which U.S. investors are accustomed. Factors that may specifically affect the Brazilian equity markets may limit the ability of holders of ADSs to sell the common or preferred shares underlying our ADSs at the price and time they desire.

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***The market for PGF's debt securities may not be liquid.***

Some of PGF's notes are not listed on any securities exchange and are not quoted through an automated quotation system. Most of PGF's notes are currently listed both on the New York Stock Exchange and the Luxembourg Stock Exchange and trade on the NYSE Euronext and Euro MTF (Multilateral Trading Facility) market, respectively, although most trading in PGF's notes occurs over-the-counter. PGF can issue new notes that can be listed in markets other than the NYSE and the Luxembourg Stock Exchange and traded in markets other than the NYSE Euronext and the Euro MTF market. We can make no assurance as to the liquidity of or trading markets for PGF's notes. We cannot guarantee that the holders of PGF's notes will be able to sell their notes in the future. If a market for PGF's notes does not develop, holders of PGF's notes may not be able to resell the notes for an extended period of time, if at all.

***Holders of our ADSs may be unable to exercise preemptive rights with respect to the common or preferred shares underlying the ADSs.***

Holders of ADSs who are residents of the United States may not be able to exercise the preemptive rights relating to the common or preferred shares underlying our ADSs unless a registration statement under the Securities Act is effective with respect to those rights or an exemption from the registration requirements of the Securities Act is available. We are not obligated to file a registration statement with respect to the common or preferred shares relating to these preemptive rights, and therefore we may not file any such registration statement. If a registration statement is not filed and an exemption from registration does not exist, The Bank of New York Mellon, as depositary, will attempt to sell the preemptive rights, and holders of ADSs will be entitled to receive the proceeds of the sale. However, the preemptive rights will expire if the depositary cannot sell them. For a more complete description of preemptive rights with respect to the common or preferred shares, see Item 10. Additional Information Memorandum and Articles of Incorporation Preemptive Rights.

***If holders of our ADSs exchange their ADSs for common or preferred shares, they risk losing the ability to timely remit foreign currency abroad and forfeiting Brazilian tax advantages.***

The Brazilian custodian for our common or preferred shares underlying our ADSs must obtain a certificate of registration from the Central Bank of Brazil to be entitled to remit U.S. dollars abroad for payments of dividends and other distributions relating to our preferred and common shares or upon the disposition of the common or preferred shares. Such remittances under an ADR program are subject to a specific tax treatment in Brazil that may be more favorable to a foreign investor if compared to remitting gains originated from securities directly acquired by the investor in the Brazilian regulated stock markets. Therefore, an investor who opts to exchange ADSs for the underlying common or preferred share may be subject to less favorable tax treatment on gains with respect to these investments.

The conversion of ADSs directly into ownership of the underlying common or preferred shares is governed by CMN Resolution No. 4,373 and foreign investors who intend to do so are required to appoint a representative in Brazil for the purposes of Annex I of CMN Resolution No. 4,373, who will be in charge for keeping and updating the investors certificates of registrations with the Central Bank of Brazil, which entitles registered foreign investors to buy and sell directly on the B3. Such arrangements may require additional expenses from the foreign investor. Moreover, if such representatives fail to obtain or update the relevant certificates of registration, investors may incur in additional expenses or be subject to operational delays which could affect their ability to receive dividends or distributions relating to the common or preferred shares or the return of their capital in a timely manner.

The custodian's certificate of registration or any foreign capital registration directly obtained by such holders may be affected by future legislative or regulatory changes, and we cannot assure such holders that additional restrictions

applicable to them, the disposition of the underlying common or preferred shares, or the repatriation of the proceeds from the process will not be imposed in the future.

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***Holders of our ADSs may face difficulties in protecting their interests.***

Our corporate affairs are governed by our bylaws and Brazilian Corporate Law, which differ from the legal principles that would apply if we were incorporated in a jurisdiction in the United States or elsewhere outside Brazil. In addition, the rights of an ADS holder, which are derivative of the rights of holders of our common or preferred shares, as the case may be, to protect their interests are different under Brazilian Corporate Law than under the laws of other jurisdictions. Rules against insider trading and self-dealing and the preservation of shareholder interests may also be different in Brazil than in the United States. In addition, the structure of a class action in Brazil is different from that in the US, and under Brazilian law, shareholders in Brazilian companies do not have standing to bring a class action, and under our by-laws must, generally with respect to disputes concerning rules regarding the operation of the capital markets, arbitrate any such disputes. See Item 10. Additional Information Memorandum and Articles of Incorporation Dispute Resolution.

We are a state-controlled company organized under the laws of Brazil, and all of our directors and officers reside in Brazil. Substantially all of our assets and those of our directors and officers are located in Brazil. As a result, it may not be possible for holders of ADSs to effect service of process upon us or our directors and officers within the United States or other jurisdictions outside Brazil or to enforce against us or our directors and officers judgments obtained in the United States or other jurisdictions outside Brazil. Because judgments of U.S. courts for civil liabilities based upon the U.S. federal securities laws may only be enforced in Brazil if certain requirements are met, holders of ADSs may face greater difficulties in protecting their interest in actions against us or our directors and officers than would shareholders of a corporation incorporated in a state or other jurisdiction of the United States.

***Holders of our ADSs do not have the same voting rights as our shareholders. In addition, holders of ADSs representing preferred shares do not have voting rights.***

Holders of our ADSs do not have the same voting rights as holders of our shares. Holders of our ADSs are entitled to the contractual rights set forth for their benefit under the deposit agreements. ADS holders exercise voting rights by providing instructions to the depository, as opposed to attending shareholders meetings or voting by other means available to shareholders. In practice, the ability of a holder of ADSs to instruct the depository as to voting will depend on the timing and procedures for providing instructions to the depository, either directly or through the holder's custodian and clearing system.

In addition, a portion of our ADSs represents our preferred shares. Under Brazilian law and our bylaws, holders of preferred shares do not have the right to vote in shareholders' meetings. This means, among other things, that holders of ADSs representing preferred shares are not entitled to vote on important corporate transactions or decisions. See Item 10. Additional Information Memorandum and Articles of Incorporation Voting Rights.

***We would be required to pay judgments of Brazilian courts enforcing our obligations under the guaranty relating to PGF's notes only in reais.***

If proceedings were brought in Brazil seeking to enforce our obligations in respect of the guaranty relating to PGF's notes, we would be required to discharge our obligations only in *reais*. Under Brazilian exchange controls, an obligation to pay amounts denominated in a currency other than *reais*, which is payable in Brazil pursuant to a decision of a Brazilian court, will be satisfied in *reais* at the rate of exchange in effect on the date of payment, as determined by the Central Bank of Brazil.

***A finding that we are subject to U.S. bankruptcy laws and that the guaranty executed by us was a fraudulent conveyance could result in PGF noteholders losing their legal claim against us.***

PGF's obligation to make payments on the PGF notes is supported by our obligation under the corresponding guaranty. We have been advised by our external U.S. counsel that the guaranty is valid and enforceable in accordance with the laws of the State of New York and the United States. In addition, we have been advised by our general counsel that the laws of Brazil do not prevent the guaranty from being valid, binding and enforceable against us in accordance with its terms. In the event that U.S. federal fraudulent conveyance or similar laws are applied to the guaranty, and we, at the time we entered into the relevant guaranty:

were or are insolvent or rendered insolvent by reason of our entry into such guaranty;

were or are engaged in business or transactions for which the assets remaining with us constituted unreasonably small capital; or



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intended to incur or incurred, or believed or believe that we would incur, debts beyond our ability to pay such debts as they mature; and

in each case, intended to receive or received less than reasonably equivalent value or fair consideration therefor,

then our obligations under the guaranty could be avoided, or claims with respect to that agreement could be subordinated to the claims of other creditors. Among other things, a legal challenge to the guaranty on fraudulent conveyance grounds may focus on the benefits, if any, realized by us as a result of the issuance of the PGF notes. To the extent that the guaranty is held to be a fraudulent conveyance or unenforceable for any other reason, the holders of the PGF notes would not have a claim against us under the relevant guaranty and would solely have a claim against PGF. We cannot ensure that, after providing for all prior claims, there will be sufficient assets to satisfy the claims of the PGF noteholders relating to any avoided portion of the guaranty.

## **Item 4. Information on the Company**

### **History and Development**

Petróleo Brasileiro S.A. Petrobras was incorporated in 1953 as the exclusive agent to conduct the Brazilian federal government's hydrocarbon activities. We began operations in 1954 and since then have been carrying out crude oil and natural gas production and refining activities in Brazil on behalf of the government. As of December 31, 2017, the Brazilian federal government owned 28.67% of our outstanding capital stock and 50.26% of our voting shares. See Item 7. Major Shareholders and Related Party Transactions Major Shareholders. Our common and preferred shares have been traded on the B3 since 1968 and on the NYSE in the form of ADSs since 2000.

We lost our exclusive right to carry out oil and gas activities in Brazil when the Brazilian Congress amended the Brazilian Constitution, and subsequently passed Law No. 9,478/1997 in 1997. Enacted as part of a comprehensive reform of the oil and gas regulatory system, this law authorized the Brazilian federal government to contract with any state or privately-owned company to carry out all activities related to oil, natural gas and their respective products. This new law established a concession-based regulatory framework, ended our exclusive right to carry out oil and gas activities, and allowed open competition in all aspects of the oil and gas industry in Brazil. The law also created an independent regulatory agency, the ANP, to regulate the oil, natural gas and renewable fuel industry in Brazil and to create a competitive environment in the oil and gas sector. See Item 4. Information on the Company Regulation of the Oil and Gas Industry in Brazil Price Regulation.

Following the discovery of large pre-salt reservoirs offshore Brazil, Congress passed in 2010 additional laws intended to regulate exploration and production activities in the pre-salt area, as well as other potentially strategic areas not already under concession. Under these new laws, we acquired from the Brazilian federal government through an Assignment Agreement the right to explore and produce up to five bnboe of oil, natural gas and other fluid hydrocarbons in specified pre-salt areas. Additionally, on December 2, 2013, based on these laws enacted in 2010, we executed our first agreement with the Brazilian federal government under a production sharing regime for the Libra field. On November 29, 2016, Law No. 13,365/2016 was enacted, which no longer requires us to be the operator in this area, but provides us with a right of first refusal to do so. It is no longer mandatory for us to be the exclusive operator. See Item 4. Information on the Company Regulation of the Oil and Gas Industry in Brazil, Item 10.

Additional Information Material Contracts Assignment Agreement and Item 10. Additional Information Material Contracts Production Sharing Agreements.

We operate through subsidiaries, joint ventures, joint operations, consolidated structured entities and associates established in Brazil and many other countries. Our principal executive office is located at Avenida República do Chile 65, 20031-912 Rio de Janeiro, RJ, Brazil, our telephone number is (55-21) 3224-4477 and our website is [www.petrobras.com.br](http://www.petrobras.com.br). The information on our website, which might be accessible through a hyperlink resulting from this URL, is not and shall not be deemed to be incorporated into this annual report.

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**Overview of the Group**

***Business Segments***

We are one of the world's largest integrated oil and gas companies, operating principally in Brazil where we are the dominant participant. Our business segments operate year-round. As a result of our legacy as Brazil's former sole producer and supplier of crude oil and oil products and our strong and continuous commitment to find and develop oil fields in Brazil, we have a large base of proved reserves and operate and produce most of Brazil's oil and gas production. In 2017, our average domestic daily oil production was 2.15 mmbbl/d, which represents 82% of Brazil's total oil production. Most of our domestic proved reserves are located in the adjacent offshore Campos and Santos Basins in southeast Brazil. Their proximity allows us to optimize our infrastructure and limit our costs of development and production for our new discoveries. Additionally, we have developed special expertise in deepwater exploration and production from 47 years of developing Brazil's offshore basins. We are applying the technical expertise we gained through developing the Campos Basin to the Santos Basin, which is expected to be the principal source of our future growth in proved reserves and oil production.

As of December 31, 2017, we had proved developed oil and gas reserves of 5,042.2 mmboe and proved undeveloped reserves of 4,493.9 mmboe in Brazil. The development of this large reserve base and the exploration of pre-salt areas have demanded, and will continue to demand, significant investments and the growth of our operations.

We operate most of the refining capacity in Brazil. Our refining capacity is substantially concentrated in southeastern Brazil, within the country's most populated and industrialized markets and adjacent to the sources of most of our crude oil in the Campos and Santos Basins. Our current domestic crude distillation capacity is 2,176 mbbbl/d and our domestic refining throughput in 2017 was 1,736 mbbbl/d. We meet our demand for oil products through a planned combination of domestic refining of crude oil and oil products imports, seeking margin maximization. We are also involved in the production of petrochemicals. We distribute oil products through our own retail network and through wholesalers.

We participate in most aspects of the Brazilian natural gas market, including the logistics and processing of natural gas. To meet our domestic demand, we process natural gas derived from our onshore and offshore (mainly from fields in the Campos, Espírito Santo and Santos Basins) production, import natural gas from Bolivia, and to the extent necessary, import LNG through our regasification terminals. We also participate in the domestic power market primarily through our investments in gas-fired, fuel oil and diesel oil thermoelectric power plants and in renewable energy. In addition, we participate in the fertilizer business.

Outside Brazil, we operate in eight countries. In Latin America, our operations extend from exploration and production to marketing, retail services and natural gas. In North America, we produce oil and gas and have refining operations in the United States. In Africa, through a joint venture, we produce oil in Nigeria.

Comprehensive information and tables on reserves and production is presented at the end of Item 4. See [Information on the Company Additional Reserves and Production Information](#).

Our activities are currently organized into five business segments:

**Exploration and Production:** this segment covers the activities of exploration, development and production of crude oil, LNG and natural gas in Brazil and abroad, for the primary purpose of supplying our domestic

refineries and selling surplus crude oil and oil products produced in the natural gas processing plants to the domestic and foreign markets. The E&P segment also operates through partnerships with other companies;

**Refining, Transportation and Marketing:** this segment covers the activities of refining, logistics, transport and trading of crude oil and oil products in Brazil and abroad, exports of ethanol, extraction and processing of shale, as well as holding interests in petrochemical companies in Brazil;

**Gas and Power:** this segment covers the activities of transportation and trading of natural gas produced in Brazil and abroad, imported natural gas, transportation and trading of LNG, generation and trading of electricity, as well as holding interests in transporters and distributors of natural gas and in thermoelectric power plants in Brazil, in addition to being responsible for the fertilizer business;

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**Distribution:** this segment covers the activities of Petrobras Distribuidora S.A, which sells oil products, ethanol and vehicle natural gas in Brazil. This segment also includes distribution of oil products operations abroad (South America); and

**Biofuel:** this business segment covers the activities of production of biodiesel and its co-products, as well as ethanol-related activities such as equity investments, production and trading of ethanol, sugar and the surplus electric power generated from sugarcane bagasse.

Additionally, we have a corporate segment that has activities that are not attributed to the other segments, notably those related to corporate financial management, corporate overhead and other expenses, including actuarial expenses related to the pension and medical benefits for retired employees and their dependents. For further information regarding our business segments, see Notes 4.2 and 29 to our audited consolidated financial statements.

The following table sets forth key information for each business segment in 2017:

	<b>Key Information by Business Segment, 2017</b>							
	<b>Exploration and Production</b>	<b>Refining, Transportation and Marketing</b>	<b>Gas and Power</b>	<b>Biofuel</b>	<b>Distribution</b>	<b>Corporate</b>	<b>Eliminations</b>	<b>Group Total</b>
	<b>(US\$ million)</b>							
Sales revenues	42,184	67,037	12,374	213	27,567		(60,548)	88,827
Income (loss) before income taxes	10,633	6,099	3,018	(57)	802	(18,111)	(387)	1,997
Total assets at December 31	144,619	51,066	18,555	190	6,121	36,746	(5,931)	251,366
Capital Expenditures According to Our Plan Cost Assumptions	12,397	1,284	1,127	35	109	132		15,084
<b>Acquisitions and Divestments</b>								

As part of our 2018-2022 Plan, our partnership and divestment program aims to improve our operating efficiencies, returns on capital, and generate additional cash to service our debt. The partnership and divestment program contemplates the sale of minority, majority or entire positions in certain of our subsidiaries, associates, and assets to strategic or financial investors or through public offerings.

Based on our internal valuation of assets that are considered for sale pursuant to the partnership and divestment program for the period 2017-2018, our goal is to receive proceeds of US\$21 billion. Nonetheless, changes in market conditions or in our evaluation of our different businesses, among other factors, may affect ongoing negotiations or the feasibility of potential transactions. In addition, the sale of these assets will impact our future results of operations.

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In 2017 and the beginning of 2018, we completed, among others, the following partnerships and divestments.

<b>Signing Date</b>	<b>Closing Date</b>	<b>Transaction</b>	<b>Transaction Nominal Value* (US\$ billion)</b>
07/22/2016	01/04/2017	Sale of 100% of Petrobras Chile Distribución Ltda.	0.5
12/28/2016	02/03/2017	Sale of our entire 45.97% interest in Guarani S.A.	0.2
09/23/2016	04/04/2017	Sale of 90% of the total shares of Nova Transportadora do Sudeste (NTS), previously owned by us, a natural gas transportation company in Southeast Brazil**	5.2***
02/28/2017	01/15/2018	Strategic Partnership between Petrobras and Total, including the assignment of 22.5% Petrobras interests in the Iara area, and the assignment of 35% Petrobras interests of Lapa Field in Block BM-S-9, to Total. There are other aspects of the Strategic Partnership which are subject to compliance with contractual and legal conditions precedent.	2.2
12/14/2017	12/22/2017	Petrobras Distribuidora S.A. Secondary Public Offer (sale of 28.75% Petrobras shares)	1.5
02/16/2018	02/21/2018	Sale of the total amount of our shares in São Martinho S.A (6.593%).	0.1
<b>Total</b>			<b>9.7</b>

\* Considering amounts received and future payments related to the transaction.

\*\* Total transaction value includes debt settlement.

\*\*\* Value does not include negative price adjustment amounting to US\$0.1 billion.

In 2017 and early 2018, we received proceeds from the sale of assets under our partnership and divestment program amounting to US\$8.9 billion, mainly resulting from the (i) sale of Nova Transportadora do Sudeste, (ii) strategic alliance with Total including assignment of rights in the Iara and Lapa Oilfields and (iii) Petrobras Distribuidora S.A. secondary public offer.

For information on the TCU awards and other judicial proceedings related to our divestment program, see Item 8. Financial Information Legal Proceedings Legal Proceedings and Preliminary Procedure on TCU Divestments.

In addition, we have signed agreements in transactions which are currently pending closing, relating to our partnership and divestment program. Among others, the agreements listed below were signed in 2016 and 2017. Completion of such transactions is subject to compliance with contractual and legal conditions precedent.

<b>Signing Date</b>	<b>Transaction</b>	<b>Transaction Nominal Value* (US\$ billion)</b>
12/28/2016		0.4

	Sale of Companhia Petroquímica de Pernambuco ( PetroquímicaSuape ) and Companhia Integrada Têxtil de Pernambuco ( Citepe )	
02/28/2017	Sale of 50% in Termobahia S.A., as part of the Strategic Partnership between Petrobras and Total	***
11/22/2017	Assignment of Azulão Gasfield	0.05
12/18/2017	Strategic Partnership with Statoil which includes: (i) assignment of 25% of Petrobras interest in the Roncador field to Statoil; (ii) strategic technical alliance agreement for technical cooperation aiming at maximizing recovery factor; (iii) subject to regulatory requirements, an option for Statoil to hire a certain processing capacity of natural gas at the Cabiúnas Terminal (TECAB).	2.9
<b>Total</b>		<b>3.35</b>

\* Considering amounts to be received at the closing of the transaction and subsequent payments.

\*\* Considering the exchange rate as of December 29, 2017.

\*\*\* Value not yet announced.

Regarding the sale of PetroquímicaSuape and Citepe, the court of the Administrative Council for Economic Defense ( CADE ) has approved the transaction in February 7, 2018, subject to the execution of an Agreement on Concentration of Control (*Acordo de Controle de Concentração* ACC).

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Regarding the sale of Liquigás Distribuidora S.A. (Liquigás), the court of the CADE disapproved the purchase of Liquigás by Companhia Ultragaz S.A. CADE's decision triggered the termination of Liquigás sale contract, which requires Companhia Ultragaz S.A. to pay us a fine in the total amount of US\$ 88 million. The payment was made on March 13, 2018. We are currently analyzing alternatives for the divestment of Liquigás. Its sale remains in our partnerships and divestments program.

Our partnership and divestment processes are subject to continuous Brazilian judicial scrutiny. Since 2016, TCU has been taking actions that postponed several of our processes. For information on the TCU awards and other judicial proceedings related to our divestment program, see Item 8. Financial Information Legal Proceedings Legal Proceedings and Preliminary Procedure on TCU Divestments.

On December 15, 2017, our subsidiary Petrobras Distribuidora, a leader in the fuel distribution segment in Brazil and listed on the Novo Mercado, the main governance segment among the B3, held its initial public offering (IPO) at B3. The IPO attracted investors from Latin America, Europe, and the United States. The total amount of the offer was US\$1,507 million. The IPO of Petrobras Distribuidora marked the return of Petrobras Distribuidora to the capital markets.

### ***Restructuring and Contracting Initiatives***

In 2017, our board of directors approved changes in the organizational structure of our operational units, following the organizational changes implemented in the non-operational units started in 2016. We expect the 2017 changes to result in a reduction of 11% of all management positions in operational areas until 2021. In addition, we expect these changes to lead to cost savings of approximately US\$9.21 million per year.

The initiative to implement such changes has the purpose of aligning our organizational structure with our current business environment and with the current oil and gas sector. As part of the initiative, we also focus on maximizing efficiency, maintaining operational continuity and integrity of our facilities, and capturing gains through the implementation of lean and agile structures.

Some examples of the changes implemented are the redistribution of production's fields among E&P's operational units, the strengthening of our organizational structure for the management of reservoirs and a significant reduction of the various functions of our refiner.

With respect to the contracting initiatives, in 2017 we concluded the implementation of the Supplier Base Management Program (PGBF), which restructured the registration and selection process for contracting our suppliers, contracting became more competitive. Suppliers, registered under the new system, provide greater security for our contracting process.

Law No. 13,303 of June 30, 2016 ( Law No. 13,303/16 ) introduced new bidding and contracting proceedings, offering state-owned enterprises a twenty-four month period for adjustments. However, even before the deadline of June 30, 2018, all of our new contracts will comply with Law No. 13,303/16, by means of our new bid and contract regulation (RLCP), published on January 15th, 2018, at Brazilian Federal Register (Diário Oficial da União DOU). As referred to in Article 226, the RLCP entered into force on the date of its publication, having progressive effects per Organizational Unit, under the terms of the implementation schedule.

### ***Social Responsibility***



In March 2017, we approved our social responsibility policy with the commitment of respecting human rights and the environment, interacting responsibly with nearby communities and overcoming sustainability challenges of our business. In order to improve social risk management process, we incorporated, in the capital investment projects guideline, new requirements for the decision making process, such as social risk analysis by multidisciplinary group. Following this new guideline, 22 investment projects were assessed in 2017.

Through our social and environmental program, we strengthen our engagement with nearby communities, civil society organizations, public sector and universities, contributing to the environmental conservation, as well as mitigating social risks related to our business. In 2017, we invested around US\$18.8 million in 202 voluntary social and environmental projects. We improved the governance and compliance of our contracting process and renewed our portfolio, with a projected investment of US\$78.3 million by 2020, covering 20 Brazilian states.

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### **2018-2022 Plan and Strategic Monitoring Process**

In December 2017, our board of directors approved our 2018-2022 Plan and the proposed adjustments by our strategic monitoring process.

Our 2018-2022 Plan is based on two main safety and financial metrics, which guide our strategic actions. First, the security metric is measured as the Total Recordable Injury recorded per million men-hours (TRI) and we expect to reduce it from 1.4 to 1.0 by 2018. Second, the financial leverage target is measured as Net Debt/Adjusted EBITDA and we expect this ratio to reach 2.5 in 2018, calculated in *reais*.

Our strategic monitoring process consists of the permanent evaluation of the business environment and the implementation of the plan, allowing adjustments to be made in a more efficient way. The process generated adjustments in the set of strategies established in our strategic plan approved in 2016, resulting in a total of 20 strategies and incorporating three new strategies: (1) the transition to a low carbon economy; (2) the preparation of the company to enjoy opportunities arising from digital transformation; and (3) optimization of our financial and risk management.

Our 2018-2022 Plan contains five fundamental principles of our vision that are broken down into 20 strategies, with systematic follow-up, as detailed below.

*Efficient Integration:* (i) to reduce our risk, adding value in E&P, Refining, Transportation, Logistics, Distribution and Sales by active portfolio management through partnerships, acquisitions and divestments; and (ii) to restructure the electric energy business, seeking an alternative that maximizes value for us.

*Energy, with focus on oil and gas:* (i) to manage the exploratory portfolio in order to maximize cost effectiveness and ensure the sustainability of oil and gas production; (ii) to manage the E&P portfolio projects in an integrated manner; (iii) to optimize our business portfolio, withdrawing entirely from biofuel production, LPG distribution, fertilizer production and petrochemical interests, preserving technological competencies in areas with development potential; and (iv) to maximize value creation in the gas chain.

*Evolves with the society:* (i) to strengthen internal controls and governance, ensuring transparency and an effective system for preventing and combating irregularities, without reducing the agility of the decision-making process; (ii) to repair our credibility and strengthen our relationships and reputation with all our stakeholders, including our control and supervisory bodies, maintaining a transparent, respectful and proactive dialogue; (iii) to prepare us for a future based on a low carbon economy; and (iv) to take advantage of opportunities created by digital transformation, applying new technologies to our processes and/or generating new processes or new businesses, focusing on the aggregation of value.

*Company determined to create value:* (i) to ensure disciplined use of capital and return to shareholders in all of our projects, with high reliability and predictability in our delivery; (ii) to continuously maximize the productivity and the reduction of costs in accordance with the best international practices; (iii) to manage the process of contracting goods and services with a focus on value, aligned with international standards and metrics, meeting conformity requirements, maintaining flexibility in adverse and volatile demand scenarios

and contributing to the development of the chain as a whole; (iv) to promote the management of our workforce in an environment of participatory culture and mutual trust, focused on results that add value, with safety, ethical conduct, responsibility, encouragement of dialogue, meritocracy, simplicity and conformity; (v) to strengthen the reservoir management to maximize the value of E&P contracts in all the regulatory regimes, seeking opportunities to continuously incorporate reserves; (vi) to promote a market price policy and maximize margins in the value chain; and (vii) to optimize our financial and risk management.

*Technical ability:* (i) to ensure the constant development of technological competencies in areas with development potential, strengthening the performance of the current business; (ii) to prioritize the development of deepwater production, acting primarily in strategic partnerships, bringing together technical and technological expertise; and (iii) to enable the conception and implementation of projects with a low oil equilibrium price, in a safe way and in compliance with environmental requirements.

**Table of Contents****Exploration and Production**

	<b>Exploration and Production Key Statistics</b>		
	<b>2017</b>	<b>2016</b>	<b>2015</b>
	<b>(US\$ million)</b>		
<b>Exploration and Production:</b>			
Sales revenues	42,184	33,675	35,680
Income (loss) before income taxes	10,633	2,055	(3,683)
Property, plant and equipment	126,487	123,056	109,724
Capital Expenditures According to Our Plan Cost Assumptions	12,397	13,509	19,131

Our oil and gas exploration and production activities are the largest components of our investment portfolio. Our activities are concentrated in deepwater oil reservoirs in Brazil. Our domestic activities represented 96% of our worldwide production in 2017 and accounted for 98% of our worldwide reserves on December 31, 2017. Over the last five years, approximately 89% of our total Brazilian production has been oil.

Brazil's largest oil fields are located offshore, most of them in deepwaters. We have been conducting offshore exploration and production activities in the Campos Basin since 1971, when we started exploration, and our major discoveries were made in deepwater and ultra-deepwater. Our technology and expertise have created a competitive advantage for us and we have become globally recognized as innovators in the technology required to explore and produce hydrocarbons in deep and ultra-deepwaters. In 2017, offshore production accounted for 93% of our production in Brazil and deepwater production accounted for 86% of our production in Brazil.

Historically, we focused our offshore exploration and production activities on sandstone turbidite reservoirs, located primarily in the Campos Basin. In 2006, we were successful in drilling through a massive salt layer off the Brazilian coast that stretches from the Campos to the Santos Basin. This pre-salt area has many large carbonate reservoirs with well-preserved oil, leading to a number of important discoveries. This pre-salt province occupies an area of approximately 149,000 km<sup>2</sup> (36.8 million acres), of which we have rights to produce from 14% of the total area (around 21,424 km<sup>2</sup> or 5.3 million acres), through acreage assigned to us under Concession Agreements, the Assignment Agreement and Production Sharing Agreements.

The pre-salt reservoirs we have discovered are located in deepwater and ultra-deepwaters at total depths of up to 7,000 meters (22,965 feet). The southern part of the pre-salt province consists of the Santos Basin, where the salt layer is approximately two kilometers thick. In the northern part of the pre-salt province, the salt is thinner and most of the oil has migrated through the salt to the post-salt sandstone reservoirs of the Campos Basin. While some of the oil that formed has migrated, we still have made important discoveries in pre-salt reservoirs in the Campos Basin, as we drilled through the salt layers. Most of our current and future capital will be committed to developing the oil found in the pre-salt province, with an emphasis on the Santos Basin, given the size of its reservoirs and its potential.

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The map below shows the location of our pre-salt reservoirs.

**Our activities by region**

***Brazil***

Domestic exploration and production assets are the main components of our portfolio, representing 91% of our worldwide exploratory blocks, 97% of our global oil production and 98% of our oil and natural gas reserves. We have expanded strategic alliances with large oil companies, including Total (headquartered in France), Statoil (Norway), BP (UK) CNPC (China) and Exxon (USA), aiming to combine these companies' technical capabilities, and allow for potential joint ventures in exploration, production and infrastructure of oil and gas in areas of common interest worldwide.

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The following map shows our exploration and production areas in Brazil as of December 2017.

***Campos Basin***

Our activities in the basin began in 1971 and we are now focused on maintaining our production in relatively mature fields. We have been able to mitigate the natural decline in mature fields of this basin by installing new production systems, tapping pre-salt reservoirs with both new and existing production units and improving operational efficiency. All of our licenses in the Campos Basin are under concession agreements. See Regulation of the Oil and Gas Industry in Brazil.

Most of our production in the Campos Basin is from post-salt reservoirs, but pre-salt reservoirs in the basin are a growing source of production. We first began pre-salt oil production in 2008 in the Jubarte field located in the Parque das Baleias region. In 2017, the Campos Basin pre-salt area average production of oil was 232.3 mbb/d, which represents a decrease of 5% compared to 2016. We have a 100% interest in oil produced from the Campos Basin pre-salt reservoirs.

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### ***Santos Basin***

The Santos Basin is one of the most promising offshore exploration and production areas in the world, containing the southern and most prolific part of the pre-salt province. Our activities in the Santos Basin began with the acquisition of eight blocks through public auction under concession agreements in 2000 and 2001. In 2010, we entered into an Assignment Agreement with the Brazilian federal government, under which we were assigned exclusive rights to explore and produce five billion barrels of oil equivalents in the Santos Basin. In 2013, a consortium led by us (holding a 40% interest and acting as exclusive operator of the area), Shell (20% interest), Total (20% interest), CNODC (10% interest) and CNOOC Limited (10% interest) was awarded the rights and obligations to explore and develop the Libra block in the ultra deepwaters of the Santos Basin in the first production sharing regime auction ever held in Brazil. See Regulation of the Oil and Gas Industry in Brazil and Item 10. Additional Information Material Contracts.

The Assignment Agreement and Libra areas are currently in development and appraisal phases, respectively, and have shown very successful results and will ensure our long-term reserves and production curve.

We currently have 12 pre-salt production units in the Santos Basin, of which two are dedicated to Extended Well Test (EWT). With these units, we have been increasing the pre-salt oil production in the Santos Basin since its first oil production, in 2009. Petrobras's and our non-operated partners' production in the Santos Basin pre-salt area reached an average of 1.05 mmbbl/d in 2017, which represents an increase of 36% when compared to 2016. Despite these important results, we continue to concentrate our efforts on gathering information about the pre-salt reserves through EWTs. In 2017, one EWT was performed in Itapu field and there is another on stream in Mero field.

### ***Other Basins***

We produce hydrocarbons and hold exploration acreage in 18 other basins in Brazil. While our onshore production is primarily in mature fields, we plan to sustain and slightly increase production in these fields by enhancing recovery methods. The most significant potential for exploratory success within our other basins is the equatorial margin and east margin.

### ***International***

Outside Brazil, we have long been active in South America, in North America and West Africa. We focus on opportunities to leverage the deepwater expertise we have developed in Brazil. Since 2012, we have been substantially reducing our international activities through the sale of assets to meet our announced divestment targets.

### ***South America***

We conduct exploration and production activities in Argentina, Bolivia, and Colombia.

In **Argentina**, through our 100% interest in Petrobras Operaciones S.A., or POSA. Our oil and gas production is concentrated in the Neuquén Basin.

In **Bolivia**, our oil and gas production comes principally from the San Alberto and San Antonio contracts, which are operated mainly to supply gas to Brazil and Bolivia.

In **Colombia**, our portfolio includes the Tayrona offshore exploration block and the Villarica Norte onshore exploration block.

***North America***

In the **United States**, we focus on deepwater fields in the Gulf of Mexico. Our production in the United States during 2017 originated mainly from the Cascade, Chinook, Saint Malo and Lucius fields.

In **Mexico**, we have held non-risk service contracts through our joint venture with PTD Servicios Multiplos SRL for the Cuervito and Fronterizo blocks in the Burgos Basin since 2003. Under these service contracts, we receive fees for our services.



**Table of Contents****Africa**

We explore oil and gas opportunities in Africa exclusively through our 50% interest in a joint venture with BTG Pactual, Petrobras Oil & Gas B.V. (PO&G). The assets of this joint venture include the Agbami and Akpo fields, the Egina field project and the Preowei and Egina South discoveries appraisal projects, all of them in Nigeria.

**Oil and Gas Production Activities**

In 2017, we had record domestic oil production average for the fourth consecutive year, reaching 2.15 mmbbl/d, a 0.4% increase compared to the previous year (2.14 mmbbl/d).

In 2017, our oil and gas worldwide production averaged 2.52 mmboe/d, a 1.1% decrease compared to the previous year (2.55 mmboe/d), and our oil worldwide production averaged 2.22 mmbbl/d, the same level compared to the previous year. Brazil represented 96% of our worldwide oil and gas production in 2017.

Pre-salt operated oil production averaged 1.29 mmbbl/d, the highest ever, representing a 26% increase compared to the previous year. Pre-salt oil production reached 1.48 mmbbl/d on December 4, 2017, achieving a new daily production record, with only 78 producing wells. Of these wells, 55 are located in the Santos Basin and were responsible for 84% of this production (1.24 mmbbl/d).

The natural gas output increased by 4% compared to the previous year and our domestic total production averaged 2.41 mmboe/d in 2017, an increase of 1% compared to the previous year.

The main highlights for production expansion in 2017 were the significant production growth in the Lula field (including Iracema Norte and Iracema Sul areas, with FPSOs Cidade de Saquarema, Cidade de Maricá and the start of operation FPSO -66) and in the Lapa field (FPSO Cidade de Caraguatatuba), located in the Santos Basin's pre-salt layer. In addition, there is one new production system that started its operation, FPSO Pioneiro de Libra, in the northwest area of the block of the same name, located in the Santos Basin's pre-salt layer. This area was declared commercial and came to be called Mero's field.

Oil and gas production abroad averaged 112.5 mboe/d in 2017, a 30% decrease from the 161.1 mboe/d recorded in 2016, primarily due to divestments, such as the sale of Petrobras Argentina in 2016.

Our average production per region as of December 31, 2017, December 31, 2016 and December 31, 2015 is summarized in the table below:

	Oil (mmbbl)(1)			Gas (mmcf)(2)			Total (mboe)			Stationary production units		
	2017	2016	2015	2017	2016	2015	2017	2016	2015	2017	2016	2015
<b>Brazil</b>	786.1	784.8	776.8	556.0	534.0	563.4	878.8	873.8	870.7	118	121	120
Campos Basin	442.4	497.2	543.1	78.3	192.3	210.7	455.4	529.2	578.2	53	55	56
Santos Basin	269.0	203.9	144.3	296.1	193.3	177.9	318.3	236.1	174.0	22	15	12
Other Basins(3)	74.8	83.7	89.4	181.6	148.4	174.8	105.1	108.4	118.5	43	51	52
<b>South America (excluding</b>	1.9	8.0	14.1	85.4	144.7	173.3	16.1	32.1	43.0			

<b>Brazil)</b>												
<b>North America</b>	13.2	12.1	11.2	21.5	32.1	24.5	16.7	17.4	15.3	2	2	2
<b>Equity and non-consolidated affiliates</b>	8.2	9.2	11.0	0.0	0.1	0.3	8.2	9.2	11.0			
South America (excluding Brazil)		0.5	1.2		0.1	0.3		0.5	1.3			
Africa	8.2	8.7	9.7				8.2	8.7	9.7			
<b>Total</b>	809.4	814.1	813.0	662.8	710.9	761.6	919.8	932.6	939.9	120	123	122

(1) Oil production includes production from extended well tests (EWT) and NGL.

(2) Natural gas production figures are the production volumes of natural gas available for sale, excluding flared and reinjected gas and gas consumed in operations.

(3) Includes NGL, synthetic oil, and synthetic gas production from oil shales deposits in São Mateus do Sul, in the Paraná Basin of Brazil.

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For 2018, we expect to produce 2.1 mmbbl/d of oil in Brazil (the same level as our average in 2017). For more information on new production systems, see Item 4. Information on the Company Exploration and Production Production Development.

We recognized impairment reversals for the fiscal year ended December 31, 2017 of US\$870 million with respect to our domestic exploration and production producing properties due to (i) reversals of US\$1,733 million, substantially reflecting the lower post-tax *real* discount rate, the approval of investments enhancing the recovery of mature fields and the lower tax burden set forth in the new tax rules applicable to the oil and gas industry; and (ii) impairment losses of US\$863 million, substantially driven by an expected acceleration of production cessation reflecting an optimization of investment portfolio, as well as by a lower risk-adjusted discount rate for decommissioning costs, which also increased the costs of assets related to the abandonment and dismantling of certain areas. We have also recognized impairment losses of US\$363 million with respect to oil and gas production and drilling equipment, which were not directly related to producing properties in Brazil, mainly resulting from: (i) lower fair value of certain equipment related to the FPSO P-72 and P-73 that could not be allocated to other projects, when compared to their carrying amount (US\$127 million); (ii) decommissioning of a crane and launch ferry (US\$114 million) and (iii) hibernation of equipment of Inhaúma Shipyard excluded from the initial scope of Inhaúma logistic center (US\$125 million). In addition, we recognized impairment losses of US\$405 million with respect to the sale of 25% of Roncador field in Campos basin to Statoil, as its sales price was lower than the carrying amount.

For the fiscal year ended December 31, 2016, we previously recognized impairment losses of US\$2.3 billion with respect to our domestic exploration and production producing properties due to (i) the appreciation of the *real* against the U.S. dollar, (ii) the review of our price assumptions, (iii) our annual reviews of oil and gas reserves, (iv) decommissioning cost estimates and (v) a higher discount rate following the increase in Brazil's risk premium. This amount also includes an impairment reversal relating to the Centro Sul group, amounting to US\$415 million, was recognized due to the higher estimates of reserves and production and the lower estimates of operating expenses. The decommissioning of a unit, which had high operational costs, and the replacement of another unit by an investment in a new processing plant, which was committed during the third quarter of 2016, also contributed to such impairment reversal. We have also recognized impairment losses of US\$854 million with respect to oil and gas production and drilling equipment, which were not directly related to producing properties in Brazil, mainly due to uncertainties over the ongoing hulls construction of the FPSOs P-71, P-72 and P-73.

For the fiscal year ended December 31, 2015, we previously recognized impairment losses of US\$8.7 billion with respect to our domestic exploration and production producing properties due to the impact of the decline in international crude oil prices on the price assumptions for certain of our domestic crude oil and natural gas producing properties, including Papa-Terra, Centro Sul group, Uruguá group, Espadarte, among others, the use of a higher discount rate (reflecting an increase in Brazil's risk premium), as well as the geological revision of Papa-Terra reservoir. We have also recognized impairment losses of US\$0.5 billion with respect to oil and gas production and drilling equipment, which were not directly related to producing properties in Brazil, mainly related to the idle capacity of two drilling rigs in the future and to the use of a higher discount rate. For the fiscal year ended December 31, 2015, we also recognized impairment losses of US\$0.6 billion in E&P assets abroad, mainly in productive properties located in the United States (US\$0.4 billion) and Bolivia (US\$0.2 billion), attributable to the decline in international crude oil prices.

For further Information on impairment losses in 2017, 2016, and 2015, see Note 14 to our audited consolidated financial statements.

## *Lifting Cost*

In 2017, our average lifting cost excluding government fees was US\$11.0 per boe, which is an increase of 7% compared to the average cost of US\$10.3 per boe mined in 2016. Our lifting cost excluding exchange rate effects of 2017 would be in line with the previous year, even considering the start-up of new units and higher effort on well interventions.

**Table of Contents****Capital Expenditures According to Our Plan Cost Assumptions E&P**

In our 2018-2022 Business Plan, we maintain our focus on the development of our reservoirs in Brazil, especially in the pre-salt layer.

Out of US\$60.3 billion Capital Expenditures According to Our Plan Cost Assumptions in exploration and production for the next five years, 77% will be allocated to production development, 11% to exploration and 12% to infrastructure and R&D.

The Capital Expenditures According to Our Plan Cost Assumptions in exploration and production activities in 2017 (in Brazil and abroad) amounted to US\$12.4 billion, an 8% decrease compared to Capital Expenditures According to Our Plan Cost Assumptions for the fiscal year ended December 31, 2016, mainly attributable to the postponement of some construction activities for FPSOs, gains in efficiency of capital expenditure and reduction in taxes for drilling units and support vessels. This amount includes US\$ 0.9 billion related to signature bonuses paid by us as a result of exploratory blocks contracted in ANP bidding rounds held in September and October 2017. See Liquidity and Capital Resources Use of funds for further information on our investments.

**Exploration**

As of December 31, 2017, we had 135 exploratory blocks in which 28 discoveries were under evaluation. We also had three discoveries being assessed in production areas. As of December 31, 2017, we had a 100% working interest in 55 exploratory blocks. We also had exploration partnerships with 23 foreign and domestic companies, for a total of 80 exploratory blocks. We serve as the operator in 52 of these exploration partnership blocks. We hold interest ranging from 30% to 100% in the exploration areas under concession or assigned to us.

The table below breaks down our investments in exploration activities in 2017, which totaled US\$1.4 billion.

	Net Exploratory Area (km <sup>2</sup> )			Exploratory Blocks			Evaluation Plans			Wells Drilled		
	2017	2016	2015	2017	2016	2015	2017	2016	2015	2017	2016	2015
<b>Brazil</b>	<b>41,820</b>	<b>43,966</b>	<b>55,366</b>	<b>123</b>	<b>131</b>	<b>146</b>	<b>28</b>	<b>37</b>	<b>43</b>	<b>8</b>	<b>16</b>	<b>51</b>
Campos Basin	484	1,216	1,798	2	6	7	3	7	9	1	2	4
Santos Basin	1,927	2,140	3,378	4	4	6	2	3	5	1	2	5
Other Basins	39,409	40,610	50,190	117	121	133	23	27	29	6	12	42
<b>Other S. America</b>	<b>5,425</b>	<b>11,444</b>	<b>12,702</b>	<b>2</b>	<b>7</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>6</b>
<b>North America</b>	<b>198</b>	<b>376</b>	<b>787</b>	<b>10</b>	<b>28</b>	<b>52</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>Africa</b>	<b>0</b>	<b>0</b>	<b>3,679</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>47,641</b>	<b>55,786</b>	<b>72,534</b>	<b>135</b>	<b>166</b>	<b>208</b>	<b>31</b>	<b>38</b>	<b>46</b>	<b>9</b>	<b>21</b>	<b>59</b>

In the Campos Basin, we had a new oil reservoir found in the Marlim Sul field. This was the first pre-salt layer discovery in the Marlim Sul field area. It occurred with the drilling of the Poraquê Alto well (6-BRSA-1349-RJS) that is currently under appraisal. We, as the operator of Libra consortium, presented to the ANP the declaration of

commerciality of the northwest portion of the Libra area, in the pre-salt Santos Basin. In the document submitted to the ANP, we proposed the name Mero for the new oil field, which holds a field's total recoverable estimated volume of 3.3 billion barrels of oil.

We acted selectively in the bidding rounds carried out by the ANP in September and October 2017, reflecting our strategic vision to reorganize our exploratory portfolio, which seeks to maintain the relationship between reserves and production and to ensure the sustainability of our future oil and gas production. Furthermore, the operation in consortium with important companies is aligned with our strategic goal to strengthen partnerships, sharing risks, combining technical and technological skills and capturing synergies to leverage results, while reflecting the importance of these areas in Brazil for world-class oil companies. In September and October 2017, we contracted 10 new exploratory blocks (nine offshore and one onshore), with a total area of 11.4 thousand km<sup>2</sup> and a signing bonus of R\$2.9 billion (equivalent to US\$0.9 billion) at the acquisition date. In the offshore blocks outside of the pre-salt polygon, contracted under the concession regime, we hold 50% of the working interests in partnerships with ExxonMobil. Under the Production Sharing Agreements, we acquired three blocks inside the pre-salt area, in partnership with Shell, Repsol Sinopec and BP.

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In addition, in March 2018, we participated in the 15<sup>th</sup> round of bids under the concession regime in Brazil, in which we acquired seven offshore blocks. The total amount of the signature bonus to be paid in 2018 is R\$2.2 billion (equivalent to US\$0.7 billion at the acquisition date, on March 29, 2018). In the Campos Basin, we acquired two blocks in partnership with Exxon and Statoil, which we will operate, and two blocks in partnership with Exxon and Qatar Petroleum, which will be operated by Exxon. In the Potiguar Basin, we acquired three blocks, two of them in partnership with Shell and one block is wholly owned by us. We will be the operator of all of them.

**Production Development**

In 2017, two new systems came on stream (FPSO P-66, in the Lula field, and FPSO Pioneiro de Libra, in the Mero Field) and we connected 44 new wells (28 production and 16 injection wells) in our production systems.

Over the last seven years, we had substantial cost optimizations regarding project development. For instance, we reduced the time required to drill and complete wells in the Santos Basin pre-salt area by 63% in the year 2017, compared to 2010, significantly reducing our capital expenditures per well. In addition, due to the wells high productivity, we have been able to top the capacity of the platforms with fewer wells.

**Recently Installed Systems**

In the last three years, we have installed several major systems, mainly in the pre-salt area of the Santos Basin, which helped mitigating the basin's natural decline (table below).

Start Up (year)	Basin	Field/Area	Unit Type	Production Unit	Crude Oil		Water Depth (meters)	E&P Regime
					Nominal Capacity (bbl/d)	Nominal Capacity (mmcf/d)		
2017	Santos	Lula	FPSO	P-66	150,000	211.9	2,100	Pre-salt Concession
2017	Santos	Mero	FPSO	Pioneiro de Libra	50,000	141.6	2,400	Pre-salt Production Sharing Contract
2016	Santos	Lapa	FPSO	Cid. de Caraguatatuba	100,000	176.6	2,140	Pre-salt Concession
2016	Santos	Lula Central	FPSO	Cid. de Saquarema	150,000	211.9	2,100	Pre-salt Concession
2016	Santos	Lula Alto	FPSO	Cidade de Maricá	150,000	211.9	2,100	Pre-salt Concession
2015	Santos	Lula	FPSO	Cidade de Itaguaí	150,000	282.5	2,240	Pre-salt Concession
2015	Campos	Papa-Terra Module 1	TLWP	P-61	(1)	(1)	1,180	Post-salt Concession

(1) P-61 production is processed by the FPSO P-63, which came onstream in 2013, with 140 mbbbl/d.

**Main systems to be Installed in 2018 and 2019**

We currently have nine major systems to be installed in the next two years. The Lula and Búzios fields will be particularly important to support our production growth. Production from these fields will be increased by bringing

onstream six more FPSOs. Moreover, we will install a new post-salt unit in the Tartaruga Verde Field by 2018. The table below lists our upcoming system start-ups.

Projected Start Up (year)	Basin	Field/Area	Unit Type	Crude Oil Natural Gas			E&P Regime
				Nominal Capacity (bbl/d)	Nominal Capacity (mmcf/d)	Water Depth (meters)	
2018	Campos	Tartaruga Verde	FPSO	150,000	176.6	765	Post-salt Concession
2018	Santos	Lula Norte	FPSO	150,000	211.9	2,100	Pre-salt Concession
2018	Santos	Lula Extremo Sul	FPSO	150,000	211.9	2,100	Pre-salt Concession
2018	Santos	Búzios 1	FPSO	150,000	211.9	2,100	Assignment Agreement
2018	Santos	Búzios 2	FPSO	150,000	211.9	2,100	Assignment Agreement
2018	Santos	Búzios 3	FPSO	150,000	211.9	2,100	Assignment Agreement
2018	Santos	Berbigão	FPSO	150,000	211.9	2,280	Pre-salt Concession
2019	Santos	Atapu 1	FPSO	150,000	211.9	2,300	Assignment Agreement
2019	Santos	Búzios 4	FPSO	150,000	211.9	2,100	Assignment Agreement



**Table of Contents****Critical Resources in Exploration and Production**

We seek to develop and retain the critical resources that are necessary to meet our production targets. Drilling rigs are an important resource for our exploration and production operations and lead time is required when fleet expansion is needed. When we discovered the pre-salt reservoirs, in 2006, our activities as operators were constrained by a lack of rigs, but our subsequent efforts to lease additional rigs have eliminated this constraint. Whereas in 2008 we only had three rigs capable of drilling in waters with depth greater than 2,000 meters (6,560 feet), we had 24 as of December 31, 2017 (see table below). We believe that we now have sufficient rigs to meet our production targets, and we will continue to evaluate our drilling requirements and will adjust our fleet size as needed. Likewise, in order to achieve our production goals, we must secure a number of specialized vessels (such as PLSV) to connect wells to production systems.

Since 2015, we've been adjusting our fleet to our project portfolio. In 2017, our specialized vessels were sufficient to meet our needs.

**Drilling Units in Use by Exploration and Production on December 31 of Each Year**

	2017		2016		2015	
	Leased	Owned	Leased	Owned	Leased	Owned
<b>Brazil</b>	<b>29</b>	<b>7</b>	<b>31</b>	<b>10</b>	<b>50</b>	<b>14</b>
<b>Onshore</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>4</b>	<b>10</b>	<b>8</b>
<b>Offshore, by water depth (WD)</b>	<b>28</b>	<b>3</b>	<b>30</b>	<b>6</b>	<b>40</b>	<b>6</b>
Jack-up rigs	0	2	0	2	0	2
Floating rigs:	28	1	30	4	40	4
500 to 999 meters WD	1	0	1	2	2	2
1000 to 1999 meters WD	3	1	3	2	8	2
2000 to 3200 meters WD	24	0	26	0	30	0
<b>Outside Brazil</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>9</b>	<b>0</b>
<b>Onshore</b>	<b>3</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>8</b>	<b>0</b>
<b>Offshore</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>Worldwide</b>	<b>33</b>	<b>7</b>	<b>35</b>	<b>10</b>	<b>59</b>	<b>14</b>

**Reserves**

According to SEC technical criteria for booking proved reserves, as of December 31, 2017, our worldwide net proved oil, condensate and natural gas reserves, including synthetic oil and gas, reached 9.8 bnboe, a 0.8% increase compared to our proved reserves of 9.7 bnboe as of December 31, 2016, as shown in the table below.

Proved Reserves (1)	Oil (mmbbl)			Gas (bcf)			Total (mmboe)		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
<b>Brazil</b>	<b>8,255.4</b>	<b>8,069.8</b>	<b>8,551.1</b>	<b>7,684.2</b>	<b>8,403.2</b>	<b>9,597.0</b>	<b>9,536.1</b>	<b>9,470.3</b>	<b>10,150.6</b>
Campos basin	3,933.6	4,097.1	4,778.8	2,517.6	2,767.2	3,407.5	4,353.2	4,558.3	5,346.7
Santos basin	3,944.7	3,576.2	3,216.0	3,963.5	4,169.1	4,579.7	4,605.3	4,271.1	3,979.3
Other basins	377.1	396.4	556.3	1,203.1	1,466.9	1,609.8	577.7	640.9	824.6
<b>Other S. America (2)</b>	<b>1.2</b>	<b>0.8</b>	<b>66.9</b>	<b>160.2</b>	<b>113.9</b>	<b>697.4</b>	<b>27.9</b>	<b>19.8</b>	<b>183.1</b>

<b>North America</b>	<b>114.6</b>	<b>96.4</b>	<b>90.6</b>	<b>40.9</b>	<b>87.2</b>	<b>138.5</b>	<b>121.5</b>	<b>111.0</b>	<b>113.7</b>
<b>Africa</b>	<b>63.4</b>	<b>69.0</b>	<b>65.8</b>	<b>17.3</b>	<b>12.5</b>	<b>16.6</b>	<b>66.3</b>	<b>71.1</b>	<b>68.6</b>
<b>Total</b>	<b>8,434.6</b>	<b>8,236.1</b>	<b>8,774.4</b>	<b>7,902.6</b>	<b>8,616.8</b>	<b>10,449.5</b>	<b>9,751.7</b>	<b>9,672.2</b>	<b>10,515.9</b>

(1) Includes synthetic oil and gas

(2) In the case of Bolivia, the country's Constitution prohibits concessionaires from recording reserves

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In 2017, we incorporated 670.1 million boe of proved reserves by revisions of previous estimates due to technical revisions, mainly due to better than forecasted behavior from reservoirs, in the pre-salt of Santos and Campos basins, both in Brazil. In addition, we added 246.7 million boe in our proved reserves resulting from positive responses from improved recovery (water injection), and added 82.5 million boe in our proved reserves due to extensions and discoveries, mainly in the pre-salt of Santos basins. Considering a production of 919.8 million boe in 2017, our total proved reserves resulted in 9,751.7 million boe in 2017. This 919.8 million boe production does not consider the production of Extended Well Tests (EWTs) in exploratory blocks and production in Bolivia, since the Bolivian Constitution prohibits the disclosure and registration of its reserves. For further information on our reserves, see Item 4. Information on the Company Additional Reserves and Production Information and Supplementary Information on Oil and Gas Exploration and Production in our consolidated audited financial statements.

The following table summarizes the reserves variations in the last three years, in terms of oil equivalents, including synthetic oil and gas.

<b>Proved reserves (million barrels of oil equivalent)</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>
<b>Proved reserves, beginning of year</b>	<b>9,672.2</b>	<b>10,516.0</b>	<b>13,140.6</b>
Discoveries and extensions	82.5	103.2	493.9
Improved recovery	246.7	0.0	21.9
Revisions of previous estimates	670.1	131.0	(2,186.2)
Sales of proved reserves	0	(168.8)	(22.0)
Purchases of proved reserves	0	16.3	0.0
Production	(919.8)	(925.4)	(932.3)
<b>Proved Reserves, end of year</b>	<b>9,751.7</b>	<b>9,672.2</b>	<b>10,516.0</b>

We recorded in 2017 a reserve replacement ratio (RRR) of 109%. We also recorded a reserves-to-production ratio (R/P) of 10.6 years and a development ratio (DR), which is the ratio between developed proved reserves and total proved reserves, of 53%.

**Refining, Transportation and Marketing****Refining, Transportation and Marketing Key Statistics**

	<b>2017</b>	<b>2016</b>	<b>2015</b>
	<b>(US\$ million)</b>		
<b>Refining, Transportation and Marketing:</b>			
Sales revenues	67,037	62,588	74,321
Income (loss) before income taxes	6,099	8,644	8,459
Property, plant and equipment	33,400	35,515	33,032
Capital Expenditures According to Our Plan Cost Assumptions	1,284	1,168	2,534

According to global energy market data released by PIRA Energy Group, Inc. for the end of 2017, we are one of the world's largest refiners. We own and operate 13 refineries in Brazil, with a total net crude distillation capacity of 2,176 mbb/d. As of December 31, 2017, we operated substantially all of Brazil's total refining capacity. We supplied most of the refined product needs of third-party wholesalers, exporters and petrochemical companies, in addition to the needs of our Distribution segment. We operate a large and complex infrastructure of pipelines, terminals and a shipping fleet to transport oil products and crude oil to domestic and export markets. Most of our refineries are located near our crude oil pipelines, storage facilities, refined product pipelines and major petrochemical facilities, facilitating

access to crude oil supplies and end-users.

Our Refining, Transportation and Marketing segment also includes (i) petrochemical operations that add value to the hydrocarbons we produce, (ii) extraction and processing of shale and (iii) international refining activities.

### ***Refining Capacity in Brazil***

Our crude distillation capacity in Brazil as of December 31, 2017, was 2,176 mbb/d and our average throughput during 2017 was 1,736 mbb/d.

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The following table shows the installed capacity of our Brazilian refineries as of December 31, 2017, and the average daily throughputs of our refineries in Brazil in 2017, 2016, and 2015.

Name (Alternative Name)	Location	Capacity and Average Throughput of Refineries			
		Crude Distillation Capacity at December 31, 2017 (mmbbl/d)	Average Throughput*		
		2017	2017	2016	2015
		(mmbbl/d)	(mmbbl/d)	(mmbbl/d)	(mmbbl/d)
LUBNOR	Fortaleza (CE)	8	7	9	8
RECAP (Capuava)	Capuava (SP)	53	50	54	40
REDUC (Duque de Caxias)	Duque de Caxias (RJ)	239	178	194	235
REFAP (Alberto Pasqualini)	Canoas (RS)	201	138	148	174
REGAP (Gabriel Passos)	Betim (MG)	157	143	150	152
REMAN (Isaac Sabbá)	Manaus (AM)	46	32	34	38
REPAR (Presidente Getúlio Vargas)	Araucária (PR)	208	162	167	197
REPLAN (Paulínia)	Paulínia (SP)	415	324	331	391
REVAP (Henrique Lage)	São José dos Campos (SP)	252	208	217	249
RLAM (Landulpho Alves)	Mataripe (BA)	315	198	218	248
RPBC (Presidente Bernardes)	Cubatão (SP)	170	144	142	157
RPCC (Potiguar Clara Camarão)	Guamaré (RN)	38	33	33	34
RNEST (Abreu e Lima)	Ipojuca (PE)	74	68	75	53
Average crude oil throughput		2,176	1,686	1,772	1,936
Average NGL throughput			50	47	40
Average throughput			1,736	1,819	1,976

\* Considers oil and NGLs processing (fresh feedstock)

**Refinery Investments**

We initiated in the last few years the construction of two new refineries Abreu e Lima Refinery RNEST in northeastern Brazil and Petrochemical Complex of Rio de Janeiro (Complexo Petroquímico do Rio de Janeiro COMPERJ) to process our domestically produced heavy oil for oil products that were most in demand in the Brazilian market and with growing shortage.

The first refining unit of RNEST began its operations in December 2014. Designed to process 115 mmbbl/d of crude oil into low sulfur diesel (10 ppm) and other products, this unit started operating with a partial capacity of 74 mmbbl/d and since January 2016 it has been authorized to process up to 100 mmbbl/d of crude oil. Reaching full capacity for the unit will require the completion of a sulfur emissions reduction unit (SNOX), which we expect will be completed in 2018 but also a revamp of the heavy gasoil section at Coker Unit to be implemented at the turnaround maintenance

scheduled for 2020. Construction of the second refining unit of RNEST is included in our 2018-2022 Plan and we prioritize the search for partnerships for this construction.

With respect to COMPERJ, we are currently building a business model to restart the construction of this project, which depends on partnerships with parties willing to fund and complete the construction of its first refining unit, according to our 2018-2022 Plan. To support gas processing from the pre-salt areas, in 2017, we started the execution of a bidding plan to complete the gas plant and its utilities. The projects for the second refining unit and the lubricants unit were cancelled.

We recognized impairment losses for the fiscal year ended December 31, 2017 of US\$515 million on the RNEST and COMPERJ refining assets. A loss of US\$464 million was recognized for the second refining unit in RNEST, mainly due to higher costs of raw materials and lower refining margin, as set forth in our 2018-2022 Plan. With respect to COMPERJ, as set out in our 2018-2022 Plan, the resumption of the project still depends on new partnerships. However, the construction of COMPERJ's first refining unit facilities that will also support the natural gas processing plant (UPGN) is in progress as the facilities are part of the infrastructure for transporting and processing natural gas from the pre-salt layer in Santos Basin. Nevertheless, due to the interdependence between such infrastructure and COMPERJ first refining unit, we recognized additional impairment charges, totaling US\$51 million in 2017.

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We previously recognized impairment losses for the fiscal year ended December 31, 2016 of US\$1,183 million on the RNEST and COMPERJ refining assets. A loss of US\$780 million was recognized for the second refining unit in RNEST, mainly attributable to the use of a higher discount rate and a delay in expected future cash inflows to 2023 due to the postponement of the RNEST project. The completion of this project is subject to our own capital resources, as set forth in our 2017-2021 Plan. Despite the postponement of the beginning of operations of its first refining unit until December 2020, the construction of COMPERJ's first refining unit facilities that will also support the natural gas processing plant (UPGN) are still in progress. These facilities are part of the infrastructure for transporting and processing natural gas from the pre-salt layer in the Santos Basin. Due to the interdependence between such infrastructure and COMPERJ's first refining unit, we recognized additional impairment charges, amounting to US\$403 million of impairment losses in 2016.

We previously recognized impairment losses for the fiscal year ended December 31, 2015 of US\$1,352 million with respect to COMPERJ due to the use of a higher discount rate (reflecting an increase in Brazil's risk premium) and the delay in expected future cash inflows resulting from the further postponement of the project. For further information, see Note 14 to our audited consolidated financial statements and Item 5. Operating and Financial Review and Prospects Critical Accounting Policies and Estimates Impairment Testing of Refining Assets.

In addition to constructing new refineries, over the past ten years, we made substantial investments in our existing refineries to increase our capacity to economically process heavier Brazilian crude oil, improve the quality of our oil products to meet stricter regulatory standards, modernize our refineries, and reduce the environmental impact of our refining operations. These investments in our existing refineries have been largely completed.

Our LPG distribution business Liquegas Distribuidora held a 21.8% market share and ranked second in LPG sales in Brazil in 2017, according to the ANP.

In January 2017, our shareholders' extraordinary general meeting approved the sale of our wholly-owned subsidiary Liquegás Distribuidora S.A. (Liquegás). In February 2018, the court of the Administrative Council of Economic Defense (CADE) evaluated the sale of Liquegás to Companhia Ultragas S.A., and decided, by the majority of its members, not to approve the sale.

Petrobras is analyzing the alternatives for the divestment of Liquegás that remains in our partnerships and divestments program in accordance with our strategic plan, which aims to optimize the business portfolio focused on oil and gas, withdrawing entirely from LPG distribution.

**Domestic Output of Oil Products and Domestic Sales Volumes**

The following tables summarize our domestic output of oil products and sales by product for the last three years.

**Domestic Output of Oil Products: Refining and marketing operations, mbb/d(1)**

	2017	2016	2015
Diesel	692	775	848
Gasoline	439	444	435
Fuel oil	200	196	250
Naphtha	53	54	78
LPG	126	125	127
Jet fuel	106	100	98

Others	184	193	190
<b>Total domestic output of oil products</b>	<b>1,800</b>	<b>1,887</b>	<b>2,026</b>
Installed capacity(2)	2,176	2,176	2,176
Crude distillation utilization (%) (3)	77	81	89
Domestic crude oil as % of total feedstock processed	93	92	86

(1) Output volumes are larger than throughput volumes as a result of gains during the refining process.

(2) Installed capacity as of December 31, 2017, 2016, and 2015.

(3) Crude distillation utilization considers average installed capacity as of December 31, 2017, 2016 and 2015.



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Our total domestic output of oil products decreased to 1,800 mbb/d in 2017 from 1,887 mbb/d in 2016, as a result of our lower market share in 2017 for diesel. In 2017, diesel represented 38% of our domestic output of oil products, as compared to 41% in 2016 and there was a higher participation of domestic crude oil in our total domestic feedstock processed (93% as compared to 92% in 2016.)

**Domestic Sales Volumes and Exports from Brazil, mbb/d**

	<b>2017</b>	<b>2016</b>	<b>2015</b>
Diesel	717	780	923
Gasoline	521	545	553
Fuel oil	61	67	104
Naphtha	134	151	133
LPG	235	234	232
Jet fuel	101	101	110
Others	171	186	179
<b>Total oil products</b>	<b>1,940</b>	<b>2,064</b>	<b>2,234</b>
Ethanol, nitrogen fertilizers, renewables and other products	112	112	123
Natural gas	361	333	432
<b>Total domestic market</b>	<b>2,413</b>	<b>2,509</b>	<b>2,789</b>
Exports (1)	672	554	510
<b>Total domestic market and exports</b>	<b>3,085</b>	<b>3,063</b>	<b>3,299</b>

(1) Includes oil products, crude oil, nitrogen fertilizers, gas natural, renewables and other products.

The Brazilian domestic market grew rapidly from 2010 to 2014, in parallel with Brazil's economic expansion and the increase of average income, increasing by an average of 5.6%. In 2015 and 2016, as a result of the Brazilian economic slowdown, the domestic growth rate in consumption of oil products, particularly diesel, decreased as compared to the higher rates of growth experienced in prior years. Differently from prior years, in 2017 we observed slight signs of improvement on fuel consumption, due to the effects of recovery of some sectors of the Brazilian economy.

Despite this increase in Brazilian fuel consumption, our total domestic sales volumes for oil products were 1,940 mbb/d in 2017, a reduction of 6% compared to 2016. In 2017, our sales of oil products declined as a result of growing market share from other players, particularly through gasoline and diesel imports.

**Imports and Exports**

Our import and export of crude and oil products is driven by the economics involving our domestic refining, the Brazilian demand levels and international prices. Most of the crude oil we produce in Brazil is intermediate. We import some light crude to balance the slate for our refineries, and export mainly intermediate crude oil from our production in Brazil. We also continue to import oil products to balance any shortfall between production from our Brazilian refineries and the market demand for each product. Due to the domestic market retraction and to our lower

market share in 2017, our imports levels were lower than in previous years.

We export oil products from our refineries, mainly fuel oil and bunker, but also gasoline and diesel.

The table below shows our exports and imports of crude oil and oil products in 2017, 2016, and 2015:

<b>Exports and Imports of Crude Oil and Oil Products, mbb/d</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>
<b>Exports</b>			
Crude oil	512	387	360
Oil products	157	155	149
<b>Total exports</b>	<b>669</b>	<b>542</b>	<b>509</b>
<b>Imports</b>			
Crude oil	127	136	277
Diesel	12	13	78
Gasoline	11	32	28
Other oil products	158	193	150
<b>Total imports</b>	<b>308</b>	<b>374</b>	<b>533</b>

**Table of Contents*****Delivery Commitments***

We sell crude oil through long-term and spot-market contracts. In 2018, the crude oil volume committed through long-term contracts with fixed quantity subject to final agreement on commercial terms is approximately 200 mbb/d and the volume committed through long-term contracts subject to mutual agreement is expected to be around 150 mbb/d. Taking into consideration the planned processing rates of our refineries for the coming year we believe that our domestic proved reserves will be sufficient to allow us to continue delivering all contracted volumes. For 2018, approximately 77% of our domestic exported crude oil will be committed by our commercial contracts with third parties.

***Logistics and Infrastructure for Oil and Oil Products***

We own and operate an extensive network of crude oil and oil product pipelines in Brazil that connect our terminals, refineries and other primary distribution points. As of December 31, 2017, our onshore and offshore, crude oil and oil products pipelines extended over 7,719 km (4,796 miles). We operate 27 marine storage terminals and 20 other tank farms with nominal aggregate storage capacity of 64.6 mmbbl. Our marine terminals handle an average of 8,523 tankers and oil barges annually.

We operate a fleet of owned and chartered vessels. These provide shuttle services between our producing basins offshore Brazil and the Brazilian mainland, and shipping to other parts of South America and internationally. We are increasing our fleet of owned vessels to replace older vessels and decrease our dependency on chartered vessels. Upgrades will include replacing vessels nearing the end of their 25-year useful life. Our long-term strategy continues to focus on the flexibility afforded by operating a combination of owned and chartered vessels.

Also, two new oil tankers and one new LPG carrier were delivered to Transpetro in 2017. We plan to have another three more vessels delivered to us during 2018, up to 6 vessels in the following years, and another three vessels were postponed, all of which will be built in Brazilian shipyards.

The table below shows our operating fleet and vessels under contract as of December 31, 2017.

**Owned and Chartered Vessels in Operation and Under Construction Contracts at December 31, 2017**

	In Operation		Under Contract/ Construction	
	Number	Tons Deadweight Capacity	Number	Tons Deadweight Capacity
<b>Owned fleet:</b>				
Tankers	47	4,479,863.00	5	573,500
LPG tankers	8	49,611.00	1	3,000
Anchor Handling Tug Supply (AHTS)			0	0
<b>Total</b>	<b>55</b>	<b>4,529,474.00</b>	<b>6</b>	<b>576,500</b>
<b>Chartered vessels:</b>				
Tankers	97	10,628,843.00		
LPG tankers	18	486,278.00		

<b>Total</b>	<b>115</b>	<b>11,115,121.00</b>
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A decrease in the number of chartered vessels (tankers) in 2017 to 97 (as compared to 113 as of December 31, 2016) is mainly attributable to a decrease in market demand.

We recognized impairment losses for the fiscal year ended December 31, 2017 of US\$112 million on transportations assets, relating to the decision to suspend the construction of three vessels of Panamax project, which triggered an impairment loss for the total carrying amounts of these assets.

We recognized impairment losses for the fiscal year ended December 31, 2016 of US\$244 million on transportations assets, mainly in the third quarter of 2016, relating to the removal of a group of support vessels of Hidrovias project from the Transportation CGU, due to the postponements and suspension of construction projects and the use of a higher discount rate. In the last quarter of 2016, additional impairment charges were accounted for, due to the commencement of the construction on 5 vessels after securing the projects funding, which avoided potential future claims for breach of contracts, and further the higher discount rate.

For further information, see Note 14 to our audited consolidated financial statements.

**Table of Contents****Petrochemicals**

Our petrochemical operations provide an outlet for our growing production volumes of gas and other refined products, which increase their value and provide substitute for products that are otherwise imported. Our new strategy is to carry out divestments in subsidiaries, joint ventures, joint operations and associates, but keeping technological competencies in areas with development potential.

We engage in our petrochemical operations through the following subsidiaries, joint ventures, joint operations and associated companies:

	mmt/y (nominal capacity)	Petrobras interest (%)
<b>Braskem:</b>		
Ethylene	5.00	
Polyethylene	4.11	36.20
Polypropylene	4.05	
<b>DETEN Química S.A.:</b>		
LAB(1)	0.22	
LABSA(1)	0.12	27.88
<b>METANOR S.A./COPENOR S.A.(2):</b>		
Methanol(4)	0.08	
Formaldehyde	0.09	34.54
Hexamine	0.01	
<b>FCC Fábrica Carioca de Catalisadores S.A.:</b>		
Catalysts	0.04	
Additives	0.01	50.00
<b>SUAPE PETROCHEMICAL COMPLEX(3):</b>		
Purified Terephthalic Acid PTA	0.70	
Polyethylene Terephthalate PET	0.45	100.00
Polymer and polyester filament textiles	0.24	
<b>PETROCOQUE S.A.:</b>		
Calcined petroleum coke	0.50	50.00

(1) Feedstock for the production of biodegradable detergents.

(2) Copernor S.A. is a Metanor S.A. subsidiary.

(3) The PTA unit started operations in January 2013 and the PET unit started operations in August 2014.

(4) The company decided to stop the production of methanol in 2016.

At the end of December 2016, our board of directors approved the execution of the agreement for the sale of our stake in Suape Petrochemical Complex, which includes *Companhia Petroquímica de Pernambuco* (PetroquímicaSuape) and *Companhia Integrada Têxtil de Pernambuco* (Citepe) to Grupo Petrotex S.A. de C.V. and Dak Americas Exterior, S.L, both subsidiaries of Alpek. In March 2017, the transaction was approved at a shareholder's meeting. The total sale value was US\$ 385 million, to be paid in *reais* on the closing date for the transaction. In February 2018, the CADE Court approved the sale of PetroquímicaSuape to Alpek subject to the execution of an Agreement on Concentration of Control (*Acordo de Controle de Concentração - ACC*).

We recognized impairment losses for the fiscal year ended December 31, 2016 of US\$619 million with respect to the Suape Petrochemical Complex, mainly attributable to lower market projections and the appreciation of the *real* against the U.S. dollar. Following the disposal of Suape Petrochemical Complex in December 2016, we recognized an additional impairment charge of US\$435 million, due to the lower exit price of these investments when compared to their carrying amount adjusted by the debt to be settled by us as part of the closing of such transaction. We previously recognized impairment losses for the fiscal year ended December 31, 2015 of US\$200 million with respect to the Suape Petrochemical Complex due to changes in market and price assumptions resulting from a decrease in economic activity in Brazil, a reduction in the spread for petrochemical products in the international market and the use of a higher discount rate (reflecting an increase in Brazil's risk premium). For further information, see Note 14 to our audited consolidated financial statements.

**Table of Contents****Refining Capacity Abroad**

Our international crude distillation capacity as of December 31, 2017 was 100 mbb/d and the utilization factor for our international consolidated refining facilities was 88%.

The following table shows the installed capacity of our international refineries as of December 31, 2017, and the average daily throughputs in 2017, 2016, and 2015, respectively.

Name (Alternative Name)	Location	Capacity and Average Throughput of Refineries			
		Crude Distillation Capacity at December 31, 2017 (mbbl/d)	2017 (2)	2016 (2)	Average Throughput(1) 2015
Pasadena Refining System Inc.	Texas (USA)	100	88.4	104.2	99.5
Nansei Sekiyu Kabushiki Kaisha(3)	Okinawa (JP)				10.2
Ricardo Eliçabe Refinery(4)	Bahía Blanca (AR)			15.3	28.7
Total average crude oil throughput		100	88.4	119.4	132.8
Average external intermediate throughput			5.2	6.5	5.6
Total average throughput			93.6	125.9	138.4

(1) Consider oil (fresh feedstock) and external processed intermediate oil products.

(2) For the years 2016 and 2017 we report the average crude oil throughput separately from the average external intermediate throughput.

(3) We operated this refinery, with a capacity of 100 mbb/d, until the first quarter of 2015. In December 2016, we closed the sale of 100% of the shares in Nansei Sekiyu ( NSS ) to Taiyo Oil Company.

(4) We used to own this refinery through our interest in PESA, with a capacity of 30.5 mbb/d until July 2016, when we sold our entire participation in PESA, indirectly owned through Petrobras Participaciones S.L. ( PPSL ), to Pampa Energía.

The following table shows the total average output of oil products of our international refineries in 2017, 2016, and 2015.

International Average Output of Oil Products			
	2017	2016	2015
	(mbbl/d)		
Total average output	94	128	149

Currently, we participate in the refining sector in North America.

In the United States, we own 100% of the Pasadena Refining System Inc., and 100% of its related trading company, PRSI Trading, LLC. In March 2018, we announced the beginning of the non-binding phase related to the sale of the companies that integrate the Pasadena Refining System through its affiliate Petrobras America Inc (PAI).

*Sales Volumes Abroad*

**Sales Volumes Abroad, mbbl/d**

	<b>2017</b>	<b>2016</b>	<b>2015</b>
<b>International Sales</b>	<b>242</b>	<b>418</b>	<b>546</b>

**Distribution**

**Distribution Key Statistics**

	<b>2017</b>	<b>2016</b>	<b>2015</b>
	<b>(US\$ million)</b>		
Sales revenues	27,567	27,927	33,406
Income (loss) before income taxes	802	96	(219)
Property, plant and equipment	1,862	1,936	1,868
Capital Expenditures According to Our Plan Cost Assumptions	109	139	255



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### **Domestic Distribution**

We are Brazil's leading oil products distributor, operating through our own retail network, through our own wholesale channels, and by supplying other fuel wholesalers and retailers. Our Distribution segment sells oil products that are primarily produced by our Refining, Transportation and Marketing segment, or RTM, and works to expand the domestic market for these oil products and for other fuels, including LPG, natural gas, ethanol and biodiesel.

The primary focus of our Distribution segment is to be the benchmark in the distribution of oil products and biofuels in Brazil, by innovating and providing value to our business, while promoting safe operations and environmental and social responsibility, strengthening the our brand.

We supply and operate Petrobras Distribuidora, which accounts for 29.9% of the total Brazilian retail and wholesale distribution market. Petrobras Distribuidora distributes oil products, ethanol, biodiesel and natural gas to retail, commercial and industrial customers. In 2017, Petrobras Distribuidora sold the equivalent of 744.2 mbbbl/d of oil products and other fuels to wholesale and retail customers, of which the largest portion (39.8%) was diesel.

At December 31, 2017, our Petrobras Distribuidora branded service station network was Brazil's leading market retailer, with 8,277 service stations, or 19.69% of the stations in Brazil, according to ANP and Plural Associação Nacional das Distribuidoras de Combustíveis, Lubrificantes, Logística e Conveniência (Plural). Petrobras Distribuidora owned and franchised stations that represented 24.4% of Brazil's retail sales of diesel, gasoline, ethanol, vehicular natural gas and lubricants in 2017, according to ANP and Plural.

Most Petrobras Distribuidora service stations are owned by third parties that use the Petrobras Distribuidora brand name under license and purchase exclusively from us; we also provide franchisees with technical support, training and advertising. We own 630 of the Petrobras Distribuidora service stations and are required by law to subcontract the operation of these owned stations to third parties. We believe that our market share position is supported by a strong Petrobras Distribuidora brand image and by the remodeling of service stations and addition of lubrication centers and convenience stores.

Our wholesale distribution of oil products and biofuels under the Petrobras Distribuidora brand to commercial and industrial customers accounts for 45.9% of the total Brazilian wholesale market, according to ANP and Plural. Our customers include aviation, transportation and industrial companies, as well as utilities and government entities.

### **Distribution Abroad**

We also participate in the retail sector in other South American countries. See below our international distribution activities by region:

#### ***South America***

We conduct distribution activities in Argentina, Chile, Colombia, Paraguay and Uruguay:

In **Argentina**, through PESA, our operations included 266 retail service stations until July of 2016, when we sold our entire participation in PESA;

In **Chile**, our operations included 281 service stations, the distribution and sales of fuel at airports and a lubricant plant. In July of 2016, we signed with Southern Cross Group ( SCG ) a contract for the sale of our entire interest in distribution in Chile. We also signed a temporary brand licensing agreement through which SCG will operate under our brand;

In **Colombia**, our operations include 113 service stations and a lubricant plant;

In **Paraguay**, our operations include 192 service stations, the distribution and sales of fuel at three airports and an LPG refueling plant. In October 2017, we gave notice of the start of the binding phase for the sale of our assets in Paraguay; and

In **Uruguay**, we have downstream operations in the country, including 88 service stations.

**Table of Contents****Gas and Power****Gas and Power Key Statistics**

	2017	2016	2015
	(US\$ million)		
<b>Gas and Power:</b>			
Sales revenues	12,374	9,401	13,145
Income (loss) before income taxes	3,018	1,252	518
Property, plant and equipment	13,231	13,094	14,674
Capital Expenditures According to Our Plan Cost Assumptions	1,127	717	793

Our Gas and Power segment comprises gas transmission and distribution, LNG regasification, the manufacture of nitrogen-based fertilizers, gas-fired and flex-fuel power generation, and power generation from renewable sources, including solar and wind sources.

The primary focus of our Gas and Power segment is to:

Monetize our natural gas resources;

Assure reliability and profitability in the supply of natural gas; and

Consolidate our electric energy business, exploring synergies between our natural gas supply and power generation capacities.

**Domestic Gas and Power**

For more than two decades, we have actively worked to simultaneously develop Brazil's natural gas reserves and develop important infrastructure in order to assure flexibility and reliability in the supply of natural gas. As a result of this multi-year development program, Brazil has an integrated system centered around two main interlinked pipeline networks, a gas pipeline connection with Bolivia and an isolated pipeline in the northern region of Brazil (all together spanning over 9,190 km). This network allows us to deliver to our customers natural gas processed in our gas facilities arriving from our onshore and offshore natural gas producing fields, mainly from Santos, Campos and Espírito Santo Basins, as well as the natural gas from our three LNG terminals, and from Bolivia. It is important to note that Petrobras concluded on April 4, 2017 the sale transaction of 90% of the company's shares in Nova Transportadora do Sudeste ( NTS ) with pipelines of 2,043 kilometers of extension to Nova Infraestrutura Fundo de Investimentos em Participações ( FIP ), managed by Brookfield Brasil Asset Management Investimentos Ltda, an entity affiliated with Brookfield Asset Management.

**Natural Gas**

Our principal markets for natural gas are:

Industrial, commercial and retail customers;

Thermoelectric generation; and

Consumption by our refineries and fertilizer plants.

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The table below shows the sources of our natural gas supply, our sales and internal consumption of natural gas, and revenues in our local gas distribution operations for each of the past three years.

**Supply and Sales of Natural Gas in Brazil, mmm<sup>3</sup>/d**

	2017	2016	2015
<b>Sources of natural gas supply</b>			
Domestic production	53.7	44.0	44.9
Imported from Bolivia	24.0	28.4	32.1
LNG	5.0	3.8	18.0
<b>Total natural gas supply</b>	<b>82.7</b>	<b>76.2</b>	<b>95.0</b>
<b>Sales of natural gas</b>			
Sales to local gas distribution companies(1)	36.7	34.8	37.5
Sales to gas-fired power plants	20.7	18.0	31.1
<b>Total sales of natural gas</b>	<b>57.4</b>	<b>52.8</b>	<b>68.6</b>
<b>Internal consumption (refineries, fertilizer and gas-fired power plants)(2)</b>	<b>25.3</b>	<b>23.4</b>	<b>26.4</b>
<b>Revenues (US\$ billion)(3)</b>	<b>7.9</b>	<b>6.4</b>	<b>8.3</b>

(1) Includes sales to local gas distribution companies in which we have equity interest.

(2) Includes gas used in the transport system.

(3) Includes natural gas sales revenues from the Natural Gas segment to other operating segments, service and other revenues from natural gas companies.

Our volume of natural gas sales to industrial, gas fired electric power generation, commercial and retail customers in 2017 was 57.4 mmm<sup>3</sup>/d, representing an increase of 8.7% compared to 2016. This increase is attributable to growth of our industrial activities from 2016 to 2017 and to the more electric generation from gas-fired power plants. Natural gas consumption by refineries and fertilizer plants decreased by 1.8%. Currently, our main focus is to provide logistics and processing solutions for our planned natural gas production from the pre-salt fields. In 2018, we plan to continue to invest in:

(i) Construction of a new gas offshore pipeline Route 3 with capacity of 636 mmcf/d (18 mmm<sup>3</sup>/d) connecting the Santos Basin pre-salt producing fields to Itaboraí processing plant. The initial operation is scheduled to start by the end of 2019.

(ii) Construction of a natural gas processing plant with capacity of 742 mmcf/d (21 mmm<sup>3</sup>/d), located at city of Itaboraí, Rio de Janeiro State, also associated with the pre-salt reservoirs in the Santos Basin. The Itaboraí facility is scheduled to start operations by 2020.

(iii) Enhancement of Caraguatatuba natural gas processing plant related to pre-salt reservoirs in Santos Basin.

The natural gas processing plant in Itaboraí is scheduled to begin operations by 2020.

We also own and operate three LNG flexible terminals capable to receive FSRUs (Floating Storage and Regasification Units), one in Guanabara Bay (State of Rio de Janeiro) with a send-out capacity of 706 mmcf/d (20 mmm<sup>3</sup>/d), another in Pecém (State of Ceará) in Northeastern Brazil with a send-out capacity of 247 mmcf/d (7 mmm<sup>3</sup>/d) and the last one located in the Todos os Santos Bay (State of Bahia), with a send-out capacity of 494 mmcf/d (14 mmm<sup>3</sup>/d).

In 2017, we imported 27 LNG cargos in Brazil, as compared to 26 in 2016. In addition, in 2017, we kept our commercial activities primarily abroad, with 18 trading operations overseas (including 2 reloads from Brazil).

We also own and operate 23 natural gas processing units (including units managed by our E&P, Gas and Power, and RTM business segments) 20 in Brazil and 3 in Bolivia, with a total processing capacity of 150.80 million m<sup>3</sup>/day. Our natural gas processing units are located in Amazonas, Ceará, Rio Grande do Norte, Alagoas, Sergipe, Bahia, Espírito Santo, Rio de Janeiro, São Paulo and Bolívia, and are capable of processing natural gas in its gaseous and condensed form.

The total average volume of natural gas processed in Brazil in 2017 was 71.7 million m<sup>3</sup>/day, 16% higher than in 2016. In 2017, after the processing of natural gas, the main products were 58.25 million m<sup>3</sup>/day of natural gas and 3.8 million tons/day of GLP. Other than natural gas produced in Brazil, we also receive natural gas from Bolivia, through a gas pipeline, and liquefied natural gas, imported from other countries in specialized vessels and regassified in terminals in Brazil.

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The total average volume of natural gas processed in Bolivia in 2017 was 20.5 million m<sup>3</sup>/day, 17% less than 2016. The map below shows gas pipeline networks, LNG terminals and natural gas processing plants.

We hold stakes in nineteen of the twenty seven natural gas distributors in Brazil. Through Gaspetro, in which we have a 51% stake, we hold interests ranging from 23.5% to 100% in these distributors. In addition, Petrobras Distribuidora operates in the Espírito Santo state and we hold a 71.25% stake in this distributor. The three most significant distributors in our portfolio (by volume) are CEG Rio, Bahiagás and Copergás (held through Gaspetro) and their combined averaged gas sales volumes in 2017 amounted to 15.03 mmm<sup>3</sup>/d, representing 56.99% of the averaged gas sales volumes of our twenty natural gas distributors during 2017.

### ***Long-Term Natural Gas Commitments***

When we began construction of the Bolivia-Brazil pipeline ( GASBOL ) in 1996, we entered into a long-term Gas Supply Agreement, or GSA, with the Bolivian state-owned company Yacimientos Petrolíferos Fiscales Bolivianos, or YPF, to purchase certain minimum volumes of natural gas at prices linked to the international fuel oil price through 2019, after which the agreement may be extended until all contracted volume has been delivered. At the moment, we estimate that the agreement will be extended through 2022.

Our volume obligations under the ship-or-pay arrangements entered into with Gas Transboliviano S.A. (GTB) and Transportadora Brasileira Gasoduto Bolívia-Brasil S.A. (TBG) were originally designed to match our gas purchase obligations under the GSA through 2019.

Regarding GASBOL Bolivian side, while YPF has shipper's obligations, Petrobras agreed to pay, on behalf of YPF, the amounts related to 24 mmm<sup>3</sup>/d directly to GTB until 2019 and pre-paid 6 mmm<sup>3</sup>/d until 2039.

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For GASBOL Brazilian side, after 2020, there is 12 mmm<sup>3</sup>/d of remaining volume commitment related to Bolivian gas imports and 5.2 mmm<sup>3</sup>/d to extra capacity between Paulínia, São Paulo state, and Araucária, Paraná state. Any additional capacity must be contracted through a public process conducted by Agência Nacional do Petróleo, Gás Natural e Biocombustíveis, or ANP, in accordance with Brazilian law.

The table below shows our contractual commitments under these agreements for the five-year period from 2018 through 2022.

Besides the aforementioned contracts, we also have obligations under the ship-or-pay contracts entered into with Nova Transportadora do Sudeste (NTS) and Transportadora Associada de Gás (TAG) to transport natural gas produced in Brazil and import LNG to gas distribution companies, power plants and oil refineries.

	2018	2019	2020	2021	2022
<b>Purchase commitments to YPFB</b>					
Volume obligation (mmm <sup>3</sup> /d)(1)	24.06	24.06	24.06	24.06	24.06
Volume obligation (mmcf/d)(1)	850.00	850.00	850.00	850.00	850.00
Brent crude oil projection (US\$)(2)	53.18	58.30	65.62	69.90	72.89
Estimated payments (US\$ million)(3)	1,340.86	1,349.68	1,382.96	1,485.61	1,623.05
<b>Ship-or-pay contract with GTB</b>					
Volume commitment (mmm <sup>3</sup> /d)	30.08	30.08	6.00	6.00	6.00
Volume commitment (mmcf/d)	1,062.28	1,062.28	211.89	211.89	211.89
Estimated payments (US\$ million)(4)(5)	113.72	114.30			
<b>Ship-or-pay contract with TBG (7)</b>					
Volume commitment (mmm <sup>3</sup> /d)(6)	35.28	35.28	17.20	17.20	11.20
Volume commitment (mmcf/d)	1,245.91	1,245.91	607.42	607.42	395.53
Estimated payments (US\$ million)(4)	513.58	546.26	150.60	150.65	18.06
<b>Ship-or-pay contract with NTS</b>					
Volume commitment (mmm <sup>3</sup> /d)	158.205	158.205	158.205	158.205	158.205
Volume commitment (mmcf/d)	5,587.01	5,587.01	5,587.01	5,587.01	5,587.01
Estimated payments (US\$ million)(4)	1,246.21	1,235.44	1,235.44	1,239.01	1,228.36
<b>Ship-or-pay contract with TAG (7)</b>					
Volume commitment (mmm <sup>3</sup> /d)	75.87	75.87	75.87	75.87	75.87
Volume commitment (mmcf/d)	2,679.35	2,679.35	2,679.35	2,679.35	2,679.35
Estimated payments (US\$ million)(4)	1,602.08	1,592.10	1,591.89	1,596.49	1,582.76

(1) 25.3% of contracted volume supplied by Petrobras Bolivia.

(2) Brent crude oil price forecast based on our 2018-2022 Plan.

(3) Estimated payments are calculated using gas prices expected for each year based on our Brent crude oil price forecast. Gas prices may be adjusted in the future based on contract clauses and amounts of natural gas purchased by us may vary annually.

(4) Amounts calculated based on current prices defined in natural gas transport contracts.

(5) No estimated payments from 2020 due to Contract TCO-Bolivia prepayment.

(6) Includes ship-or-pay contracts relating to TBG's capacity increase.

(7) We are undertaking divestment processes for TBG and TAG, expected to occur until 2022. The ship-or-pay contracts shown with TBG and TAG are not included in our audited consolidated financial statements, since such



contracts are intercompany transactions.

*Natural Gas Sales Contracts*

We sell our gas primarily to local gas distribution companies and to gas fired plants generally based on standard take-or-pay, long-term supply contracts. This represents 70% of our total sale volumes, and the price formulas under these contracts are mainly indexed to an international fuel oil basket. Additionally, we have a number of sales contracts designed to create flexibility in matching customer demand with our gas supply capabilities. These include flexible and interruptible long-term gas sales contracts.

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In 2017, we continued to renegotiate some existing long-term natural gas sales contracts with local distribution companies of natural gas in order to promote adjustments to commercial conditions tailored to specific market demands, concluding in negotiations with five local distribution companies that represent 25% of the non-thermoelectric natural gas market, with an average price increase of 9%. The renegotiations will continue in 2018 with remaining local distribution companies. The table below shows our future gas supply commitments from 2018 to 2022, including sales to both local gas distribution companies and gas-fired power plants:

<b>Future Commitments under Natural Gas Sales Contracts, mmm<sup>3</sup>/d</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>To local gas distribution companies:</b>					
Related parties(1)	16.36	17.57	18.17	18.20	18.18
Third parties	20.22	20.74	21.09	21.63	22.03
<b>To gas-fired power plants:</b>					
Related parties(1)	4.67	2.34	5.96	2.01	2.74
Third parties	12.01	10.56	10.23	10.33	11.16
<b>Total(2)</b>	<b>53.26</b>	<b>51.20</b>	<b>55.46</b>	<b>52.17</b>	<b>54.11</b>
Estimated amounts to be invoiced (US\$ billion)(3)(4)	4.52	4.99	5.15	5.62	5.46

(1) For purposes of this table, related parties include all local gas distribution companies and power generation plants in which we have an equity interest and third parties refer to those in which we do not have equity interest.

(2) Estimated volumes are based on take or pay and ship or pay agreements in our contracts, expected volumes and contracts under negotiation (including renewals of existing contracts), not maximum sales.

(3) Estimates are based on outside sales and do not include internal consumption or transfers.

(4) Prices may be adjusted in the future, according to formula defined in contract, and actual amounts may vary.

**Power**

Brazilian electricity needs are mainly supplied by hydroelectric power plants (95,619 MW of installed capacity), which account for 60% of Brazil's current generation capacity, according to the Brazilian National Electric Agency (*Agência Nacional de Energia Elétrica* - ANEEL). Hydroelectric power plants are dependent on the annual level of rainfall; in the years where rainfall is abundant, Brazilian hydroelectric power plants will generate more electricity and consequently less generation from thermoelectric power plants will be demanded. The total installed capacity of the Brazilian National Interconnected Power Grid (*Sistema Interligado Nacional*) in 2017 was 158,486 MW, according to ANEEL. Of this total, 6,148 MW (or 3.9%) was available from 20 thermoelectric plants we operate. These plants are designed to supplement power from the hydroelectric power plants.

In 2017, hydroelectric power plants in Brazil generated 44,895 MWavg, which corresponded to 68% of Brazil's total electricity needs (65,603 MWavg), according to the Brazilian National Electric System Operator (*Operador Nacional do Sistema Elétrico* - ONS). Hydroelectric generation capacity is supplemented by other sources of energy (wind, coal, nuclear, fuel oil, diesel oil, natural gas, and others). Total electricity generated by these sources, according to ONS, averaged 20,707 MW in 2017, of which our thermoelectric power plants contributed 3,165 MWavg, as compared to 2,252 MWavg in 2016 and 4,646 MWavg in 2015.

**Electricity Sales and Commitments for Future Generation Capacity**

Under Brazil's power pricing regime, a thermoelectric power plant may sell only electricity that is certified by the MME and which corresponds to a fraction of its installed capacity. This certificate is granted to ensure a constant sale of commercial capacity over the course of years to each power plant, given its role within Brazil's system to supplement hydroelectricity power during periods of unfavorable rainfall. The amount of certified capacity for each power plant is determined by its expected capacity to generate energy over time.

The total capacity certified by the MME (*garantia física*) may be sold through long-term contracts in auctions to power distribution companies (standby availability), sold through bilateral contracts executed with free customers and used to meet the energy needs of our own facilities.

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In exchange for selling this certified capacity, the thermoelectric power plants shall produce energy whenever requested by the national operator (ONS). In addition to a capacity payment, thermoelectric power plants also receive from the Electric Energy Trading Chamber (*Câmara de Comercialização de Energia Elétrica*, or CCEE) reimbursement for its variable costs (previously declared to MME to calculate its commercial certified capacity) incurred whenever they are requested to generate electricity.

In 2017, the commercial capacity certified by MME for all thermoelectric power plants controlled by us was 4,040 MWavg, although our total generating capacity was 6,148 MWavg. Of the total 4,928 MWavg of commercial capacity available (*capacidade comercial disponível* or *lastro*) for sale in 2017, approximately 62% was sold as standby availability in public auctions in the regulated market (compared to 70% in 2016) and approximately 25% was committed under bilateral contracts and self-production (i.e. sales to related parties) (compared to 30% in 2016).

Under the terms of standby availability contracts, we are paid a fixed amount whether or not we generate any power. Additionally, whenever we have to deliver energy under these contracts, we receive an additional payment for the energy delivered that is set on the auction date and is revised monthly or annually based on inflation-adjusted international fuel price indexes.

Our future commitments under bilateral contracts and self-production are of 1,376 MWavg in 2018, 1,368 MWavg in 2019, and 1,091 MWavg in 2020. The agreements expire gradually, with the last contract expiring in 2028. As existing bilateral contracts expire, we will sell our remaining certified commercial capacity under contracts in new auctions to be conducted by MME or through the execution of new bilateral contracts.

The table below shows the evolution of our installed thermoelectric power plants capacity, our purchases in the free market and the associated certificated commercial capacity.

	2017	2016	2015
<b>Installed power capacity and utilization</b>			
Installed capacity (MW)	6,148	6,148	6,148
Certified commercial capacity (MWavg)	4,040	4,197	4,307
Purchases in the free market (MWavg)	888	345	247
Commercial capacity available ( <i>Lastro</i> ) (MWavg)	4,928	4,542	4,554

The table below shows the allocation of our sales volume between our customers and our revenues for each of the past three years:

	2017	2016	2015
<b>Volumes of Electricity Sold (MWavg)</b>			
<b>Total sale commitments</b>	<b>4,270</b>	<b>4,463</b>	<b>4,451</b>
Bilateral contracts	788	835	854
Self-production	424	456	437
Public auctions to distribution companies	3,058	3,172	3,160
<b>Generation volume</b>	<b>3,165</b>	<b>2,252</b>	<b>4,646</b>
<b>Revenues (US\$ million)(1)</b>	<b>4,162</b>	<b>2,470</b>	<b>4,410</b>

- (1) Includes electricity sales revenues from the Power segment to other operating segments, service and other revenues from electricity companies.

**Table of Contents****Fertilizers**

Our fertilizer plants in Bahia, Sergipe and Paraná produce ammonia and urea for the Brazilian market. The units in Bahia and Paraná also produce automotive liquid reducing agents (ARLA-32) and the unit in Sergipe also produces ammonium sulfate. The combined production capacity of these plants is 1,852,000 t/y of urea, 1,406,000 t/y of ammonia, 300,000 t/y of ammonium sulfate and 800,000 t/y of ARLA-32. Most of our ammonia production is used to produce urea, and the excess production is mainly sold in the Brazilian market. In 2017, we reduced the utilization rate of these plants yielding to a 31.07% decrease in production volume compared to 2016 due to the maintenance turnaround of the fertilizer plants in Araucária located in Bahia, Sergipe and Paraná. The table below shows our ammonia and urea sales and revenues for each of the past three years:

	<b>Ammonia and Urea (t/y)</b>		
	<b>2017</b>	<b>2016</b>	<b>2015</b>
Ammonia	279,621	286,268	240,620
Urea	858,051	1,033,648	1,283,673
Revenues (US\$ million)(1)	370	465	676

(1) Includes nitrogenous fertilizers sales revenues from the Fertilizer segment to other operating segments, services and other revenues from fertilizers companies.

Due to major changes in our business context, in 2015, we suspended investments in the following fertilizer projects:

UFN III, with the capacity to produce 1.2 mmt/y of urea and 70 mt/y of ammonia from 2.2 mmm<sup>3</sup>/d of natural gas; and

UFN V, with the capacity to produce 519,000 t/y of ammonia from 1.3 mmm<sup>3</sup>/d of natural gas.

In December 2017, we announced the beginning of the binding phase regarding the process of divesting 100% of its assets in Araucaria Nitrogenados S.A. ( ANSA ) and in the Nitrogen Fertilizer Unit III ( UFN III ).

The UFN V fertilizing project was cancelled in January 2016.

In March 2018, we decided to mothball our fertilizer plants located in Sergipe ( Fafen-SE ) and Bahia ( Fafen-BA ). The decision to mothball these units is aligned with our strategic position to fully withdraw from fertilizer production activities, as set forth in our 2018-2022 Plan.

We recognized impairment losses of US\$412 million for the fiscal year ended December 31, 2017, with respect to the fertilizer plants, representing the total carrying amount of these assets, following our plan to withdraw our entire interest in this business segment, as set forth in our 2018-2022 Plan approved in December 2017, along with the low expectation of a successful sale of fertilizers and nitrogen products plants. In addition, we recognized US\$70 million relating to Araucária fertilizer facility, primarily in the second quarter of 2017, due to negative cash flow projections that were based on financial budget and forecasts approved by our management and a post-tax *real* discount rate of 6.6% p.a. derived for the weighted average cost of capital (WACC) for the fertilizer business.

We recognized impairment losses for the fiscal year ended December 31, 2016 of US\$153 million with respect to the UFN III fertilizer facility and of US\$140 million with respect to Araucária fertilizer facility, mainly attributable to (i) the use of a higher discount rate, (ii) the appreciation of the *real* against the U.S. Dollar for both projects and (iii) an increase in estimated production costs in Araucária.

We previously recognized impairment losses of US\$501 million for the fiscal year ended December 31, 2015, with respect to the UFN III fertilizer due to (i) the use of a higher discount rate (reflecting an increase in Brazil's risk premium) and (ii) the delay in expected future cash inflows resulting from postponement of the project and of US\$190 million with respect to the UFN V fertilizer facility due to our decision to cancel the project.

For further information, see Note 14 to our audited consolidated financial statements.

**Table of Contents****Renewable Energy**

We have invested, alone and in partnership with other companies, in renewable power generation sources in Brazil, including wind. We currently participate in joint ventures in four wind power plants (Mangue Seco 1, 2, 3 and 4) and we hold indirect interests in two small hydroelectric power plants (Areia and Água Limpa) through our associate Termoelétrica Potiguar S.A. – TEP. Additionally, a solar power plant unit UFVAR integrate our assets. The power generation capacity we have (alone and through the equity interests we hold in renewable energy companies) is equivalent to 25.4 MW of hydroelectric capacity, 1.1 MW of solar capacity and 104 MW of wind capacity. We and our partners sell energy from these plants directly to the Brazilian federal government via the 2009 reserve energy auctions.

**Gas and Power Abroad**

We also participate in the gas and power sector in other South American countries. See below our international activities by region:

**South America**

We conduct gas and power activities in Argentina, Bolivia and in Uruguay.

In **Argentina**, through PESA, we previously owned four electric power plants, Pichi Picún Leufú (hydrogeneration), Genelba (gas powered combined cycle), Genelba Plus (gas powered) and EcoEnergia (Cogeneration)), and we previously held an interest in two other electric power plants, Central Termelétrica José de San Martín S.A. and Central Termelétrica Manuel Belgrano S.A. and we also previously had a stake in a natural gas transportation company called TGS (Transportadora Gas del Sur). In July 2016, we sold our entire stake in PESA, owned through Petrobras Participaciones S.L. ( PPSL ), to Pampa Energía. Through Petrobras International Braspetro B.V. PIB BV (Netherlands), we have an interest of 34% in Compañía Mega S.A., a natural gas separation facility.

In **Bolivia**, we hold an 11% interest in GTB, owner of the Bolivian section of the Bolivia-to-Brazil (BTB) pipeline that transports natural gas we produce in Bolivia to the Brazilian market.

In **Uruguay**, we participate in the two companies that are responsible for the distribution of natural gas by pipelines in the country: (i) Distribuidora de Gás Montevideo S.A., a company we own a 100% stake in, that supplies natural gas to the Montevideo area; and (ii) Conecta S.A., a company in which we hold a 55% equity interest (the remaining 45% belong to ANCAP, Uruguay's state oil company), that supplies natural gas to the rest of country.

**Biofuels****Biofuels Key Statistics**

**2017 2016 2015**  
**(US\$ million)**



**Biofuel:**

Sales revenues	213	240	229
Income (loss) before income taxes	(57)	(351)	(317)
Property, plant and equipment	89	100	91
Capital Expenditures According to Our Plan Cost Assumptions	35	96	43

Brazil is a global leader in the use and production of biofuels. In 2017, 88.6% of new light vehicles sold in Brazil had flexfuel capability, and service stations offered a choice of 100% ethanol and an ethanol/gasoline blend. In March 2015, the Brazilian federal government increased the anhydrous ethanol content requirement for the gasoline sold in Brazil from 25% to 27%. Biodiesel also has a mandatory blend of 8% in all diesel fuel sold in Brazil since March 2017, increasing to 10% by March 2018.

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We recognized impairment losses for the fiscal year ended December 31, 2016 on equity-method investments, amounting to US\$208 million, as a result of equity-accounted investments relating to Guarani S.A. and Nova Fronteira Bioenergia S.A., in which we used to own interests that were approved for sale in the last quarter of 2016. For further information on our partnerships and divestments completed in 2017, see Item 4. Information of the Company Overview of the Group. For further information on impairment, see Note 14 to our audited consolidated financial statements.

**Biodiesel**

In 2017, we supplied 16% of Brazil's biodiesel (assuming 100% of BSBIOS Indústria e Comércio de Biodiesel Sul Brasil S.A. (BSBIOS Sul Brasil) production) and we act as a market catalyst by securing and blending biodiesel supplies and furnishing these to smaller distributors as well as our own service stations. We directly own three biodiesel plants (Quixadá biodiesel plant had its own operation stopped in November 2016 due to weak economic results and it is in restorative hibernation state) and, through our 50% interest in BSBIOS Sul Brasil, we own two additional plants. The biodiesel production capacity of these five plants totals 18.4 mbbbl/d.

**Ethanol**

We have historically been present in the ethanol and sugar production and have sold the exceeding electricity generated from sugarcane bagasse burn. However, we have strategically decided to withdraw from biofuel production, preserving technological competencies in areas with development potential, and have entered into a number of strategic transactions to that end. In 2017, we concluded the sale of our equity stake in Guarani and the incorporation of Nova Fronteira into São Martinho. As a result, we own 6.6% of São Martinho and 8.4% of Bambuí Bioenergia.

In February 2018, we sold, through an auction at B3, shares of São Martinho S.A. (SMT03). After the sale of 6.6% stake in the total capital of São Martinho S.A., we no longer hold any participation in this company.

**Corporate****Corporate Key Statistics**

	2017	2016	2015
	(US\$ million)		
<b>Corporate:</b>			
Income (loss) before income taxes	(18,111)	(13,723)	(14,961)
Property, plant and equipment	1,629	1,819	1,949
Capital Expenditures According to Our Plan Cost Assumptions	132	230	302

Our Corporate segment comprises activities that cannot be attributed to other segments, including corporate financial management, central administrative overhead and actuarial expenses related to our pension and medical benefits for retired employees and their dependents.

In 2017, our loss before income taxes includes the provision for the class action agreement to settle, in the amount of US\$3,449 million.

**Organizational Structure**

As of December 31, 2017, we had 24 direct subsidiaries and 2 direct joint operations as listed below. Twenty-three are entities incorporated under the laws of Brazil and three are incorporated abroad. We also have indirect subsidiaries (including PGF). See Exhibit 8.1 for a complete list of our subsidiaries and joint operations, including their full names, jurisdictions of incorporation and our percentage of equity interest.

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**PETROBRAS**

**BRAZIL**

Petrobras Distribuidora S.A. BR  
 Petrobras Transporte S.A. Transpetro  
 Petrobras Logística de Exploração e Produção  
 S.A. PB-LOG  
 Transportadora Associada de Gás S.A. TAG  
 Petrobras Gás S.A. Gaspetro  
 Petrobras Biocombustível S.A.  
 Petrobras Logística de Gás Logigás  
 Liquigás Distribuidora S.A.  
 Araucária Nitrogenados S.A.  
 Termomacaé Ltda.  
 Breitener Energética S.A.  
 Companhia Integrada Têxtil de Pernambuco S.A. CITEPE  
 Termobahia S.A.  
 Companhia Petroquímica de Pernambuco  
 S.A. PetroquímicaSuape  
 Baixada Santista Energia S.A.  
 Petrobras Comercializadora de Energia Ltda. PBEN  
 Fundo de Investimento Imobiliário RB Logística FII  
 Petrobras Negócios Eletrônicos S.A. E-Petro  
 Termomacaé Comercializadora de Energia Ltda 5283  
 Participações Ltda.  
 PDET Offshore S.A.  
 Fábrica Carioca de Catalisadores S.A. FCC<sup>(\*)</sup>  
 Ibiritermo S.A.<sup>(\*)</sup>

**ABROAD**

Petrobras Netherlands B.V. PNBV  
 Petrobras International Braspetro PIB BV  
 Braspetro Oil Services Company Brasoil

(\*) Joint operations.

**Property, Plant and Equipment**

Our most important tangible assets are wells, platforms, refining facilities, pipelines, vessels, other transportation assets, power plants as well as fertilizers and biodiesels plants. Most of these are located in Brazil. We own and lease our facilities and some owned facilities are subject to liens, although the value of encumbered assets is not material.

We have the right to exploit crude oil and gas reserves in Brazil under concession and production sharing agreements, but the reserves themselves are the property of the government under Brazilian law. Item 4. Information on the Company includes a description of our reserves and sources of crude oil and natural gas, key tangible assets, and material plans to expand and improve our facilities.

As of December 31, 2017, our property, plant and equipment included US\$22,614 million (US\$22,954 million as of December 31, 2016) related to the Assignment Agreement entered into by us and the Brazilian federal government in 2010, which grants us the right to carry out prospecting and drilling activities for oil, natural gas and other liquid hydrocarbons located in the pre-salt area, subject to a maximum production of five billion barrels of oil equivalent. For detailed information on the Assignment Agreement see Note 12.3 to our audited financial statements ended December 31, 2017 and also Item 10. Additional Information Material Contracts Assignment Agreement .

We also recognized impairment charges of US\$1,191 million in 2017 (US\$6,193 million in 2016) property, plant and equipment, intangible assets and assets classified as held for sale. Further information about impairment of our assets is provided in Note 14 to our audited consolidated financial statements.

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### **Regulation of the Oil and Gas Industry in Brazil**

#### ***Concession Regime for Oil and Gas***

Under Brazilian law, the Brazilian federal government owns all crude oil and natural gas subsoil accumulations in Brazil. The Brazilian federal government holds a monopoly over the exploration, production, refining and transportation of crude oil and oil products in Brazil and its continental shelf, with the exception that companies that were engaged in refining and distribution in 1953 were permitted to continue those activities. Between 1953 and 1997, we were the Brazilian federal government's exclusive agent for exploiting its monopoly, including the importation and exportation of crude oil and oil products.

As part of a comprehensive reform of the oil and gas regulatory system, the Brazilian Congress amended the Brazilian Constitution in 1995 to authorize the Brazilian federal government to contract with any state or privately-owned company to carry out upstream, oil refining, cross-border commercialization and transportation activities in Brazil of oil, natural gas and their respective products. On August 6, 1997, Brazil enacted Law No. 9,478, which established a concession-based regulatory framework, ended our exclusive right to carry out oil and gas activities, and allowed competition in all aspects of the oil and gas industry in Brazil. Since that time, we have been operating in an increasingly deregulated and competitive environment. Law No. 9,478/1997 also created an independent regulatory agency, the ANP, to regulate the oil, natural gas and renewable fuel industry in Brazil, and to create a competitive environment in the oil and gas sector. Effective January 2, 2002, Brazil deregulated prices for crude oil, oil products and natural gas.

Law No. 9,478/1997 established a concession-based regulatory framework and granted us the exclusive right to exploit crude oil reserves in each of our producing fields under the existing concession contracts for an initial term of 27 years from the date when they were declared commercially profitable. These are known as the Round Zero concession contracts. This initial 27-year period for production can be extended at the request of the concessionaire and subject to approval from the ANP. Law No. 9,478/1997 also established a procedural framework for us to claim exclusive exploratory rights for a period of up to three years, later extended to five years, to areas where we could demonstrate that we had made commercial discoveries or exploration investments prior to the enactment of the Law No. 9,478/1997. In order to perfect our claim to explore and develop these areas, we had to demonstrate that we had the financial capacity to carry out these activities, either alone or through other cooperative arrangements.

Starting in 1999, all areas not already subject to concessions became available for public bidding conducted by the ANP. All the concessions that have been granted to us since then were granted through our participation in public bidding rounds or by the Transfer of Rights Agreement. In 2016, the ANP granted us an extension of the production phase of the concession agreement related to Marlim Field and Voador Field until August 2052 and an extension related to Ubarana Field until August 2034. In 2017, the ANP granted us an extension of the production phase of the concession agreement related to Araçás Field until August 2052.

#### ***Taxation under Concession Regime for Oil and Gas***

According to the Law No. 9,478/1997 and under our concession agreements for exploration and production activities with ANP, we are required to pay the government the following:

Signing bonuses paid upon the execution of the concession agreement, which are based on the amount of the winning bid, subject to the minimum signing bonuses published in the relevant bidding guidelines (*edital de*

*licitação*);

Annual retention bonuses for the occupation or retention of areas available for exploration and production, at a rate established by the ANP in the relevant bidding guidelines based on the size, location and geological characteristics of the concession block;

Special participation charges at a rate ranging from 0 to 40% of the net income derived from the production of fields that reach high production volumes or profitability, according to the criteria established in the applicable legislation. Net revenues are gross revenues, based on reference prices for crude oil or natural gas established by Decree No. 2,705 and ANP regulatory acts, less royalties paid, investments in exploration, operational costs and depreciation adjustments and applicable taxes. In 2017, we paid this tax on 18 of our fields, namely Albacora, Albacora Leste, Baleia Azul, Baleia Franca, Barracuda, Baúna, Caratinga, Jubarte, Leste do Urucu, Lula, Manati, Marlim, Marlim Leste, Marlim Sul, Mexilhão, Rio Urucu, Roncador and Sapinhoá; and

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Royalties, to be established in the concession contracts at a rate ranging between 5% and 10% of gross revenues from production, based on reference prices for crude oil or natural gas established by Decree No. 2,705 and ANP regulatory acts. In establishing royalty rates in the concession contracts, the ANP also takes into account the geological risks and expected productivity levels for each concession. Most of our crude oil production is currently taxed at the maximum royalty rate.

Law No. 9,478/1997 also requires concessionaires of onshore fields to pay to the owner of the land a participation fee that varies between 0.5% and 1.0% of the sales revenues derived from the production of the field.

### ***Production-Sharing Contract Regime for Unlicensed Pre-Salt and Potentially Strategic Areas***

Discoveries of large oil and natural gas reserves in the pre-salt areas of the Campos and Santos Basins prompted a change in the legislation regarding oil and gas exploration and production activities.

In 2010, three new laws were enacted to regulate exploration and production activities in pre-salt and other potentially strategic areas not subject to existing concessions: Law No. 12,351, Law No. 12,304, and Law No. 12,276. The enacted legislation does not impact the existing pre-salt concession contracts, which cover approximately 28% of the pre-salt areas.

Law No. 12,351/2010 regulates production-sharing contracts for oil and gas exploration and production in pre-salt areas not under concession and in potentially strategic areas to be defined by the CNPE. Under the production-sharing regime, we used to be the exclusive operator of all blocks. However, Law No. 13,365/2016 recently modified Law 12,3251/2010 in order to grant us the option to be the operator of the blocks offered under public bids under the production sharing regime. It is no longer mandatory for us to be the exclusive operator of all areas. CNPE will only offer us preference to operate the blocks under production-sharing regime. As part of this regulatory change, we must announce whether we will exercise our preference right for each of the areas offered, up to thirty (30) days after the notice by the CNPE and present our justifications. After our announcement, CNPE will propose to the Office of the Presidency which areas should be operated by us. The exploration and production rights for these areas will be offered under public bids. Regardless of whether we exercise our right of preference, we will also be able to participate, at our discretion, in the bidding process to increase our interest in these areas. Nonetheless, the winning bidder will be the company that offers to the Brazilian federal government the highest percentage of profit oil, which is the production of a certain field after deduction of royalties and cost oil, which is the cost associated with oil production.

Law No. 12,734 became partially effective on November 30, 2012, and amended Law 12,351, establishing a royalty rate of 15% applicable to the gross production of oil and natural gas under future production sharing contracts.

Law No. 12,304/2010, authorized the incorporation of a new state-run non-operating company that will represent the interests of the Brazilian federal government in the production-sharing contracts and will manage the commercialization contracts related to the Brazilian federal government's share of the profit oil. This new state-owned company was incorporated on August 1, 2013, named Pré-Sal Petróleo S.A. PPSA, and will participate in operational committees, with a casting vote and veto powers, as defined in the contract, and will manage and control costs arising from production-sharing contracts. Where production-sharing contracts are concerned, PPSA will exercise its specific legal activities alongside the ANP, the independent regulatory agency that regulates and oversees oil and gas activities under all exploration and production regimes, and the CNPE, the entity that sets the guidelines to be applied to the oil and gas sector, including with respect to the new regulatory model.

### ***Assignment Agreement (Cessão Onerosa) and Global Offering***



Pursuant to Law No. 12,276/2010, we entered into an agreement with the Brazilian federal government on September 3, 2010 (Assignment Agreement), under which the government assigned to us the right to conduct activities for the exploration and production of oil, natural gas and other fluid hydrocarbons in specified pre-salt areas, subject to a maximum production of five bnboe. The initial contract price for our rights under the Assignment Agreement was R\$74,807,616,407, which was equivalent to US\$42,533,327,500 as of September 1, 2010. See Item 10. Additional Information Material Contracts Assignment Agreement.

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As a result of the activities under the Assignment Agreement, we have declared the commerciality for the fields of Búzios, Sépia, Itapu, Sul de Lula, Sul de Sapinhoá, Norte and Sul de Berbigão, Norte and Sul de Sururu and Atapu. The beginning of the commercial production is expected to occur in the first semester of 2018.

We have created an internal committee to negotiate the revision of the Assignment Agreement with representatives of the Brazilian federal government (MME, Ministry of Finance, and the ANP). Both the ANP and we have hired consultancy services provided by international companies specialized in the oil industry (DeGolyer and MacNaughton and Gaffney, Cline & Associates) to help out with the negotiation.

### ***Natural Gas Law of 2009***

In March 2009, the Brazilian Congress enacted Law No. 11,909, or Gas Law, regulating activities in the gas industry, including transport, processing, storage, liquefaction, regasification and commercialization. The Gas Law created a concession regime for the construction and operation of new pipelines to transport natural gas, while maintaining an authorization regime for pipelines subject to international agreements. According to the Gas Law, after a certain exclusivity period, operators (*transportadores*) will be required to grant access to transport pipelines and maritime terminals, except LNG terminals, to third parties in order to maximize utilization of capacity.

The Gas Law authorized the ANP to regulate prices for the use of gas transport pipelines subject to the new concession regime, based on a procedure defined in the Gas Law as a *chamada pública*, and to approve prices submitted by carriers (*carregadores*), according to previously established criteria, for the use of new gas transport pipelines subject to the authorization regime.

Authorizations previously issued by the ANP for natural gas transport will remain valid for 30 years from the date of publication of the Gas Law, and initial carriers (*carregadores iniciais*) were granted exclusivity in these pipelines for 10 years. All pipelines that our subsidiaries currently own and operate in Brazil are subject to an authorization regime. The ANP will issue regulations governing third-party access and carrier compensation if no agreement is reached between the parties.

The Gas Law also authorized certain consumers, who can purchase natural gas on the open market or obtain their own supplies of natural gas, to construct facilities and pipelines for their own use in the event local gas distributors controlled by the states, which have monopoly over local gas distribution, do not meet their distribution needs. These consumers are required to delegate the operation and maintenance of the facilities and pipelines to local gas distributors, but they are not required to sign gas supply agreements with the local gas distributors.

In December 2010, Decree No. 7,382 was enacted in order to regulate Chapter I to VI and VIII of the Gas Law as it relates to activities in the gas industry, including transportation and commercialization. Since the publication of this decree, a number of administrative regulations were enacted by the ANP and the MME in order to regulate various issues in the Gas Law and Decree No. 7,382 that needed to be further clarified. Among those is ANP Resolution No. 51/2013, which prevents a carrier from holding any equity interest in concessionaires of gas transport pipelines. Resolution No. 51/2013 applies only to the concessions granted after its publication, not affecting, therefore, the transportation of our natural gas production through pipelines operated by its subsidiaries and subject to the previous authorization regime.

### ***Price Regulation***

Until Law No. 9,478 in 1997, the Brazilian federal government had the power to regulate all aspects of the pricing of crude oil, oil products, ethanol, natural gas, electric power and other energy sources. In 2002, the government

eliminated price controls for crude oil and oil products, although it retained regulation over certain natural gas sales contracts and electricity. Concurrently, the Brazilian federal government has periodically created and adjusted taxes applicable to crude oil, oil and natural gas products, which have been used as a tool to balance price stability to end consumers and also to increase its tax revenues.

### *Environmental Regulations*

All phases of the crude oil and natural gas business present environmental risks and hazards. Our facilities in Brazil are subject to a wide range of federal, state and local laws, regulations and permit requirements relating to the protection of human health and the environment, and they fall under the regulatory authority of the *Conselho Nacional do Meio Ambiente* (National Council for the Environment, or CONAMA).

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Our offshore activities are subject to the administrative authority of IBAMA, which issues operating and drilling licenses. We are required to submit reports, including safety and pollution monitoring reports to IBAMA in order to maintain our licenses. This way, we maintain an ongoing communication channel with the environmental bodies, in order to improve issues connected with the environmental management of our exploration, production and refining processes of oil and natural gas. Recently, we designed actions and measures, together with Ibama, to adjust the disposal of water produced in some of our offshore platforms to recently issued requirements by Ibama.

Most of the onshore environmental, health and safety conditions are controlled either at the federal or the state level depending on the localization of our facilities and the type of activity under development. However, it is also possible for these conditions to be controlled on a local basis whenever the activities generate a local impact or are established in a county conservation unit. Under Brazilian law, there is strict and joint liability for environmental damage, mechanisms for enforcement of environmental standards and licensing requirements for polluting activities.

Individuals or entities whose conduct or activities cause harm to the environment are subject to criminal and administrative sanctions. Government environmental protection agencies may also impose administrative sanctions for noncompliance with environmental laws and regulations, including:

Fines;

Partial or total suspension of activities;

Requirements to fund reclamation and environmental projects;

Forfeiture or restriction of tax incentives or benefits;

Closing of establishments or operations; and

Forfeiture or suspension of participation in credit lines with official credit establishments.

We are subject to a number of administrative and legal proceedings relating to environmental matters. For more information about these proceedings, see Item 8. Financial Information Legal Proceedings. and Note 30 to our audited consolidated financial statements included in this annual report.

In 2017, we invested US\$0.8 billion in environmental projects, compared to US\$0.9 billion in 2016 and US\$1.1 billion in 2015. These investments continued to be primarily directed at reducing emissions and wastes from industrial processes, managing water use and effluents, remediating impacted areas, implementing new environmental technologies, upgrading our pipelines and improving our ability to respond to emergencies.

### ***New Taxation Model for the Oil and Gas Industry***

On December 28, 2017, the Brazilian federal government enacted Law No. 13,586, which outlines a new taxation model for the oil and gas industry and, along with the Decree 9,128/2017, establishes a new special regime for

exploration, development and production of oil, gas and other liquid hydrocarbons named Repetro-Sped.

Due to the application of this new model, we expect greater legal stability in the oil and gas industry in Brazil, which may encourage higher investments and reduce the number of litigations involving the industry players.

Regarding the Repetro-Sped, this regime enhances the former Repetro (Special Customs Regime for the Export and Import of Goods designated to Exploration and Production of Oil and Natural Gas Reserves), notably providing for tax relief over goods permanently held in Brazil in addition to the previous relief related to temporary admissions. Therefore, we are assessing transfers in the ownership of certain oil and gas assets from foreign subsidiaries to the parent company in Brazil. The regime will expire in December, 2040.

Following the creation of Repetro-Sped, the Brazilian states, pursuant to a decision of the Brazilian National Council of Finance Policies (CONFAZ), agreed to allow tax incentives relating to VAT (ICMS) to the extent each state enacts its specific regulation providing for the tax relief on oil and gas industry.

For additional information on the main provisions under Law 13,586/17, Decree 9,128 /17 and VAT (ICMS) tax incentives over the Repetro-Sped, see notes 21.4.1 and 21.4.2-c to our audited consolidated financial statements.

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### **Health, Safety and Environmental Initiatives**

The protection of human health and the environment is one of our primary concerns, and is essential to our success as an integrated energy company.

We have a Health, Safety and Environmental (HSE) Committee (*Comitê de Segurança, Meio Ambiente e Saúde*) composed of three members of our board of directors who are responsible for assisting our board in the following matters:

Definition of strategic goals in relation to HSE matters;

Establishment of global policies related to the strategic management of HSE matters within our group of companies; and

Assessment of the conformity of our strategic plan to its global HSE policies, among others. Our efforts to address health, safety and environmental concerns and ensure compliance with environmental regulations (which in 2017 totaled an investment of R\$5.2 billion, or US\$1.6 billion) involve the management of environmental costs related to production and operations, pollution control equipment and systems, projects to rehabilitate degraded areas, safety procedures and initiatives for emergency prevention and control, health and safety programs as well as:

An HSE management system that seeks to minimize the impacts of operations and products on health, safety and the environment, reduce the use of natural resources and pollution and prevent accidents;

The *Frota Nacional de Petroleiros* (National Fleet of Vessels) has been fully certified by the International Maritime Organization (IMO) International Management Code for Safe Operation of Ships and for Pollution Prevention (ISM Code) since December 1997;

Regular and active engagement with the MME and IBAMA, in order to discuss environmental issues related to new oil and gas production and other transportation and logistical aspects of our operations;

A strategic goal to reduce the intensity of greenhouse gas emissions, along with a set of performance indicators with targets to monitor progress with respect to this goal; and

We evaluate each of our operational projects to identify risks and to ensure compliance with all of our HSE requirements and the adoption of the best HSE practices throughout a project's life cycle. In addition, we conduct more extensive environmental studies for new projects when required by applicable environmental legislation.

In 2017, our emissions were 67 million tons of CO2 equivalent. In 2016 we issued 66.5 million tons of CO2 equivalent and in 2015 78.2 million tons of CO2 equivalent. We are committed to reducing the intensity of greenhouse gas emissions from our processes and products through several initiatives, including reduction of gas flaring, energy efficiency measures and operational improvements.

In March 2018, Petrobras Board of Directors has approved the company's participation in the Oil and Gas Climate Initiative (OGCI). This is one of the main initiatives of the oil and gas sector to mitigate greenhouse gas emissions. The commitment provided by OGCI Climate Investments, the initiative's investment arm, to support the development, deployment and expansion of low-emission technologies is US\$ 1 billion over the next ten years, with the disbursement distributed equally among all OGCI members during this period. The participation in OGCI is aligned to Petrobras strategy to prepare the company for a future based on a low carbon economy, as disclosed in its 2018-2022 Business and Management Plan, and reinforces the company's commitment to reduce emissions and to a more efficient energy matrix.

Eliminating fatal accidents and achieving performance levels comparable to the best international oil and gas operators when it comes to the prevention of injuries to our employees and third parties are the two most important goals set by our safety management. Although we develop prevention programs in all of our operating units, we recorded 6 fatalities involving our own and contractors' employees in 2017 (compared to 3 in 2016). In addition, on December 18, 2017 there was an accident involving a man who fell into the sea and has not been found - we are currently waiting for a legal declaration of presumed death to compute such accident. We investigate all accidents reported in order to identify their causes and then take preventive and corrective actions, which are regularly monitored once they are adopted. In cases of serious accidents, we send out company-wide alerts to enable other operating units to assess the probability of similar events occurring in their own operations.

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***Environmental Remediation Plans and Procedures***

As part of our environmental plans, procedures and efforts, we maintain detailed response and remediation contingency plans to be implemented in the event of an oil spill or leak from our offshore operations. In order to respond to these events, we have dedicated oil spill recovery vessels fully equipped for oil spill control and firefighting, support boats and other vehicles, additional support and recovery boats available to fight offshore oil spills and leaks, containment booms, absorbent booms and oil dispersants, among other resources. These resources are distributed in 12 environmental protection centers in strategic areas in which we operate throughout Brazil and in emergency response centers (distributed over 24 sites) in order to ensure rapid and coordinated response to onshore or offshore oil spills.

We have more than 200 trained workers available to respond to oil spills 24 hours a day, seven days a week, and we can mobilize additional trained workers for shoreline cleanups on short notice from a large group of trained environmental agents in the country. While these workers are located in Brazil, they are also available to respond to an offshore oil spill outside of Brazil.

Since 2012, we have been a participating member of the Oil Spill Response Limited OSRL, an international organization that brings together over 160 corporations, including oil major, national/independent oil companies, energy related companies as well as other companies operating elsewhere in the oil supply chain. OSRL participates in the Global Response Network, an organization composed of several other companies dedicated to fighting oil spills. As a member of the OSRL, we have access to all resources available through that network, and we also subscribe to their Subsea Well Intervention Services, which provides swift international deployment of response-ready capping and containment equipment. The capping equipment is stored and maintained at bases worldwide, including Brazil. An OSRL Brazilian base opened in March 2014 and is now operational.

In 2017, we conducted 15 emergency drills of regional scope with the Brazilian navy, the civil defense, firefighters, the military police, environmental organizations and local governmental and community entities.

We set up a Zero Spill Plan, aiming at optimizing management and reducing the risk of oil spills in our operations. This plan encompasses investments to improve the management of processes and to ensure the integrity of our equipment and installations. Additionally, we have a model of communication, processing and recording of oil spills that permits the daily monitoring of these incidents, their impacts and mitigation measures.

We continue to evaluate and develop initiatives to address HSE concerns and to reduce our exposure to HSE risks. In 2017, we had oil spills totaling 35.8 m<sup>3</sup>, compared to 51.9 m<sup>3</sup> in 2016 and 71.6 m<sup>3</sup> in 2015.

**Insurance**

We maintain several insurance policies, including policies against fire, operational risk, engineering risk, property damage coverage for onshore and offshore assets such as fixed platforms, floating production systems and offshore drilling units, hull insurance for tankers and auxiliary vessels, third party liability insurance and transportation insurance. The coverages of these policies are contracted according to the objectives we define and the limitations imposed by the global insurance and reinsurance markets. Although some policies are issued in Brazil, most of our policies are reinsured abroad with reinsurers rated A- or higher by Standard & Poor's, or B + or higher by A.M. Best.

Our policies are subject to deductibles, limits, exclusions and limitations, and there is no assurance that such coverage will adequately protect us against liability from all possible consequences and damages associated with our activities. Thus, it is not possible to assure that insurance coverage will exist for all damages resulting from possible incidents or



accidents, which may negatively affect our results.

Specifically, we do not maintain insurance coverage to safeguard our assets in case of war or sabotage. We also do not maintain coverage for business interruption, except for a minority of our international operations and some specific assets in Brazil. Generally, we do not maintain coverage for our wells in operation in Brazil, except when required by a joint operating agreement. In addition, our third-party liability policies do not cover government fines or punitive damages.

Our national property damage policies have a maximum deductible of US\$180 million and their indemnity limits can reach US\$2.5 billion for refineries and US\$2.1 billion for platforms, depending on the replacement value of our assets. We self-insure less valuable assets, including but not limited to small auxiliary vessels, certain storage facilities and some administrative facilities.

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Our general civil responsibility policy with respect to our onshore and offshore activities in Brazil, including losses related to third parties due to sudden environmental risks, such as oil spills, has a maximum indemnification limit of US\$250 million with an associated deductible of US\$10 million. We also maintain marine insurance with additional protection and indemnification (P&I) against third parties related to our domestic offshore operations with an indemnity limit of US\$50 million up to US\$500 million, depending on the type of vessel. For activities in Brazil, in the event of an explosion or similar event on one of our non-fixed offshore platforms, these policies may provide third party combined liability coverage of up to US\$750 million. In addition, although we do not insure most of our pipelines against loss of equity, we have insurance against damages or losses to third parties arising from specific incidents, such as unexpected infiltration and oil pollution.

Outside Brazil, we have operations in eight countries and maintain different levels of third party liability insurance, as a result of a variety of factors, including our country risk assessments, if we have onshore and offshore operations, or legal requirements imposed by the particular country in which we operate. We maintain separate well-control insurance policies in our international operations to cover liabilities arising from the uncontrolled eruption of oil, gas, water or drilling fluid, as well as to cover claims of environmental damage caused by wellbore explosion and similar events as well as related clean-up costs with coverage limits of up to US\$500 million depending on the country.

**Additional Reserves and Production Information**

In 2017, our oil and gas production in Brazil averaged 2,408 mboe/d, of which 89% was oil and 11% was natural gas. The Campos Basin is one of Brazil's main and most prolific oil and gas offshore basins, with over 60 hydrocarbon fields discovered, eight large oil fields and a total area of approximately 115 thousand km<sup>2</sup> (28.4 million acres). In 2017, the Campos Basin produced an average 1,212 mbbbl/d of oil and 215 mmcf/d (6 mmm<sup>3</sup>/d) of natural gas, comprising 52% of our total production from Brazil. We also carry out limited oil shale mining operations in São Mateus do Sul, in the Paraná Basin of Brazil, and convert the kerogen (solid organic matter) from these deposits into synthetic oil and gas. This operation is conducted in an integrated facility and its final products are fuel gas, LPG, shale naphtha and shale fuel oil. Our business unit does not utilize the fracking method or the hydraulic fracturing method for oil production, since they are not appropriate in the context of our operations. Also, we do not inject any water or chemicals in the soil in connection with our open pit oil shale mining operations. Our process consists of crushing, screening and subsequently heating all the shale at high temperatures (pyrolysis) and we have in place a proper segregation process for the by-products derived from such process.

On December 31, 2017, our estimated proved reserves in Brazil totaled 9.5 bnbbbl of oil equivalent, including 8.3 bnbbbl of crude oil, condensate and synthetic oil and 7.7 tcf of natural gas and synthetic gas. As of December 31, 2017, our domestic proved developed crude oil, condensate and synthetic oil reserves represented 52% of our total domestic proved crude oil, condensate and synthetic oil reserves, and our domestic proved developed natural gas and synthetic gas reserves represented 59% of our total domestic proved natural gas and synthetic gas reserves.

We calculate reserves based on forecasts of field production, which depend on a number of technical parameters, such as seismic interpretation, geological maps, well tests, reservoir engineering studies and economic data. Our calculation of reserves also includes 2.6 tcf of fuel gas volumes, which represent 34% of our proved reserves of natural gas. All reserve estimates involve some degree of uncertainty. The uncertainty depends primarily on the amount of reliable geological and engineering data available at the time of the estimate and the interpretation of that data. Our estimates are thus made using the most reliable data and technology at the time of the estimate, in accordance with the best practices in the oil and gas industry and regulations promulgated by the SEC.

***Internal Controls over Proved Reserves***

The reserve estimation process begins with an initial evaluation of our assets by geophysicists, geologists and engineers. Corporate Reserves Coordinators (*Coordenadores de Reservas Corporativos*, or CRCs) safeguard the integrity and objectivity of our reserve estimates by supervising and providing technical support to Regional Reserves Coordinators (*Coordenadores de Reservas Regionais*, or CRRs) who are responsible for preparing the reserve estimates. Our CRRs and CRCs have degrees in geology and engineering and are trained internally and abroad in international reserve estimates seminars. CRCs are responsible for compliance with SEC rules and regulations, consolidating and auditing the reserve estimation process. In 2017, we replaced the technical person primarily responsible for overseeing the preparation of our reserves. The recently retained technical person has 14 years of experience in the field and has been with us for 15 years. Our reserve estimates are approved by our board of executive officers, which then informs our board of directors of its approval.

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D&M used our reserve estimates to conduct a reserve audit of 95% of the net proved crude oil, condensate and natural gas reserves, in terms of oil equivalent, as of December 31, 2017 in Brazil. In addition, D&M used our reserve estimates to conduct a reserve audit of 100% of the net proved crude oil, condensate and natural gas reserves as of December 31, 2017 in properties we operate in the United States. The reserve estimates were prepared in accordance with the reserves definitions of Rule 4-10(a) of Regulation S-X of the SEC. For further information about our proved reserves, see *Supplementary Information on Oil and Gas Exploration and Production* beginning on page F-132. For disclosure describing the qualification of D&M's technical person primarily responsible for overseeing our reserves audit and reserves evaluation, see Exhibit 99.1.

D&M audited 93% of our total proved reserves, in terms of oil equivalent, on December 31, 2017. The proportion of our total reserves covered by the D&M reports and the geographic area in which the covered reserves are located are summarized in the table below.

<b>Country/Region</b>	<b>SEC Proved Reserves* (in mmboe)</b>	<b>Audited Reserves (in mmboe)</b>	<b>Unaudited Reserves (in mmboe)</b>	<b>Proportion of Reserves Audited (%)</b>
Brazil	9,528.8	9,078.3	450.5	95%
Brazil Synthetic Oil and Gas	7.4		7.4	
North America Operated	36.5	36.5		100%
North America Non-Operated	85.0		85.0	
Other Countries	94.1		94.1	
<b>Total Proved Reserves</b>	<b>9,751.7</b>	<b>9,114.8</b>	<b>636.9</b>	<b>93%</b>

**Changes in Proved Reserves**

In 2017, our total proved reserves resulted in 9,751.7 million boe in 2017, a net increase of 79.6 million boe compared to 2016. We incorporated 670.1 million boe of total proved reserves by revisions of previous estimates, including 355.4 million boe due to economic revisions, mainly due to the increase in prices, and 314.7 million boe due to technical revisions, mainly due to better than forecasted outcome from reservoirs, in the pre-salt of Santos and Campos basins, both in Brazil. In addition, we added 246.7 million boe in our proved reserves resulting from positive responses from improved recovery (water injection), and added 82.5 million boe in our proved reserves due to extensions and discoveries, mainly in the pre-salt of Santos basins. The production of 919.8 million boe in 2017 partially offset these increases. This production does not consider the production of Extended Well Tests (EWTs) in exploratory blocks and production in Bolivia, since the Bolivian Constitution prohibits the disclosure and registration of its reserves.

At year-end 2017, our company-wide proved undeveloped reserves increased 151.0 million boe when compared to year-end 2016. This increase was mostly related to positive responses from improved recovery (water injection) amounting to 246.7 million boe, in Brazil, and 82.3 million boe due to extensions and discoveries, mainly in the pre-salt of Santos basins. Economic revisions of previous estimates resulted in an increase of 175.9 million boe, mainly due to higher prices, and technical revisions of previous estimates incorporated 27.2 million boe. The total increase was partially offset by conversion of some of our proved undeveloped reserves to proved developed reserves, mainly due to the FPSO P-66 start of operation, in Lula field, and offshore and onshore drilling and tieback operations. In 2017, we invested a total of US\$12.1 billion in development projects, of which 96% (US\$11.6 billion) were invested

in Brazil, and converted a total of 381.1 million boe of proved undeveloped reserves to proved developed reserves, approximately 95.4% (363.7million boe) of which were Brazilian reserves.

As of December 31, 2017, we had a total of 4,592.1 million boe of proved undeveloped reserves company-wide, approximately 9.0% (414.1 million boe) of which have remained undeveloped for five years or more as a result of several factors affecting development and production, including the inherent complexity of ultra-deep water development projects, particularly in the Santos Basin and in the Campos Basin, in which we are making investments to develop necessary infrastructure.

Most of our investments relate to long term development projects, which are developed in phases due to the large volumes, and extensions involved, the deep and ultra deepwater infrastructure and the production resources complexity. In these cases, the full development of the reserves related to these investments can exceed five years.

All reserve volumes described above are net to the extent that they only include our proportional participation in reserve volumes and exclude reserves attributed to our partners.

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The following tables set forth our production of crude oil, natural gas, synthetic oil and synthetic gas by geographic area in 2017, 2016 and 2015:

<b>Hydrocarbon Production by Geographic Area</b>											
<b>2017</b>				<b>2016</b>				<b>2015</b>			
<b>Crude Oil + NGL (mmbbl)(4)</b>	<b>Nat. Gas (mcf)(1)</b>	<b>Synth. Gas (mcf)(1)(4)</b>	<b>Total (mboe)</b>	<b>Crude Oil + NGL (mmbbl)(5)</b>	<b>Synth. Oil + NGL (mmbbl)(4)</b>	<b>Nat. Gas (mmcf)(1)</b>	<b>Synth. Gas (mmcf)(1)(4)</b>	<b>Total (mboe)</b>	<b>Crude Oil + NGL (mmbbl)(5)</b>	<b>Synth. Oil + NGL (mmbbl)(4)</b>	<b>Nat. Gas (mmcf)(1)</b>
969.7	555,820.9	183.6	878,798.2	783,862.2	915.0	533,815.1	209.0	873,801.8	775,807.5	1,022.0	563,000.0
	140,931.4		199,151.6	125,459.6		93,711.1		141,078.1	77,592.1		51,900.0
			717.5	3,262.4				3,262.4	2,386.8		
969.7	414,889.5	183.6	678,929.1	655,140.2	915.0	440,103.9	209.0	729,461.3	695,828.6	1,022.0	511,000.0
	85,388.2		16,103.8	8,007.7		144,728.7		32,129.2	14,089.0		173,300.0
	21,450.4		16,739.5	12,093.3		32,054.7		17,435.8	11,169.0		24,500.0
	106,838.6		32,843.3	20,101.0		176,783.4		49,564.9	25,258.0		197,800.0
969.7	662,659.5	183.6	911,641.5	803,963.2	1,040.0	710,598.5	209.0	923,366.7	801,065.5	1,163.1	760,900.0
				476.3		126.7		497.4	1,241.0		300.0
			8,190.2	8,705.3				8,705.3	9,709.0		
969.7	662,659.5	183.6	919,831.7	813,144.9	1,040.0	710,725.2	209.0	932,569.5	812,015.5	1,163.1	761,000.0

(1) Natural gas production figures are the production volumes of natural gas available for sale, excluding flared and reinjected gas and gas consumed in operations

(2) Búzios and Lula fields are separately included as they contain more than 15% of our total proved reserves each

(3) Equity-accounted investees

(4) We produce synthetic oil and synthetic gas from oil shale deposits in São Mateus do Sul, in the Paraná Basin of Brazil

(5) Oil production includes production from EWTs Extended Well Tests and NGL . In the last three years, NGL production represented 5.0%, 4.4%, and 4.0% of our worldwide oil production respectively

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The following table sets forth our estimated net proved developed and undeveloped reserves of crude oil and natural gas by region as of December 31, 2017.

Reserves category	Estimated Net Proved Developed and Undeveloped Reserves						
	Reserves			Reserves			
	Oil	Natural gas	Total oil and natural gas	Synthetic oil	Synthetic gas	Total synthetic oil and gas	Total oil and gas products
	(mmbbl)	(bncf)(1)(2)	(mmboe)	(mmbbl)(3)	(bncf)(3)	(mmboe)	(mmboe)(4)
<b>Proved developed:</b>							
<b>Brazil</b>	4,282.2	4,515.9	5,034.9	6.0	8.1	7.4	5,042.2
<b>International</b>							
South America (outside of Brazil)	0.7	56.7	10.2				10.2
North America	72.1	24.2	76.1				76.1
Total International	72.8	80.9	86.3				86.3
Total consolidated proved developed reserves	4,355.0	4,596.8	5,121.2	6.0	8.1	7.4	5,128.5
<b>Equity method investees</b>							
Africa	29.6	9.3	31.1				31.1
<b>Total proved developed reserves</b>	<b>4,384.6</b>	<b>4,606.0</b>	<b>5,152.3</b>	<b>6.0</b>	<b>8.1</b>	<b>7.4</b>	<b>5,159.6</b>
<b>Proved undeveloped:</b>							
<b>Brazil</b>	3,967.2	3,160.2	4,493.9				4,493.9
<b>International</b>							
South America (outside of Brazil)	0.5	103.5	17.7				17.7
North America	42.6	16.7	45.3				45.3
Total International	43.0	120.2	63.1				63.1
Total consolidated proved undeveloped reserves	4,010.2	3,280.5	4,557.0				4,557.0
<b>Equity method investees</b>							
Africa	33.8	8.0	35.1				35.1
<b>Total proved undeveloped reserves</b>	<b>4,044.0</b>	<b>3,288.5</b>	<b>4,592.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>4,592.1</b>
	<b>8,428.6</b>	<b>7,894.5</b>	<b>9,744.4</b>	<b>6.0</b>	<b>8.1</b>	<b>7.4</b>	<b>9,751.7</b>



**Total proved reserves  
(developed and undeveloped)**

- (1) We estimate our oil and gas reserves at a reference point prior to the gas processing plants. Therefore, we book reserves of oil and wet natural gas only and, as such, we do not separately estimate reserves of natural gas liquids (NGLs).
- (2) Our disclosure of proved gas reserves also includes fuel gas volumes, which represent 34% of our total proved reserves of natural gas.
- (3) Volumes of synthetic oil and synthetic gas from oil shale deposits in the Paraná Basin in Brazil have been included in our proved reserves in accordance with the SEC rules for estimating and disclosing reserve quantities.
- (4) The total proved reserves includes 292.7 millions of barrels of oil equivalent related to assets classified as held for sale.

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The table below summarizes information about the changes in total proved reserves of our consolidated entities and equity method investees for 2017, 2016 and 2015:

	<b>Total Proved Developed and Undeveloped Reserves(1)(2)(3)(4)</b>							<b>Equity method investees</b>	<b>Total for all</b>
	<b>Consolidated Entities</b>						<b>oil and gas product</b>		
	<b>Oil</b>	<b>Natural gas</b>	<b>Total oil and natural gas</b>	<b>Synthetic oil</b>	<b>Synthetic gas</b>	<b>Total synthetic oil and gas</b>	<b>Total oil and gas products</b>	<b>oil and gas product</b>	<b>product</b>
	<b>(mmbbl)</b>	<b>(bncf)</b>	<b>(mmboe)</b>	<b>(mmbbl)</b>	<b>(bncf)</b>	<b>(mmboe)</b>	<b>(mmboe)</b>	<b>(mmboe)</b>	<b>(mmboe)</b>
<b>Reserves quantity information for the year ended</b>									
<b>December 31, 2017</b>									
January 1, 2017	8,160.3	8,595.1	9,592.8	6.8	9.2	8.3	9,601.1	71.1	9,672.2
Revisions of previous estimates	680.9	(87.0)	666.4	0.2	0.1	0.2	666.6	3.5	670.1
Improved recovery	212.7	204.2	246.7				246.7		246.7
Purchases of proved reserves									
Extensions and discoveries	69.4	78.4	82.5				82.5		82.5
Production	(758.0)	(913.5)	(910.3)	(1.0)	(1.2)	(1.2)	(911.4)	(8.3)	(919.8)
Sales of proved reserves									
December 31, 2017	8,365.3	7,877.2	9,678.1	6.0	8.1	7.4	9,685.5	66.3	9,751.7
<b>Reserves quantity information for the year ended</b>									
<b>December 31, 2016</b>									
January 1, 2016	8,687.0	10,406.8	10,421.5	6.9	9.3	8.5	10,430.0	86.0	10,516.0
Revisions of previous estimates	197.6	(472.6)	118.8	0.8	1.2	1.0	119.8	11.2	131.0
Improved recovery		0.1	0.0						
Purchases of proved reserves	0.7	93.3	16.3				16.3		16.3
Extensions and discoveries	87.8	92.1	103.2				103.2		103.2
Production	(766.3)	(892.6)	(915.1)	(0.9)	(1.4)	(1.2)	(916.2)	(9.2)	(925.4)
Sales of proved reserves	(46.6)	(631.9)	(151.9)				(151.9)	(16.9)	(168.8)

December 31, 2016	8,160.3	8,595.1	9,592.8	6.8	9.2	8.3	9,601.1	71.1	9,672.2
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**Reserves quantity information for the year ended**

**December 31, 2015**

January 1, 2015	11,037.5	12,081.0	13,051.0	7.9	10.6	9.6	13,060.7	79.9	13,140.6
Revisions of previous estimates	(1,990.8)	(1,178.3)	(2,187.2)	0.1	0.2	0.1	(2,187.1)	0.9	(2,186.2)
Improved recovery	1.1	27.9	5.8				5.8	16.2	21.9
Purchases of proved reserves									
Extensions and discoveries	411.9	492.2	494.0				494.0		493.9
Production	(766.0)	(924.5)	(920.1)	(1.0)	(1.4)	(1.3)	(921.3)	(11.0)	(932.3)
Sales of proved reserves	(6.8)	(91.4)	(22.0)				(22.0)		(22.0)
December 31, 2015	8,687.0	10,406.8	10,421.5	6.9	9.3	8.5	10,430.0	86.0	10,516.0

- (1) We estimate our oil and gas reserves at a reference point prior to the gas processing plants. Therefore, we book reserves of oil and wet natural gas only and, as such, we do not separately estimate reserves of natural gas liquids (NGLs).
- (2) Natural gas production volumes used in this table are the net volumes withdrawn from our proved reserves, including flared gas and gas consumed in operations and excluding reinjected gas. Oil production volumes used in this table are net volumes withdrawn from our proved reserves and exclude NGL and production from EWTs. As a result, the oil and natural gas production volumes in this table are different from those shown in the production table above, which shows the production volumes of natural gas available for sale.
- (3) Our disclosure of proved gas reserves also includes fuel gas volumes, which represent 34% of our total proved reserves of natural gas.
- (4) In December 31, 2017, the total proved reserves includes 292.7 millions of barrels of oil equivalent related to assets classified as held for sale.

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The following tables show the number of gross and net productive oil and natural gas wells and total gross and net developed and undeveloped oil and natural gas acreage in which we had interests as of December 31, 2017. We do not have any material acreage expiring before 2025.

**Gross and Net Productive Wells(1)**

As of December 31, 2017

Gross and net productive wells(1):	Oil		Natural gas		Synthetic oil		Synthetic gas	
	Gross	Net	Gross	Net	Gross	Net	Gross	Net
<b>Consolidated subsidiaries</b>								
<b>Brazil</b>	7,185.0	7,161.0	199.0	191.0				
<b>International</b>								
South America (outside of Brazil)	59.0	25.2	182.0	91.2				
North America	22.0	9.0	2.0	0.8				
<b>Total international</b>	81.0	34.2	184.0	91.9				
<b>Total consolidated</b>	7,266.0	7,195.2	383.0	282.9				
<b>Equity method investees:</b>								
South America (outside of Brazil)								
Africa	47.0	2.5	0.0	0.0				
<b>Total gross and net productive wells</b>	7,313.0	7,197.7	383.0	282.9				

**Gross and Net Developed and Undeveloped Acreage(1)**

As of December 31, 2017

Gross and net developed acreage:	Oil		Natural gas (in acres)		Synthetic oil		Synthetic gas	
	Gross	Net	Gross	Net	Gross	Net	Gross	Net
<b>Brazil</b>	4,533,610.0	4,216,411.4	353,741.2	331,812.3	332.9	332.9	0.0	0.0
<b>International</b>								
South America (outside of Brazil)	2,525.7	848.6	33,311.2	11,192.6				
North America	11,663.4	6,163.6	788.8	261.3				
<b>Total international</b>	14,189.1	7,012.2	34,100.0	11,453.9				
<b>Total consolidated</b>	4,547,799.1	4,223,423.6	387,841.3	343,266.2	332.9	332.9	0.0	0.0
<b>Equity method investees:</b>								
Africa	428,866.8	32,003.7						

<b>Total gross and net developed acreage</b>	4,976,665.9	4,255,427.3	387,841.3	343,266.2	332.9	332.9	0.0	0.0
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## As of December 31, 2017

	Oil		Natural gas (in acres)		Synthetic oil		Synthetic gas	
	Gross	Net	Gross	Net	Gross	Net	Gross	Net
<b>Gross and net undeveloped acreage:</b>								
<b>Brazil</b>	761,820.4	629,105.4	131,925.5	127,777.7	0.0	0.0	0.0	0.0
<b>International</b>								
South America (outside of Brazil)	1,650.9	554.7	60,860.1	20,449.0				
North America	9,145.1	4,561.0	790.4	202.8				
<b>Total international</b>	10,796.0	5,115.7	61,650.5	20,651.8				
<b>Total consolidated</b>	772,616.4	634,221.1	193,576.0	148,429.5				
<b>Equity method investees:</b>								
Africa	215,707.6	19,671.7						
<b>Total gross and net undeveloped acreage</b>	988,324.0	653,892.8	193,576.0	148,429.5				

(1) A gross well or acre is a well or acre in which a working interest is owned, while the number of net wells or acres is the sum of fractional working interests in gross wells or acres.

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The following table sets forth the number of net productive and dry exploratory and development wells drilled for the last three years.

<b>Net Productive and Dry Exploratory and Development Wells</b>			
	<b>2017</b>	<b>2016</b>	<b>2015</b>
<b>Net productive exploratory wells drilled:</b>			
<b>Consolidated subsidiaries:</b>			
Brazil	7	7.7	41.1
South America (outside of Brazil)		2.2	3.7
North America			0.1
Africa			
Other			
Total consolidated subsidiaries		9.9	44.9
<b>Equity method investees:</b>			
South America (outside of Brazil)			
Africa			
<b>Total productive exploratory wells drilled</b>	<b>7</b>	<b>9.9</b>	<b>44.9</b>
<b>Net dry exploratory wells drilled:</b>			
<b>Consolidated subsidiaries:</b>			
Brazil	0.4	5.1	14.9
South America (outside of Brazil)	0.4	1.0	
North America			0.5
Africa			
Other			
Total consolidated subsidiaries		6.1	15.4
<b>Equity method investees:</b>			
South America (outside of Brazil)			
Africa			
<b>Total dry exploratory wells drilled</b>	<b>0.8</b>	<b>6.1</b>	<b>15.4</b>
<b>Total number of net exploratory wells drilled</b>	<b>7.8</b>	<b>16.0</b>	<b>60.2</b>
<b>Net productive development wells drilled:</b>			
<b>Consolidated subsidiaries:</b>			
Brazil	174.8	194.4	523.5
South America (outside of Brazil)	2.4	24.5	70.9
North America	0.6	0.4	0.7
Africa			
Other			

Total consolidated subsidiaries	177.8	219.3	595.1
<b>Equity method investees:</b>			
South America (outside of Brazil)		0.0	0.7
Africa	1.0	1.7	0.0
<b>Total productive development wells drilled</b>	178.8	221.0	595.8
<b>Net dry development wells drilled:</b>			
<b>Consolidated subsidiaries:</b>			
Brazil		1.0	3.0
South America (outside of Brazil)			0.5
North America			
Africa			
Other			
Total consolidated subsidiaries		1.0	3.5
<b>Equity method investees:</b>			
South America (outside of Brazil)			
Africa			
<b>Total dry development wells drilled</b>		1.0	3.5
<b>Total number of net development wells drilled</b>	178.8	222.0	599.3

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The following table summarizes the number of wells in the process of being drilled as of December 31, 2017. For more information about our ongoing exploration and production activities in Brazil, see Exploration and Production Activities in Brazil. Our present exploration and production activities outside of Brazil are described in Exploration and Production Activities Abroad. Also, see Note 15 to our audited consolidated financial statements for further information about our capitalized exploration costs and the unaudited supplementary information on oil and gas exploration and production contained in our audited consolidated financial statements.

**Number of Wells Being Drilled as of December 31, 2017**

	Year-end 2017	
	Gross	Net
<b>Wells Drilling</b>		
<b>Consolidated Subsidiaries:</b>		
Brazil	11	11
<b>International:</b>		
South America (outside of Brazil)	2	0.7
North America		
Africa		
Others		
<b>Total International</b>	<b>2</b>	<b>0.7</b>
<b>Total consolidated</b>	<b>13</b>	<b>11.7</b>
<b>Equity method investees:</b>		
South America (outside of Brazil)		
Africa	4	0.5
<b>Total wells drilling</b>	<b>17</b>	<b>11.5</b>

The following table sets forth our average sales prices and average production costs by geographic area and by product type for the last three years.

	Brazil	South America (outside of Brazil)	North America US\$	Total	Equity method investees (2)
<b>During 2017</b>					
Average sales prices					
Oil and NGL, per barrel	50.48	34.18	47.92	50.42	53.87
Natural gas, per thousand cubic feet(1)	6.30	3.53	3.31	6.10	
Synthetic oil, per barrel	42.42			42.42	
Synthetic gas, per thousand cubic feet	3.97			3.97	
<i>Average production costs, per barrel total</i>	11.15	3.65	9.17	10.99	27.00



**During 2016**

Average sales prices					
Oil and NGL, per barrel	39.36	54.50	37.70	39.47	44.03
Natural gas, per thousand cubic feet(1)	5.22	3.83	2.72	4.99	
Synthetic oil, per barrel	32.98			32.98	
Synthetic gas, per thousand cubic feet	3.13			3.13	
<i>Average production costs, per barrel total</i>	10.36	6.95	6.83	10.18	35.11

**During 2015**

Average sales prices					
Oil and NGL, per barrel	42.16	65.96	45.31	42.60	51.77
Natural gas, per thousand cubic feet(1)	6.04	3.97	2.75	5.77	
Synthetic oil, per barrel	48.20			48.20	
Synthetic gas, per thousand cubic feet	5.68			5.68	
<i>Average production costs, per barrel total</i>	12.97	8.80	3.16	12.61	32.16

- (1) The volumes of natural gas used in the calculation of this table are the production volumes of natural gas available for sale and are also shown in the production table above. Natural gas amounts were converted from bbl to cubic feet in accordance with the following scale: 1 bbl = 6 cubic feet.
- (2) Operations in Venezuela and in Africa-PO&G. After our divestment of PESA in 2016, we no longer have equity investments in Venezuela.

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### **Item 4A. Unresolved Staff Comments**

None.

### **Item 5. Operating and Financial Review and Prospects**

#### **Management's Discussion and Analysis of Financial Condition and Results of Operations**

The information below has been derived from our financial statements which were prepared in accordance with IFRS. For more information, see "Presentation of Financial and Other Information" and Notes 2, 4 and 5 to our audited consolidated financial statements.

You should read the following discussion of our financial condition and results of operations together with our audited consolidated financial statements and the accompanying notes beginning on page F-5 of this annual report.

#### **Overview**

We earn income from:

domestic sales, which consist of sales of oil products (including diesel, gasoline, jet fuel, naphtha, fuel oil and liquefied petroleum gas), natural gas, electricity, ethanol, petrochemical products and renewables;

export sales, which consist primarily of sales of crude oil and oil products;

international sales (excluding export sales), which consist of sales of crude oil, natural gas and oil products that are purchased, produced and refined abroad; and

other sources, including services, interest income from investments, share of earnings in equity-accounted investees, foreign exchange variation gains and inflation indexation gains on financial instruments.

Our expenses include:

costs of sales (mainly comprised of direct labor costs, operating costs and purchases of crude oil, oil products, natural gas and electricity in the spot market); property, plant and equipment maintenance and repairs; depreciation, depletion and amortization of property, plant and equipment, oil fields and signing bonuses (acquisition costs); and oil and gas exploration costs;

selling (which include expenses for transportation and distribution of our products), general and administrative expenses;

research and development;

impairment of assets and other operating expenses; and

interest expense, inflation indexation and foreign exchange variation losses on debt and other financial instruments.

Fluctuations in our financial condition and results of operations are driven by a combination of factors, including:

the volume of crude oil, oil products and natural gas we produce and sell;

changes in international prices of crude oil and oil products (denominated in U.S. dollars);

changes in the domestic prices of crude oil and oil products (denominated in *reais*);

fluctuations in the *real* vs. U.S. dollar exchange rates and other currencies, as set out in Note 33.2(c) to our audited consolidated financial statements;

the demand for oil products in Brazil and the amount of imports required to meet the domestic demand;

the recoverable amounts of assets for impairment testing purposes; and

the amount of production taxes from our operations that we are required to pay.

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### **Sales Volumes and Prices**

The profitability of our operations in any particular accounting period is related to the sales prices and volumes of the crude oil, oil products, natural gas and biofuels that we sell and the relationship between these prices and international prices. Our consolidated net sales in 2017 totaled 1,214,358 mboe, representing US\$88,827 million in sales revenues, compared to 1,273,533 mboe, representing US\$81,405 million in sales revenues in 2016 and compared to 1,402,739 mboe, representing US\$97,314 million in sales revenues in 2015.

As a vertically integrated company, we process most of our crude oil production in our refineries and sell the refined oil products primarily in the Brazilian domestic market. Therefore, the price of oil products in Brazil has a more significant impact on our financial results than crude oil prices. International oil product prices vary over time as the result of many factors, including the price of crude oil. We intend to sell our products in Brazil at parity with international product prices.

The average price of Brent crude oil (as reported by Bloomberg), an international benchmark oil, was US\$54.35 per barrel in 2017, US\$44.11 per barrel in 2016 and US\$52.31 per barrel in 2015. In December 2017, Brent crude oil prices averaged US\$64.21 per barrel.

In June 2017, our executive board approved a review of our pricing policy for diesel and gasoline. Thus, our marketing and trading technical area will have power to perform adjustments in prices at any time, including daily, provided that the accumulated adjustments per product must be within a given range ( -7% to +7%). Moreover, any change outside this range will have to be authorized by our Markets and Prices Executive Group, which includes our CEO, our Chief Refining and Natural Gas Officer, and our CFO and Investor Relations Officer. The approved policy review will allow greater adherence of domestic market prices to the international market in the short term, and will enable the company to compete in a more agile and efficient manner.

The principles of the pricing policy, which was approved in October 2016, remain unchanged, taking into consideration the international parity price (IPP), margins that reflects the risks related to the operations, and the level of market share.

In June 2017, our executive board of officers also approved our pricing policy for commercialization of LPG that will be sold by distributors in cylinders of up to 13 kg for residential use (LPG-13). This policy provides for monthly readjustments calculated by the average price of butane and propane on the European market in the previous month, plus a 5% margin.

In January 2018, our executive board of officers has approved a review of our pricing policy for commercialization of LPG-13 and defined new criteria for the application of adjustments, plus a transition rule for the year 2018. Further, our executive board of officers implemented a compensation mechanism designed to measure any difference between the prices defined in the reviewed policy against the original policy, and allocating the amount of any such difference in the following year in order to better manage the transfer of price volatility in the international market to the domestic price.

During 2017, 79.2% of our sales revenues were derived from sales of oil products, natural gas and other products in Brazil, compared to 79.9% in 2016 and 78.1% in 2015.



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	For the Year Ended December 31,								
	2017 Net Average Sales			2016 Net Average Sales			2015 Net Average Sales		
	Volume (mbbl, except as otherwise noted)	Price (US\$) (1)	Revenues (US\$ million)	Volume (mbbl, except as otherwise noted)	Price (US\$) (1)	Revenues (US\$ million)	Volume (mbbl, except as otherwise noted)	Price (US\$) (1)	Revenues (US\$ million)
Diesel	261,821	95,70	25,049	285,422	89.40	25,524	336,723	90.70	30,532
Automotive gasoline	190,178	88,20	16,765	199,381	81.60	16,263	201,821	80.90	16,320
Fuel oil (including bunker fuel)	22,144	62,90	1,392	24,526	47.60	1,167	37,880	60.60	2,297
Naphtha	48,880	53,90	2,637	55,221	44.80	2,472	48,404	53.60	2,594
Liquefied petroleum gas	85,949	46,50	3,999	85,486	36.10	3,083	84,592	34.10	2,881
Jet fuel	36,842	85,00	3,131	37,147	69.30	2,573	40,187	82.70	3,325
Other oil products	62,258	60,60	3,775	68,101	49.50	3,372	65,202	53.20	3,468
<b>Subtotal oil products</b>	<b>708,072</b>	<b>80,10</b>	<b>56,748</b>	<b>755,284</b>	<b>72.10</b>	<b>54,454</b>	<b>814,809</b>	<b>75.40</b>	<b>61,417</b>
Natural gas (boe)	131,882	39,20	5,174	121,994	32.40	3,952	157,815	37.30	5,894
Ethanol, nitrogen products, renewables and other non-oil products	40,771	95,10	3,878	40,843	91.60	3,743	45,063	85.80	3,868
Electricity, services and others			4,533			2,753			4,850
<b>Total domestic market</b>	<b>880,725</b>		<b>70,333</b>	<b>918,121</b>		<b>64,902</b>	<b>1,017,687</b>		<b>76,029</b>
Exports	245,275	53,30	13,075	202,744	41.60	8,439	186,060	52.10	9,692
International sales	88,358	61,30	5,419	152,668	52.80	8,064	198,992	58.30	11,593
<b>Total international market</b>	<b>333,633</b>		<b>18,494</b>	<b>355,412</b>		<b>16,503</b>	<b>385,052</b>		<b>21,285</b>
<b>Consolidated sales revenues</b>	<b>1,214,358</b>		<b>88,827</b>	<b>1,273,533</b>		<b>81,405</b>	<b>1,402,739</b>		<b>97,314</b>

(1) Net average price calculated by dividing sales revenues by the volume for the year.

### **Tax Strategy and Effect of Taxes on Our Income**

Our tax strategy outlines the compliance with tax law of Brazil and other countries, where we operate in conjunction with tax risk management, contributing to improve profitability, as a corporation that influences the economic and social environment of which we are part. We also aim at engaging with tax authorities with an ethical and transparent relationship, developing the areas where we operate, considering we are one of the biggest taxpayers of Brazil, resulting in a multiplier effect over tax collection under federal, state and municipal jurisdictions, as well as production taxes in the scope of ANP.

We are subject to tax on our income at a Brazilian statutory corporate rate of 34%, comprising a 25% rate of income tax and a social contribution tax at a 9% rate. Since 2015, we have recognized income tax expenses over non-exempt income generated by our foreign subsidiaries based on Brazilian statutory corporate rates as established by Law No. 12,973/2014.

In addition to taxes paid on behalf of consumers to federal, state and municipal governments, such as the Domestic Value-Added Tax (*Imposto sobre Circulação de Mercadorias e Serviços*), we are required to pay three main charges on our oil production activities in Brazil under the scope of the ANP: royalties, special participation and retention bonuses. See Item 4. Information on the Company Regulation of the Oil and Gas Industry in Brazil Taxation under Concession Regime for Oil and Gas and Item 3. Key Information Risk Factors Risks Relating to Brazil. These charges imposed by the Brazilian federal government are included in our cost of sales.

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**Table of Contents****Inflation and Exchange Rate Variation****Inflation**

After the remarkable rise in 2015 (10.67%), Brazilian inflation has decelerated during the years 2016 (6.29%) and 2017 (2.95%). This movement was associated with a fragile expansion of domestic demand and a low level of installed capacity utilization. This scenario allowed the government to reduce the interest rate to 7.0% p.a. by the end of 2017. See Item 3. Key Information Risk Factors Risks Relating to Brazil and Our Relationship with the Brazilian Federal Government.

**Exchange Rate Variation**

Fluctuations in exchange rate have multiple effects on our results of operations in *reais*. The relative pace at which our total revenues and expenses in *reais* increase or decrease with the exchange rate, and its impact on our margins, is affected by our pricing policy in Brazil. Absent changes in the international prices for crude oil, oil products and natural gas, when the *real* appreciates against the U.S. dollar and we do not adjust our prices in Brazil, our margins generally improve. Absent changes in the international prices for crude oil, oil products and natural gas, when the *real* depreciates against the U.S. dollar and we do not adjust our prices in Brazil, margins generally decline. However, it is our goal to sell our products in Brazil at parity with international product prices, when possible. For further information on our prices, see Sales Volumes and Prices.

The depreciation of the *real* against the U.S. dollar also increases our debt service in *reais*, as the amount of *reais* necessary to pay principal and interest on foreign currency debt increases with the depreciation of the *real*. A devaluation of the *real* also increases our costs to import oil and oil products, imported goods and services necessary for our operations and our production taxes. Unless the depreciation of the *real* is offset by higher prices for our products sold in Brazil, a devaluation increases our debt service relative to our cash flows while also reducing our operating margins.

The foreign exchange variations on foreign-denominated assets and liabilities of entities for which the *real* is the functional currency are recorded in profit or loss, while the foreign exchange variations on the translation to the presentation currency are recognized in other comprehensive income in equity. As our net debt denominated in other currencies increases, the negative impact of a depreciation of the *real* on our results and net income when expressed in *reais* also increases, thereby reducing the earnings available for distribution. Note 33.2(c) to our audited consolidated financial statements provides further information about our foreign exchange exposure related to assets and liabilities.

We have designated cash flow hedging relationships in which (a) the hedged items are foreign exchange gain or loss of our highly probable U.S. dollar-denominated future export revenues and (b) foreign exchange gain or loss in proportion to our long-term debt obligations denominated in U.S. dollars, and (c) the risk hedged is the effect of changes in exchange rates between the U.S. dollar and our functional currency, the *real*. Both long-term debt obligations (hedging instruments) and future exports (hedged items) are exposed to the *real*/U.S. dollar foreign currency risks at their respective spot exchange rate. Cash flow hedge accounting allows gains or losses arising from the effect of changes in the foreign currency exchange rate on the hedging instruments to be recognized in other comprehensive income in equity and then recycled from equity to profit or loss in the periods during which the hedged transactions (future exports) occur, rather than being immediately recognized as profits or losses. See Critical Accounting Policies and Estimates Cash Flow Hedge Accounting Involving our Future Exports and Notes 4.3.6, 5.8 and 33.2(a) to our audited consolidated financial statements for further information about our cash flow hedge.



Exchange rate variation also affects the amount of retained earnings available for distribution by us when expressed in U.S. dollars. Amounts reported as available for distribution in our statutory accounting records are calculated in *reais* and prepared in accordance with the IFRS and they may increase or decrease when expressed in U.S. dollars as the *real* appreciates or depreciates against the U.S. dollar.

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Fluctuation of the exchange rate also drives the foreign exchange translation effects on our results of operations. Our main functional currency is the *real*, which our functional currency and that of our Brazilian subsidiaries, and our presentation currency is the U.S. dollar. Therefore, our results of operations in *real* were translated into U.S. dollars using the average exchange rates prevailing during the period, as set out in IAS 21. The effects of foreign exchange rates. See Note 2 to our audited consolidated financial statements for the year ended December 31, 2017 for more information about the translation of *real* amounts into U.S. dollars.

When the *real* appreciates against the U.S. dollar, as it did in 2017, the effect is to generally increase both revenues and expenses when expressed in U.S. dollars. When the *real* depreciates against the U.S. dollar, the effect is to generally decrease both revenues and expenses when expressed in U.S. dollars. In 2017, the average *real* appreciated 8% against the U.S. dollar, compared to a depreciation of 4.2% in 2016, a depreciation of 42% in 2015. Through April 15, 2018, the *real* has depreciated by 3% against the U.S. dollar, when compared to December 31, 2017.

In order to isolate the foreign exchange translation effect on our results of operations, the table below presents a reconciliation of our income statement to financial information on a constant currency basis, assuming the same exchange rates between each quarter for translation. The amounts and respective variations presented in constant currency are not measures defined in IFRS. Our calculation may not be comparable to the calculation of other companies and it should not be considered as a substitute for any measure calculated in accordance with IFRS.

	As reported				Financial information in a constant currency basis				
	Jan-Dec U.S.\$ million		Variation		Jan-Dec 2017 U.S.\$ million		Variation*		
	2017	2016	D	)	Foreign exchange translation effects	Results on a constant currency basis	D	)	D(%)
Sales revenues	88,827	81,405	7,422	9	6,904	81,923	518	1	
Cost of sales	(60,147)	(55,417)	(4,730)	(9)	(4,589)	(55,558)	(141)		
<b>Gross profit</b>	<b>28,680</b>	<b>25,988</b>	<b>2,692</b>	<b>10</b>	<b>2,315</b>	<b>26,365</b>	<b>377</b>	<b>1</b>	
Selling expenses	(4,538)	(3,963)	(575)	(15)	(301)	(4,237)	(274)	(7)	
General and administrative expenses	(2,918)	(3,319)	401	12	(231)	(2,687)	632	19	
Exploration costs	(800)	(1,761)	961	55	(43)	(757)	1,004	57	
Research and development expenses	(572)	(523)	(49)	(9)	(41)	(531)	(8)	(2)	
Other taxes	(1,843)	(714)	(1,129)	(158)	(113)	(1,730)	(1,016)	(142)	
Impairment of assets	(1,191)	(6,193)	5,002	81	(21)	(1,170)	5,023	81	
Other income and expenses	(5,599)	(5,207)	(392)	(8)	(232)	(5,367)	(160)	(3)	
<b>Operating income</b>	<b>11,219</b>	<b>4,308</b>	<b>6,911</b>	<b>160</b>	<b>1,333</b>	<b>9,886</b>	<b>5,578</b>	<b>129</b>	
<b>Net finance income (expense)</b>	<b>(9,895)</b>	<b>(7,755)</b>	<b>(2,140)</b>	<b>(28)</b>	<b>(806)</b>	<b>(9,089)</b>	<b>(1,334)</b>	<b>(17)</b>	
Results in equity-accounted investments	673	(218)	891	409	59	614	832	382	

<b>Net Income before income taxes</b>	1,997	(3,665)	5,662	154	586	1,411	5,076	138
<b>Income taxes</b>	(1,828)	(684)	(1,144)	(167)	(299)	(1,529)	(845)	(124)
<b>Net income</b>	169	(4,349)	4,518	104	287	(118)	4,231	97

\* Variation after isolating foreign exchange translation effects between periods used for translation.

### **Results of Operations**

The differences in our operating results from year to year occur as a result of a combination of factors, including primarily: the volume of crude oil, oil products and natural gas we produce and sell; the price at which we sell our crude oil, oil products and natural gas and the relationship of those prices to the international prices; the level and cost of imports and exports needed to satisfy our demand; production taxes; and the differential between Brazilian and international inflation rates, adjusted by the depreciation or appreciation of the *real* against the U.S. dollar.

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The table below shows the amount by which each of these variables has changed during the last three years. Production volumes presented in this table are prepared in accordance with SPE criteria, which are the criteria we apply to analyze our operating results:

	2017	2016	2015
<b>Crude oil and NGL production (mmbbl/d):</b>			
Brazil	2,154	2,144	2,128
International	41	55	69
Non-consolidated international production(1)	22	25	30
<b>Total crude oil and NGL production</b>	<b>2,217</b>	<b>2,224</b>	<b>2,227</b>
Change in crude oil and NGL production	2.9%	(0.1)%	3.6%
<b>Average sales price for crude oil (US\$/barrel):</b>			
Brazil	50.48	39.36	42.16
International	47.16	43.52	55.99
<b>Natural gas production (mmcf/d)(2):</b>			
Brazil	3,006	2,910	2,814
International	294	486	546
<b>Total natural gas production</b>	<b>3,000</b>	<b>3,396</b>	<b>3,360</b>
Change in natural gas production (sold only)	9.8%	1.1%	7.9%
<b>Average sales price for natural gas (US\$/mcf)(2):</b>			
Brazil	6.30	5.22	6.04
International	3.47	3.57	3.77
Year-end exchange rate ( <i>reais</i> /US\$)	3.31	3.26	3.90
Appreciation (depreciation) during the year(3)	(1.5)%	16.4%	(46.8)%
Average exchange rate for the year ( <i>reais</i> /US\$)	3.19	3.48	3.34
Appreciation (depreciation) during the year(4)	8.3%	(4.2)%	(41.9)%
Inflation rate (IPCA)	2.94%	6.28%	10.67%

(1) Non-consolidated companies in Venezuela and in Africa.

(2) Amounts were converted from bbl to cubic feet in accordance with the following scale: 1 bbl = 6 cubic feet.

(3) Based on year-end exchange rate (US\$/R\$)

(4) Based on average exchange rate for the year (US\$/R\$)

**Results of Operations 2017 compared to 2016****Sales Revenues**

Sales revenues increased by 9% to US\$88,827 million in 2017 from US\$81,405 million in 2016, driven primarily by:

Higher export revenues (US\$4,636 million) due to higher international prices of crude oil and oil products, as well as higher volume of exported crude oil reflecting an increase in the domestic market share.

Higher domestic revenues (US\$5,431 million), as a result of:

- a) Higher oil products revenues (US\$2,294 million), mainly reflecting the average increase in diesel and gasoline prices when expressed in U.S. dollars, as well as higher average realization prices for other oil products, such as liquefied petroleum gas and jet fuel, following the increase in their international prices. These effects were partially offset by the decrease in oil products sales volume due to drop in market share, mainly for diesel and gasoline markets;
- b) Increased electricity revenues (US\$1,678 million) due to higher thermoelectric dispatch with higher prices in the spot market, as a result of worsen hydrological conditions; and
- c) Higher natural gas revenues (US\$1,222 million), reflecting higher thermoelectric dispatches with higher prices and sales.

Lower revenues from operations abroad (US\$2,645 million), due to the sale of Petrobras Argentina S.A. in the third quarter of 2016 and Petrobras Chile Distribución Ltda in the first quarter of 2017.

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### ***Cost of Sales***

Cost of sales increased by 9% to US\$60,147 million in 2017, compared to US\$55,417 million in 2016, mainly due to:

Foreign exchange translation effects which increased the average cost of sales when expressed in U.S. dollars, reflecting the appreciation of the average *real*;

Higher production taxes expenses due to the increase in international prices and rise in production of Lula field, which has a higher special participation rate imposed on it; and

Increased electricity expenses as a result of higher prices in the spot market.  
These effects were partially offset by:

Lower import costs of oil and oil products due to higher share of domestic crude oil on the processed feedstock and the lower oil product sales volume in the domestic market;

Lower import costs of natural gas due to higher share of domestic natural gas in sales mix;

Decreased depreciation expenses, reflecting impairments of assets recognized in 2016;

Lower costs from operations abroad mainly attributable to the sale of Petrobras Argentina S.A. and Petrobras Chile Distribución Ltda.

### ***Selling Expenses***

Selling expenses increased by 15% to US\$4,538 million in 2017 from US\$3,963 million in 2016, mainly due to foreign exchange translation effects, which increased the average selling expenses when expressed in U.S. dollars, and higher transportation charges by the use of third parties gas pipelines, following the sale of Nova Transportadora do Sudeste (NTS). These effects were partially offset by lower impairment of trade and other receivables, primarily relating to companies from the electricity sector, and the effects of the sale of Petrobras Argentina S.A. and Petrobras Chile Distribución Ltda.

### ***General and Administrative Expenses***

General and administrative expenses decreased by 12% to US\$2,918 million in 2017 from US\$3,319 million in 2016. This decrease mainly reflects lower personnel expenses, following the separations under the voluntary separation incentive program (PIDV), and to lower expenses with outsourced administrative services. For further information, see Item 6. Directors, Senior Management and Employees Employees and Labor Relations.

### ***Exploration Costs***

Exploration costs decreased by 55% to US\$800 million from US\$1,761 million in 2016 due to decrease in exploration well costs written off as a dry hole or sub-commercial wells amounting to US\$ 1,002 million. A breakdown of our exploration costs by nature is set out in Note 15 to our audited consolidated financial statements.

### *Research and Development Expenses*

Research and development expenses increased by 9% to US\$572 million from US\$523 million in 2016, driven by foreign exchange translation effects which increased Research and Development expenses when expressed in U.S. dollars. See Item 5. Operating and Financial Review and Prospects Research and Development for further details about our research and development activities.

### *Other taxes*

Other taxes increased by 58% to US\$1,843 million from US\$714 million in 2016, mainly due to our decision to benefit from the Brazilian federal settlement programs. See Note 21 to our audited consolidated financial statements for further information on these tax amnesty and refinancing programs.

### *Impairment of Assets*

We recognized impairment charges of US\$1,191 million in 2017 mainly for RTM and Gas & Power assets (US\$781 million and US\$446, respectively), mainly due to higher costs of raw materials and the lower refining margin projection, as well as following the lower expectation of a successful sale of fertilizers and nitrogen products plants.

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Regarding E&P assets, the enhanced risk perception of Brazilian market decreased the discount rates applied for impairment testing purposes, along with the better operational efficiency of certain fields and the lower tax burden set forth in the new tax rules applicable to the oil and gas industry, resulted in reversals of US\$1,733. By contrast, expected acceleration of production cessation of certain fields reflecting an optimization of investment portfolio, as well as lower risk-adjusted discount rate for decommissioning costs, which also increased the costs of assets related to the abandonment and dismantling of these areas were the main contributing factors for impairment losses on producing properties in Brazil. In addition, we accounted for impairment losses for E&P under the scope of the partnership and divestment program, mainly with respect to oil and gas production and drilling equipment in Brazil and to the sale of a portion of Roncador field in Campos basin (US\$405 million).

Impairment losses in 2017 were 81% lower when compared to 2016. See Notes 4.10, 5.2, 5.3 and 14 to our audited consolidated financial statements for more information about the impairment of our assets.

### ***Other Income and Expenses***

Other income and expenses increased by 8% to US\$5,599 million in 2017 from US\$5,207 million in 2016, mainly attributable to:

Higher provision for losses on legal proceedings (US\$2,954 million), mainly impacted by the agreement to settle the class action in the United States;

Lower gains on review of provision for decommissioning costs, as a result of higher discount rate and the appreciation of the *real* against the U.S. dollar in 2017 (US\$1,154 million);

Higher pension and medical benefit expenses associated with retirees (US\$486 million), due to unwinding of discount over an increased net actuarial obligation;

Gain on sale and write-off of assets (US\$1,205 million), mainly driven by the sale of interests in NTS and on its remaining interests measured at fair value (US\$217 million);

Reversal of provisions relating to the voluntary separation incentive program (PIDV) due to the cancellation of enrollments in 2017 (US\$237 million), compared to the PIDV expenses in 2016 (US\$1,228 million); and

Lower foreign exchange losses reclassified from equity to results triggered by the sale of certain investees (US\$1,420 million), mainly reflecting the sale of PESA in the 2016 (US\$1,428 million).

### ***Net Finance Income (Expense)***

Net finance expense increased by 28% to US\$9,895 million in 2017 from US\$7,755 million in 2016, resulting from:



Higher foreign exchange and inflation indexation charges (US\$1,697 million), generated by:

- a) Foreign exchange variation losses of US\$718 million driven by the impact of a 13.7% depreciation of the U.S. dollar against our net debt in 2017 in Euro, compared to the foreign exchange gains of US\$191 million due to the 3.1% appreciation on the net debt in 2016 (US\$909 million);
- b) Foreign exchange losses of US\$39 million driven by the impact of a 9.1% depreciation of the U.S. dollar against the pound sterling over the average net debt in pound sterling in 2017, compared to the foreign exchange gains of US\$403 million due to the 16.5% appreciation on the net debt in 2016 (US\$442 million);
- c) Foreign exchange losses of US\$91 million driven by the impact of an appreciation of the *real* against the U.S. dollar over the average positive exposure in U.S. dollar in 2017, compared to the foreign exchange gains of US\$159 million due to the 16.5% appreciation of the *real* against the U.S. dollar over the average negative exposure in U.S. dollar in 2016 (US\$250 million); and
- d) Foreign exchange gains due to lower *real* x Euro exposure (US\$39 million).

Higher finance expenses (US\$437 million), mainly due to:

- a) Finance charges arisen from our decision to join Brazilian federal settlement programs in 2017 (US\$837 million); and
- b) Lower financing expenses in Brazil, due to pre-payment of debts (US\$376 million), along with higher capitalized borrowing costs (US\$247 million).

**Table of Contents****Results in equity-accounted investments**

Positive results in equity-accounted investments of US\$673 million in 2017, mainly due to the higher income of associates, compared to the negative result of US\$218 million in 2016, which was impacted by the Braskem's leniency agreement and by the negative result of our former associate Guarani S/A.

**Income Taxes**

Our net income before income taxes, along with the permanent difference pertaining to income taxes recognized in the scope of tax settlement programs created by the Brazilian federal government, resulted in income taxes expenses of US\$1,828 in 2017, a 167% increase compared to 2016. See Note 21.2 to our audited consolidated financial statements for information on our decision to join these settlement programs, thereby enabling us to resolve significant disputes.

The effective tax rate based on the results increased to a positive rate of 91.5% from a negative rate of 18.7% in 2016. Besides the income taxes under the aforementioned tax settlement programs, in 2017 other the difference between the statutory corporate tax rate (34%) and our effective tax rate were also affected to a lesser extent by other permanent difference, primarily the nondeductible expenses and nontaxable income including post-retirement health care plan expenses and results in equity accounted investments, as well as different jurisdictional tax basis for foreign subsidiaries. These permanent differences arise to the extent that expenses related to post-retirement health care benefits are recognized and we account for results in equity accounted investees for each reporting period, and profits and losses arising in higher and lower tax rate jurisdictions overseas subsidiaries occur.

See Note 21.6 to our audited consolidated financial statements for a reconciliation of statutory tax rates and our tax expense.

**Net Income (Loss) by Business Segment**

We measure performance at the business segment level based on net income. The following is a discussion of the net income (loss) of our main four business segments for 2017, compared to 2016.

See Item 4. Information on the Company and Notes 4.2 and 29 to our 2017 audited consolidated financial statements for more information about our business segments.

	Year Ended December 31,		
	2017(1)	2016(1)	Percentage Change
	(US\$ million)		
Exploration and Production	7,021	1,425	393
Refining, Transportation and Marketing	4,235	5,746	(26)
Gas and Power	1,915	732	162
Distribution	521	67	678
Biofuel	(47)	(323)	(85)
Corporate(2)	(13,481)	(11,403)	18
Eliminations	(255)	(1,082)	(76)
Net income	(91)	(4,838)	(98)

- (1) Excluding non-controlling interests.
- (2) Our Corporate segment comprises our financing activities not attributable to other segments, including corporate financial management, central administrative overhead and actuarial expenses related to our pension and medical benefits for retirees. In 2017, it includes the provision for the class action settlement.

*Exploration and Production*

Net income in our Exploration and Production segment was US\$7,021 million in 2017 compared to US\$1,425 million in 2016. This increase was mainly attributable to higher oil prices, lower depreciation and impairment expenses of oil and gas producing properties in Brazil. These effects were partially offset by higher production taxes. See Note 14 to our 2017 audited consolidated financial statements for further information about impairment expenses.

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### ***Refining, Transportation and Marketing***

In 2017, net income in our Refining, Transportation and Marketing segment was US\$4,235 million, lower when compared to 2016 (US\$5,746 million). The decrease in RTM operating income, was due mainly to the reduction on volumes of domestic sales associated with lower margins and the increase in oil prices, partially offset by lower expenses associated with sales, voluntary separation plan and Impairment, as well as higher result on equity accounted investments.

### ***Gas and Power***

Net income was US\$1,915 million in 2017 compared to US\$732 million in 2016, being the increase attributable to growth in natural gas sales, at higher prices, increase in the participation of the national gas in the sales mix as well as the gain with the sale of our interest in NTS, partially offset by increase in impairment.

### ***Distribution***

Net income was US\$521 million in 2017 compared to US\$67 million in 2016, mainly due to reduction in expenses with sales and with administrative and judicial claims, as well as the reversal of expenses with voluntary separation incentive program of our subsidiary Petrobras Distribuidora, provisioned in 2016. Those factors were partially compensated by lower sales volumes and market share, caused by lower sales to thermoelectric plants, as well as higher participation of third parties in the oil products distribution market.

## **Results of Operations 2016 compared to 2015**

### ***Sales Revenues***

Sales revenues decreased by 16% to US\$81,405 million in 2016 from US\$97,314 million in 2015, driven primarily by:

Decreased domestic revenues (US\$11,127 million) due to lower economic activity in Brazil, mainly as a result of:

- a) Lower oil products revenues (US\$6,963 million), reflecting an 8% decrease on sales, due to lower demand of diesel, consumption of fuel oil following the decreased thermoelectric generation, as well as lower average prices of jet fuel and naphtha. These effects were partially offset by an increase in average prices of diesel and gasoline;
- b) Decreased electricity revenues (US\$2,097 million) mainly from electricity generation, due to improved hydrological conditions; and
- c) Decreased natural gas revenues (US\$1,942 million), as a result of lower thermoelectric demand and of decreased prices.

Lower revenues from operations abroad (US\$3,529 million) pursuant to the disposal of interests in PESA and to lower crude oil and oil product sales prices; and

Lower export revenues (US\$1,253 million), as a result of a decrease in international oil and oil products prices, partially offset by higher export volumes, mainly crude oil, due to lower domestic demand and higher domestic production.

*Cost of Sales*

Cost of sales decreased by 18% to US\$55,417 million in 2016, compared to US\$67,485 million in 2015, mainly due to:

Lower import costs of natural gas, crude oil and oil products, generated by lower domestic demand and by the 17% decrease in Brent price;

Decreased production taxes in Brazil, as a result of lower international crude oil prices;

Decreased costs from operations abroad attributable to the disposal of PESA and to lower international crude oil prices;

Lower electricity costs as a result of decreased thermoelectric demand;

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Lower carrying amounts of assets impacted by the impairment losses recognized in 2015 and in September 2016; and

The higher crude oil production costs, reflecting the increase in depreciation expenses arisen from the lower reserves estimates (unit of production method), which partially offset the aforementioned effects.

### ***Selling Expenses***

Selling expenses decreased by 14% to US\$3,963 million in 2016 from US\$4,627 million in 2015, mainly due to (i) lower allowance for impairment of trade receivables from companies in the electricity sector and (ii) decreased freight expenses, as a result of lower domestic sales volume. For further information, see Note 8.4 to our audited consolidated financial statements.

### ***General and Administrative Expenses***

General and administrative expenses in 2016 remained relatively flat compared to 2015. For further information, see Item 6. Directors, Senior Management and Employees Employees and Labor Relations.

### ***Exploration Costs***

Exploration costs decreased by 8% to US\$1,761 from US\$1,911 million in 2015 due to (i) lower exploration well costs written off as a dry hole or sub-commercial wells (US\$160 million) and (ii) the decrease in geological and geophysical expenses (US\$45 million). These effects were partially offset by an increase in other exploration expenses (US\$55 million), such as charges related to minimum work program, as specified in the Assignment Agreement, and local content requirements. A breakdown of our exploration costs by nature is set out in Note 15 to our audited consolidated financial statements. For further information on our minimum work program, see Item 10. Additional Information Material Contracts Minimum Work Program and for further information on local content requirements, see Item 10. Additional Information Material Contracts Brazilian Content.

### ***Research and Development Expenses***

Research and development expenses decreased by 17% to US\$523 million from US\$630 million in 2015, driven by the decrease in gross revenues from highly productive oil fields in Brazil, since the ANP requires that we invest at least 1% of our gross revenues originating from those fields in research and development projects. See Item 5.

Operating and Financial Review and Prospects Research and Development for further details about our research and development activities.

### ***Other taxes***

Other taxes decreased by 74% to US\$714 million from US\$2,796 million in 2015, mainly due to our decision, in 2015, to benefit from the Federal Tax Amnesty and Refinancing Program (*Programa de Recuperação Fiscal* - REFIS) (US\$1,566 million) and from State Tax Amnesty Programs (US\$314 million). See Note 21 to our 2016 audited consolidated financial statements for further information on these tax amnesty and refinancing programs.

### ***Impairment of Assets***

We recognized Impairment charges of US\$6,193 million in 2016 mainly for exploration and production assets (US\$3,272 million), Refining, Transportation and Marketing activities (US\$2,457 million) and Gas and Power

(US\$375 million), mainly due to (i) a slower recovery of oil prices, (ii) a decrease in future capital expenditures, reflecting our plan to reduce current debt levels and optimize our investment portfolio, (iii) recent changes in Brazilian political and economic scenario. These changes significantly affected the estimates of our key assumptions for impairment testing. Changes in the political and economic scenario in Brazil also resulted in increases in discount rates.

Certain sales of assets, part of our divestment plan, the annual reviews of our estimated reserves and decommissioning costs and the write-offs related to COMPERJ and Transpetro fleet of vessels projects also contributed to impairment recognition.

Impairment losses in 2016 were 50% lower when compared to 2015. See Notes 4.10, 5.2, 5.3 and 14 to our audited consolidated financial statements for more information about the impairment of our assets.

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***Other Expenses, Net***

Other expenses, net decreased by 3% to US\$5,207 million in 2016 from US\$5,345 million, mainly attributable to:

Positive effect related to the review of provision for decommissioning costs, as a result of higher discount rate and the appreciation of the *real* against the U.S. dollar (US\$1,635 million);

Gross gains on disposal of assets (US\$1,051 million), mainly due to (i) gains from the sale of our interest in exploratory block BM-S-8 and in PESA and (ii) lower expenses with respect to areas reverted to ANP and cancelled projects;

Reversal of the provision for the legal proceeding filed against us due to the favorable decision on our appeal (US\$418 million);

Lower expenses with institutional relations and cultural projects (US\$175 million);

Reclassification of foreign exchange losses derived from the depreciation of Argentine Peso and Yen, from shareholders' equity to the statement of income (cumulative translation adjustment - CTA), due to the disposal of PESA and of Petrobras Nansei Seikyu, respectively (US\$1,457 million);

Higher expenses related to the 2016 PIDV (US\$1,113 million); and

Higher unscheduled stoppages and pre-operating expenses (US\$620 million), mainly related to drilling rigs idleness.

***Net Finance Income (Expense)***

Net finance expense decreased by 8% to US\$7,755 million in 2016 from US\$8,441 million in 2015, resulting from:

Lower foreign exchange and inflation indexation charges (US\$1,566 million), mainly due to:

- a) Foreign exchange variation of the *real* on our net debt in U.S. dollar (US\$1,275 million), due to the 16.5% appreciation of the *real* against the U.S. dollar, net of the reclassification of cumulative foreign exchange variation from shareholders' equity to net income due to occurred exports designated for cash flow hedge accounting;



- b) Lower foreign exchange losses of the *real* against the Euro, caused by our lower net debt in Euro (US\$591 million);
- c) Higher foreign exchange gains generated by the impact of a 16.5% appreciation of the U.S. dollar against the pound sterling on net debt, compared to the appreciation of 4.9% in 2015 (US\$282 million); and
- d) Lower foreign exchange gains caused by the impact of a 3.1% appreciation of the U.S. dollar against the Euro on our net debt in 2016, compared to a 10.4% appreciation in 2015 (US\$497million).

Higher finance expenses (US\$521 million), due to:

- a) An increase in our average debt, caused by the impact of the depreciation of the average *real* against the U.S. dollar, net of capitalized borrowing costs (US\$950 million);
- b) Higher unwinding discount on our provision for decommissioning costs (US\$431 million); and
- c) Finance expenses generated by the Tax Amnesty and Refinancing Program (*Programa de Recuperação Fiscal* - REFIS) we have jointed in 2015 (US\$768 million).

Lower finance income (US\$359 million), mainly due to lower average balance invested and to lower gains with derivatives on trade operations.

### *Income Taxes*

Although we reported a loss for the fiscal year ended December 31, 2016, income taxes expenses were recognized for the fiscal year ended December 31, 2016. The effective tax rate based on the results decreased to a negative rate of 18.7% in 2016 from a positive rate of 11.7% in 2015. In 2016, the main reconciliation items between the statutory corporate tax rate (34%) and our effective tax rate refer to nondeductible expenses and nontaxable income, such as CTA transferred to income statement, post-retirement health care plan and results in equity accounted investments. These permanent differences for income tax purposes arise to the extent that we dispose of foreign operations that use a functional currency other than the functional currency used by its parent company (ex. PESA), in which expenses related to post-retirement health care benefits are recognized and we account for results in equity accounted investees for each reporting period, respectively.

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See Note 21.6 to our 2017 audited consolidated financial statements for a reconciliation of statutory tax rates and our tax expense.

**Net Income (Loss) by Business Segment**

We measure performance at the business segment level based on net income. The following is a discussion of the net income (loss) of our main four business segments for 2016, compared to 2015.

See Item 4. Information on the Company and Notes 4.2 and 29 to our 2016 audited consolidated financial statements for more information about our business segments.

	Year Ended December 31,		
	2016(1)	2015(1)	Percentage Change
	(US\$ million)		
Exploration and Production	1,425	(2,480)	(157)
Refining, Transportation and Marketing	5,746	5,727	
Gas and Power	732	237	209
Distribution	67	(142)	(147)
Biofuel	(323)	(276)	17
Corporate(2)	(11,403)	(11,816)	(3)
Eliminations	(1,082)	300	(461)
Net income	(4,838)	(8,450)	(43)

(1) Excluding non-controlling interests.

(2) Our Corporate segment comprises our financing activities not attributable to other segments, including corporate financial management, central administrative overhead and actuarial expenses related to our pension and medical benefits for retirees.

**Exploration and Production**

Net income in our Exploration and Production segment was US\$1,425 million in 2016 compared to a loss of US\$2,480 million in 2015. This gain was mainly attributable to higher impairment expenses recognized in 2015 for producing properties related to oil and gas activities in Brazil. See Note 14 to our 2016 audited consolidated financial statements for further information about our impairment expenses. These effects were partially offset by a lower gross profit for this segment caused by the higher depreciation, given the reduction in reserves in 2015, which was more relevant in the E&P costs of sales than the lower lifting costs and lower production taxes.

For further information about our proved reserves, see Supplementary Information on Oil and Gas Exploration and Production to our 2016 audited consolidated financial statements for information on changes in our proved reserves.

**Refining, Transportation and Marketing**

In 2016, net income in our Refining, Transportation and Marketing segment was US\$5,746 million, remaining relatively flat when compared to 2015. The increase in RTM operating income, which mainly reflected higher expenses in 2015 derived from our decision to join tax amnesty and refinancing programs and from losses on legal

proceedings allocated to this business segment, were substantially offset by higher impairment expenses in 2016, as well as losses on equity accounted investments mainly related to the associate Braskem.

*Gas and Power*

Net income was US\$732 million in 2016 compared to US\$237 million in 2015, a US\$495 increase attributable to (i) a reduction in natural gas and LNG imports, resulting in lower acquisition costs, lower tax expenses and in impairment charges and (ii) revenues arisen from contractual fines. These effects were partially offset by the natural gas sales and electricity generation revenues due to the improvement of hydrological conditions in Brazil and higher impairment provision for trade receivables associated with the isolated electricity sector in the Northern region of Brazil.

**Table of Contents****Distribution**

Net income was US\$67 million in 2016 compared to the US\$142 million loss in 2015, mainly due to lower impairment provision for trade receivables from the isolated electricity sector in the Northern region of Brazil (see Note 8.4 to our 2016 audited consolidated financial statements). These effects were partially offset by lower sales volumes, caused by the reduction in economic activity in Brazil and expenses relating to the new voluntary separation incentive program of our subsidiary Petrobras Distribuidora.

**Additional Business Segment Information**

Additional selected financial data by business segment for 2017, 2016 and 2015 is set out below:

	<b>For the Year Ended December 31,</b>		
	<b>2017</b>	<b>2016</b>	<b>2015</b>
	<b>(US\$ million)</b>		
<b>Exploration and Production</b>			
Sales revenues to third parties(1)(2)	1,422	1,480	1,502
Intersegment sales revenues	40,762	32,195	34,178
Total sales revenues(2)	42,184	33,675	35,680
Net income (loss)(3)	7,021	1,425	(2,480)
Capital Expenditures According to Our Plan Cost Assumptions(4)	12,397	13,509	19,131
Property, plant and equipment	126,487	123,056	109,724
<b>Refining, Transportation and Marketing</b>			
Sales revenues to third parties(1)(2)	50,895	45,498	51,870
Intersegment sales revenues	16,142	17,090	22,451
Total sales revenues(2)	67,037	62,588	74,321
Net income (loss)(3)	4,235	5,746	5,727
Capital Expenditures According to Our Plan Cost Assumptions(4)	1,284	1,168	2,534
Property, plant and equipment	33,400	35,515	33,032
<b>Gas and Power</b>			
Sales revenues to third parties(1)(2)	9,347	6,911	11,072
Intersegment sales revenues	3,027	2,490	2,073
Total sales revenues(2)	12,374	9,401	13,145
Net income (loss)(3)	1,915	732	237
Capital Expenditures According to Our Plan Cost Assumptions(4)	1,127	717	793
Property, plant and equipment	13,231	13,094	14,674
<b>Biofuel</b>			
Sales revenues to third parties(1)(2)	12	9	16
Intersegment sales revenues	201	231	213
Total sales revenues(2)	213	240	229
Net income (loss)(3)	-47	(323)	(276)

Capital Expenditures According to Our Plan Cost Assumptions(4)	35	96	43
Property, plant and equipment	89	100	91
<b>Distribution</b>			
Sales revenues to third parties(1)(2)	27,151	27,507	32,854
Intersegment sales revenues	416	420	552
Total sales revenues(2)	27,567	27,927	33,406
Net income (loss)(3)	521	67	(142)
Capital Expenditures According to Our Plan Cost Assumptions(4)	109	139	255
Property, plant and equipment	1,862	1,936	1,868

- (1) As a vertically integrated company, not all of our segments have significant third-party revenues. For example, our Exploration and Production segment accounts for a large part of our economic activity and Capital Expenditures According to Our Plan Cost Assumptions, but has little third-party revenues.
- (2) Revenues from commercialization of oil to third parties are classified in accordance with the points of sale, which could be either the Exploration and Production or Refining, Transportation and Marketing segments.
- (3) Excluding non-controlling interests.
- (4) See definition of Capital Expenditures According to Our Plan Cost Assumptions in Glossary of Certain Terms Used in this Annual Report.

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### **Liquidity and Capital Resources**

#### ***Overview***

Our principal uses of funds in 2017 were for debt service obligations (US\$43,076 million) and capital expenditures (US\$13,639). We met these requirements with cash provided by operating activities (US\$27,112 million), proceeds from financing (US\$27,075 million) and cash provided by the disposal of assets and sale of interest without loss of control (US\$4,602 million). As of December 31, 2017, although our cash flow from operations was more than sufficient to meet our capital expenditures, our positive free cash flow (cash flow from operations after capital expenditures) was less than the resources needed to fund our debt principal and interest expenditures.

As of December 31, 2017, our foreign currency debt totaled US\$87,541 million, representing 80% of our total financial debt. When compared to 2016, our debt denominated in foreign currency decreased by 7% mainly reflecting pre-payment of debts during 2017.

In 2018, our major cash needs are to meet our budgeted capital expenditures for the year, currently amounting to US\$17.3 billion, and to make principal and interest payments of US\$11,579 million on our debt.

#### ***Financing Strategy***

Our financing strategy is to fund our necessary capital expenditures and to preserve our cash balance and liquidity while meeting our principal and interest payment obligations.

We will pursue our financing strategy in 2018 and going forward in the following ways: (i) using the potential proceeds from the sale of certain of our assets under our divestment program for the 2017-2018 period; (ii) using cash flow from operations and (iii) incurring new debt from traditional and new funding sources to prepay some short term and expensive loans with certain of our creditors and to exchange short term credit lines for long term credit lines to extend our maturity profile.

The following operations were carried out in 2018:

US\$1,962 million has been disbursed to us through the issuance of global notes in the international market, maturing in February 2029. These proceeds were entirely used to redeem global notes previously issued by us;

We purchased, in a cash tender offer, global notes in the principal aggregate amount of US\$3,197 million and 366 million (equivalent to US\$454 million);

We signed with Banco do Brasil a revolving credit facility in the amount of US\$ 605 million, with maturity in February 2023, and signed financing contracts as export credit notes in the total amount of US\$ 2,007 million, with maturities in 2023 and 2024. Additionally, we early repaid export credit notes with Banco do Brasil in the total amount of US\$ 2,314 million, which maturities were due between 2019 and 2021;

We signed with a syndicate of 17 banks a revolving credit facility (RCF) in the amount of US\$ 4.35 billion, with maturity in March 2023; and

We prepaid the remaining balance of the financing agreement with China Development Bank (CDB) contracted in 2009 in the amount of US\$ 2.8 billion and made a US\$ 2 billion withdrawal from the new financing agreement contracted with the CDB at the end of 2017.

### *Rating*

We are rated by the three major agencies (S&P, Moody's and Fitch). Our ratings are based on its financial health and are highly influenced by the sovereign rating.

Between 2015 and mid-2016, we lost our investment grade ratings due to the deterioration of our financial conditions, with high indebtedness and substantial increase in leverage, as well as liquidity pressure and reduced capacity to meet our payment obligations on the short-term and medium-term, affected by the significant decline in international crude oil prices and the sharp devaluation of the real. The deterioration of our ratings was also due to the sovereign's downgrade.

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From mid-2016 to 2017, our ratings were upgraded several times by Moody's and once by S&P, as a result of the overall improvement in our operating performance, with solid cash flow generation, better debt profile and access to banks and international market, progress in liquidity and governance, as well as significant reduction in leverage and the success of our pricing policy and divestment plan.

In 2018, S&P and Fitch downgraded the sovereign ratings. This movement resulted in the maintenance of Petrobras's rating by S&P and a one-notch downgrade by Fitch. Moody's maintained the sovereign rating, but changed the perspective from negative to stable, and upgraded Petrobras's rating. As of April 2018, all agencies attributed the same ratings to Petrobras and Brazil. Current Petrobras's ratings are Ba2 by Moody's and BB- by Fitch and S&P.

## ***Government Regulation***

We are required to submit our annual capital expenditures budget (*Orçamento Anual de Investimentos*, or OAI) to the MPDM and the MME. Following review by these governmental authorities, the Brazilian Congress must approve the budget. Thus, there may be a reduction or change in our planned investments. As a result, we may not be able to implement all of our planned investments, including those related to the expansion and development of our oil and natural gas fields, which may adversely affect our results of operation and financial condition.

The MPDM oversees the total amount of medium and long-term debt that we and our Brazilian subsidiaries may incur through the annual budget approval process. Operations of foreign credit promoted by us and our Brazilian subsidiaries are not subject to prior authorization by the National Treasury Secretariat - STN. Pursuant to applicable law, issuers must electronically register foreign credit operations in Brazil, which then must be accredited by the Central Bank in accordance with Annex II to Resolution No. 3,844, of 2010.

In addition, the incurrence of debt by our non-Brazilian subsidiaries, including PGF, is not subject to registration with the Central Bank or approval by the National Treasury Secretariat.

All medium and long-term debt incurred by us or our subsidiaries requires the approval of our board of executive officers, within the parameters established by our board of directors, except for the issuance of debentures, which require the approval of our board of directors.

## ***Sources of Funds***

### ***Our Cash Flow***

In 2017, the resources needed to fund our capital expenditures (US\$13,639 million) and service our debt (US\$43,076 million) were met by cash flow from operations (US\$27,112 million), proceeds from financing (US\$27,075 million) and cash provided by the disposal of assets and sale of interest without loss of control (US\$4,602 million). As of December 31, 2017, our balance of cash and cash equivalents amounted to US\$22,519 million, compared to US\$21,205 million as of December 31, 2016 and our balance of government bonds and time deposits with maturities of more than three months was US\$1,885 million as compared to US\$784 million as of December 31, 2016.

We maintained our liquidity cushion consisting of our balance of cash and cash equivalents, as well as government bonds and time deposits with maturities of more than three months, amounting to US\$24,404 million as of December 31, 2017 as compared to US\$21,989 million as of December 31, 2016.

Net cash provided by operating activities increased by 4% to US\$27,112 million from US\$26,114. It was mainly generated by higher margins of exports and of oil products in the domestic market and by an increase in the share of



domestic oil in the processed feedstock and of the domestic gas in the sales mix, which led to lower import costs. These effects were partially offset by lower market-share in the oil products domestic market.

In 2017, proceeds from financing totaled US\$ 27,075 million principally reflecting: (i) global notes issued in the capital market in the amount of US\$ 10,218 and maturing in 2022, 2025, 2027, 2028 and 2044; (ii) debentures issued in the domestic market amounting to US\$ 1,577 and maturing in 2022 and 2024; and (iii) funds raised from the domestic and international banking market in the amount of US\$ 12,988 with average term of five years.

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Proceeds in 2017 from disposals of assets totaled US\$3,091 million and from sale of interest without loss of control (BR Distribuidora IPO) of US\$ 1,507 million were used for repayment of financing (and interest payments) and for capital expenditures. See Note 10 to our audited consolidated financial statements for further information regarding disposals of assets under our partnership and divestment program. We expect further proceeds derived from the disposal of assets, as our partnership and divestment program for the period 2018-2019 forecasts proceeds of approximately US\$21 billion. For further information on our divestment program, please see Item 4. Information on the Company Overview of the Group.

The uses of cash were primarily for capital expenditures and investments in operating units, which totaled US\$13,639 million in 2017 and remained relatively flat compared to 2016 (US\$14,085 million).

As occurred in 2016 and 2015, our board of directors proposed no distribution of dividends in 2017 as we also reported a loss for this fiscal year.

**Short-Term Debt**

Our outstanding short-term debt serves many purposes, including supporting our working capital and our imports of crude oil and oil products. As of December 31, 2017, our total debt due in the short-term, including accrued interest, amounted to US\$7,001 million, compared to US\$9,755 million as of December 31, 2016.

**Long-Term Debt**

Our outstanding long-term debt consists primarily of securities issued in the international and capital markets, funding from development banks (such as the CDB and the BNDES), loans from Brazilian and international commercial banks and amounts outstanding under facilities guaranteed by export credit agencies and multilateral agencies. The non-current portion of our total long-term debt amounted to US\$102,045 million as of December 31, 2017, compared to US\$108,371 million as of December 31, 2016. This decrease was primarily due to pre-payment of debt. See Note 17 to our audited consolidated financial statements for a breakdown of our debt, a roll-forward schedule of our non-current debt by source and other information.

The following international debt issues are included in these figures at December 31, 2017:

Notes	Carrying amount as of December 31, 2017 (US\$ million)
PGF s 7.875% Global Notes due 2019(*)	562
PGF s 3.000% Global Notes due 2019	691
PGF s 3.250% Global Notes due 2019	801
PGF s Floating Rate Global Notes due 2019	331
PGF s 4.875% Global Notes due 2020	380
PGF s 5.750% Global Notes due 2020(*)	936
PGF s Floating Rate Global Notes due 2020	182
PGF s 3.750% Global Notes due 2021	896
PGF s 5.375% Global Notes due 2021(*)	2,750
PGF s 8.375% Global Notes due 2021	2,820

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PGF s 5.875% Global Notes due 2022(*)	717
PGF s 6.125% Global Notes due 2022	3,032
PGF s 4.250% Global Notes due 2023	830
PGF s 4.375% Global Notes due 2023	3,470
PGF s 6.250% Global Notes due 2024	2,491
PGF s 4.750% Global Notes due 2025	952
PGF s 5.299% Global Notes due 2025	3,596
PGF s 6.250% Global Notes due 2026(*)	929
PGF s 8.750% Global Notes due 2026	2,967
PGF s 7.375% Global Notes due 2027	4,168
PGF s 5.999% Global Notes due 2028	5,175
PGF s 5.375% Global Notes due 2029	593
PGF s 6.625% Global Notes due 2034	799
PGF s 6.875% Global Notes due 2040(*)	1,473
PGF s 6.750% Global Notes due 2041(*)	2,364
PGF s 5.625% Global Notes due 2043	1,712
PGF s 7.250% Global Notes due 2044	2,015
PGF s 6.850% Global Notes due 2115	2,019

(\*)Originally issued by PifCo.

**Table of Contents****Net Debt/Adjusted EBITDA Metric**

The Net debt/Adjusted EBITDA ratio is an important metric used in our 2018-2022 Plan that supports our management in assessing the liquidity and leverage of Petrobras Group. We expect our Net Debt/Adjusted EBITDA ratio to converge towards the global average of main investment-grade rated oil and gas companies by 2022. To reach this goal, we monitor our corporate and administrative activities and results.

Adjusted EBITDA represents an alternative measure to our net cash provided by operating activities and is computed by using the EBITDA (net income before net finance income (expense), income taxes, depreciation, depletion and amortization) adjusted by items not considered part of our primary business, which include results in equity-accounted investments, impairment, cumulative foreign exchange adjustments reclassified to the income statement and results from disposal and write-offs of assets.

Net Debt reflects the gross debt net of cash and cash equivalents, government bonds and time deposits from highly rated financial institutions abroad with maturities of more than 3 months from the date of acquisition, considering the expected realization of those financial investments in the short-term.

Our Net debt/Adjusted EBITDA ratio is a non-GAAP measure and may not be comparable to the calculation of liquidity measures presented by other companies and it should neither be considered in isolation nor as a substitute for any measure calculated in accordance with IFRS. This metric must be considered together with other measures and indicators for a better understanding of our financial condition.

We applied the same foreign exchange translation method as set in Note 2 to our audited consolidated financial statements ended December 31, 2017 for presenting this metric in the same currency used in our audited consolidated financial statements. Accordingly, assets and liabilities items were translated into U.S. dollars at the exchange rate as of the date of the statement of financial position, and all items pertaining to the statement of income and statement of cash flows were translated at the average rates prevailing at each quarter of the years.

Depending on the foreign translation effects on items that comprise this metric, the Net Debt/Adjusted EBITDA may differ or even present a different trend when comparing the results in both currencies, as it did in 2017. However, we are pursuing 2.5 target based on our net debt and Adjusted EBITDA computed in *reais*, as described in Item 4. Information on the Company 2018-2022 Plan and Strategic Monitoring Process.

The following table presents, in both currencies, the reconciliation for 2017 and 2016 of the Net debt/Adjusted EBITDA ratio measure to the most directly comparable GAAP measure in accordance with IFRS, which is in this case the Gross Debt Net of Cash and Cash Equivalents / Net Cash provided by operating activities ratio:

	2017 (R\$ million)	2016 (R\$ million)	2017 (US\$ million)	2016 (US\$ million)
<b>Cash and cash equivalents</b>	<b>74,494</b>	<b>69,108</b>	<b>22,519</b>	<b>21,205</b>
Government securities and time deposits (maturity of more than three months)	6,237	2,556	1,885	784
Adjusted cash and cash equivalents	80,731	71,664	24,404	21,989
<b>Current and non-current debt Gross Debt</b>	<b>361,483</b>	<b>385,784</b>	<b>109,275</b>	<b>118,370</b>

<b>Net Debt</b>	<b>280,752</b>	<b>314,120</b>	<b>84,871</b>	<b>96,381</b>
<b>Net cash provided by operating activities OCF</b>	<b>86,467</b>	<b>89,709</b>	<b>27,112</b>	<b>26,114</b>
Income taxes	(5,797)	(2,342)	(1,828)	(684)
Impairment of trade and others receivables	2,271	3,843	708	1,131
Trade and other receivables, net	(3,140)	397	(978)	(39)
Inventories	(1,130)	(2,010)	(336)	(518)
Trade payables	(160)	(4,154)	(62)	(1,060)
Deferred income taxes, net	1,452	(3,280)	467	(913)
Taxes payable	6,911	1,932	2,153	675
Others	9,503	6,630	2,949	1,892
<b>Adjusted EBITDA</b>	<b>76,557</b>	<b>88,693</b>		