PETROBRAS - PETROLEO BRASILEIRO SA
Form 20-F
April 01, 2019
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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, 2018

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)

Rafael Salvador Grisolia

Chief Financial Officer and Chief Investor Relations Officer

(55 21) 3224-4477 dfinri@petrobras.com.br

Avenida República do Chile, 65 23rd 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:

Title of each class:	**Name of each exchange on which registered:**
Petrobras Common Shares, without par value*	New York Stock Exchange*
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*	New York Stock Exchange*
Petrobras American Depositary Shares (as evidenced by American Depositary Receipts), each representing two Preferred Shares	New York Stock Exchange
Floating Rate Global Notes due 2020, issued by PGF	New York Stock Exchange
5.375% Global Notes due 2021, issued by PGF (successor to PifCo)	New York Stock Exchange
8.375% Global Notes due 2021, issued by PGF	New York Stock Exchange
6.125% Global Notes due 2022, issued by PGF	New York Stock Exchange
4.375% Global Notes due 2023, issued by PGF	New York Stock Exchange
6.250% Global Notes due 2024, issued by PGF	New York Stock Exchange
5.299% Global Notes due 2025, issued by PGF	New York Stock Exchange
8.750% Global Notes due 2026, issued by PGF	New York Stock Exchange
7.375% Global Notes due 2027, issued by PGF	New York Stock Exchange
5.999% Global Notes due 2028, issued by PGF	New York Stock Exchange
5.750% Global Notes due 2029, issued by PGF	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
5.625% Global Notes due 2043, issued by PGF	New York Stock Exchange
7.250% Global Notes due 2044, issued by PGF	New York Stock Exchange

6.900% Global Notes due 2049, issued by PGF	New York Stock Exchange
6.850% Global Notes due 2115, 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

The number of outstanding shares of each class of stock as of December 31, 2018 was:

7,442,231,382 Petrobras Common Shares, without par value

5,601,969,879 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 if any, every Interactive Data File required to be submitted 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 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 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, in plan, aim, will, may, should, could, 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;

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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 asset sales under our portfolio management program;

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 Item 3. Key Information 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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GLOSSARY OF CERTAIN TERMS USED IN THIS ANNUAL REPORT

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 (*Assistência Multidisciplinar de Saúde*).
ANP	The *Agência Nacional de Petróleo, Gás Natural e Biocombustíveis* (National Petroleum, Natural Gas and Biofuels Agency), or ANP, is the federal agency that regulate 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 up to 5 billion barrels of oil equivalent bnboe) 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.
Biofuel	Any fuel that is derived from biomass (plant, algae material or animal waste). It is produced through biological processes, such as agriculture and anaerobic digestion and it is considered renewable energy. Biodiesel and ethanol can be used as a fuel for vehicles, pure or added to diesel or gasoline to reduce the levels of carbon. Biodiesel is produced from oils or fats using a transesterification process, and ethanol is made

	by fermentation mostly from carbohydrates produced in sugar or starch crops such as corn, sugarcane or sweet sorghum.
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 *Banco Nacional de Desenvolvimento Econômico e Social* (the Brazilian Development Bank).

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Câmara de Arbitragem do Mercado	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 business plans, which includes acquisition of intangible assets and property, plant and equipment, investment in investees and other items that do not necessarily qualify as cash flows used in investing activities, comprising geological and geophysical expenses, research and development expenses, pre-operating charges, purchase of property, plant and equipment on credit and borrowing costs directly attributable to works in progress.
CDB	China Development Bank.
CEG Rio	*Gas Natural Fenosa*, the natural gas distribution company for the State of Rio de Janeiro.
Central Depositária	The *Central Depositária de Ativos e de Registro de Operações do Mercado*, which serves as the custodian of our common and preferred shares (including those represented by ADSs) on behalf of our shareholders.
CGU	The *Controladoria Geral da União* (General Federal Inspector s Office), or CGU, is an advisory body of the Brazilian Presidency responsible for assisting in matters related to the protection of federal public property (*patrimônio público*) 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.
CMN	The *Conselho Monetário Nacional* (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.
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 *Complexo Petroquímico do Rio de Janeiro* *COMPERJ* (Petrochemical Complex of Rio de Janeiro).
CONAMA	The *Conselho Nacional do Meio Ambiente* (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.

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CNPE	The *Conselho Nacional de Política Energética* (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 *Comissão de Valores Mobiliários* (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.
E&P	Exploration & Production is our business segment that covers the activities of exploration, development and production of crude oil, NGL and natural gas in Brazil and abroad, for the primary purpose of supplying our domestic refineries.
Eletrobras	Centrais Elétricas Brasileiras S.A. Eletrobras.
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 Petroliferos Fiscales Bolivianos.

GTB	Gas Transboliviano S.A.
HSE	Health, Safety and Environmental.
IASB	International Accounting Standards Board.
IBAMA	The *Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis* (Brazilian Institute of the Environment and Renewable Natural Resources).
IBGC	The *Instituto Brasileiro de Governança Corporativa* (Brazilian Institute of Corporate Governance).

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IOF	*Imposto sobre Operações Financeiras* (Brazilian taxes over financial transactions).
IPCA	The *Índice Nacional de Preços ao Consumidor Amplo* (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	*Letras Financeiras do Tesouro* (Brazilian federal government bonds).
LNG	Liquefied natural gas.
LPG	Liquefied petroleum gas, which is a mixture of saturated and unsaturated hydrocarbons, with up to five carbon atoms, used as domestic fuel.
MME	The *Ministério de Minas e Energia* (Ministry of Mines and Energy) of Brazil.
Moody s	Moody s Investors Service, Inc., a credit rating agency.
ME	The *Ministério da Economia* of Brazil (Ministry of Economy, former MPDM *Ministério do Planejamento, Desenvolvimento e Gestão*).
NGL	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.
Oil	Crude oil, including NGLs and condensates.
Oil Products	

	Produced through processing at refineries such as diesel, gasoline, liquid fuel, LPG and other products.
ONS	The *Operador Nacional do Sistema Elétrico* (National Electric System Operator) of Brazil.
OPEC	Organization of the Petroleum Exporting Countries.
OSRL	The Oil Spill Response Limited.
PESA	Petrobras Argentina S.A.

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Petrochemicals	Chemicals obtained in petrochemical industries such as ethene, propene, benzene, xylenes, polypropylene, polyethylene and others.
Petros	Petrobras employee pension fund.
Petros 2	Petrobras sponsored pension plan.
PGF	Petrobras Global Finance B.V.
PifCo	Petrobras International Finance Company S.A.
PLSV	Pipe laying support vessel.
PO&G	Petrobras Oil & Gas B.V.
Post-salt reservoir	A geological formation containing oil or natural gas deposits located above a salt layer.
PP&E	Property, plant and equipment.
PPSA	Pré-Sal Petróleo S.A.
Pre-salt Polygon	Underground region formed by a vertical prism of undetermined depth, with a polygonal surface defined by the geographic coordinates of its vertices established by Law No. 12,351/2010, as well as other regions that may be delimited by the Brazilian federal government, according to the evolution of geological knowledge.
Pre-salt reservoir	A geological formation containing oil or natural gas deposits located beneath a salt layer.
Proved reserves	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 unweighted arithmetic average of the first-day-of-the-month 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.

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 or an analogous reservoir, provides support for the engineering analysis on which the project or program was based.

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Proved developed reserves	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.
Proved undeveloped reserves	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. 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.
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 *Refinaria Abreu e Lima* (Abreu e Lima Refinery).
RTM	Refining, Transportation and Marketing is our business segment that covers the activities of refining, logistics, transport and trading of crude oil and oil products in Brazil and abroad, exports of ethanol, petrochemical operations, such as extraction and processing of shale, as well as holding interests in petrochemical companies in Brazil.
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 *Complexo Industrial Petroquímica Suape,* an industrial complex with facilities owned by Companhia Petroquímica de Pernambuco PetroquímicaSuape and Companhia Integrada Têxtil de Pernambuco Citepe.
Shell	Shell Brasil Petróleo Ltda.

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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 *Tribunal de Contas da União* (Federal Auditor s Office), or TCU, is an advisory body linked to the Brazilian Congress, responsible for assisting it in matters related to the supervision of the Brazilian government with respect to accounting, finance, budget, operational and public property (*patrimônio público*) matters.
TBG	Transportadora Brasileira Gasoduto Bolívia-Brasil S.A. (TBG).
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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CONVERSION TABLE

1 acre	=	43,560 square feet	=	0.004047 km^2
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^3 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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ABBREVIATIONS

bbl	Barrels
bcf	Billion cubic feet
bn	Billion (thousand million)
bnbbl	Billion barrels
bncf	Billion cubic feet
bnm^3	Billion cubic meters
boe	Barrels of oil equivalent
bnboe	Billion barrels of oil equivalent
bbl/d	Barrels per day
cf	Cubic feet
GWh	One gigawatt of power supplied or demanded for one hour
km	Kilometer
km^2	Square kilometers
m^3	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
mm^3	Thousand cubic meters
mm^3/d	Thousand cubic meters per day
mm^3/y	Thousand cubic meter per year
mmbbl	Million barrels

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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
mmm^3	Million cubic meters
mmm^3/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 *reais*
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 37 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$ a 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, 2018, 2017 and 2016 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.

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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 2019-2023 Business and Management Plan, as approved in December 2018 (2019-2023 Business 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$66 per barrel for 2019, US$67 per barrel for 2020, US$72 per barrel for 2021, US$75 per barrel for 2022 and US$75 per barrel for 2023. In addition, in accordance with our 2019-2023 Business Plan, we have used an estimated average nominal exchange rate of R$3.6 to US$1.00 for 2019, R$3.6 to US$1.00 for 2020, R$3.7 for US$1.00 for 2021, R$3.7 to US$1.00 for 2022 and R$3.8 to US$1.00 for 2023. For further information on our 2019-2023 Business Plan, see Item 4. Information on the Company 2040 Strategic Plan and 2019-2023 Business Plan, ; and

all reserve and production volumes described in this annual report include 100% of the reserves and production of our consolidated subsidiaries, our proportional participation in reserve volumes in joint operations (e.g. Brazilian consortia) and our percentage interest in the proved reserves and production of equity method investees (associates and joint ventures). 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 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 evaluation of 96% of our net proved crude oil, condensate and natural gas reserves as of December 31, 2018 in Brazil. The amount of reserves reviewed by D&M corresponds to 95% of our total proved reserves company-wide on a net equivalent basis. 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, 2019, we filed proved reserve estimates for Brazil with the ANP, in accordance with Brazilian rules and regulations, totaling net volumes of 10.1 bnbbl of crude oil, condensate and synthetic oil and 10.4 tcf of natural gas and synthetic gas. The reserve estimates filed with the ANP were approximately 24.8% higher than those provided herein, which have been prepared in accordance with the definitions of Rule 4-10(a) of Regulation S-X, 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.

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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, 2018, 2017, 2016, 2015, and 2014, derived from our audited consolidated financial statements. The selected consolidated financial data as of and for the years ended December 31, 2018 and 2017 was derived 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 and 2014 was derived 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.

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STATEMENT OF FINANCIAL POSITION

Summary Financial Data

	As of December 31,				
	2018	2017	2016	2015	2014
	(US$ million)				
Assets:					
Cash and cash equivalents	13,899	22,519	21,205	25,058	16,655
Marketable securities	1,083	1,885	784	780	9,323
Trade and other receivables, net	5,746	4,972	4,769	5,554	7,969
Inventories	8,987	8,489	8,475	7,441	11,466
Assets classified as held for sale	1,946	5,318	5,728	152	5
Other current assets	5,401	3,948	3,808	4,194	5,414
Long-term receivables	22,059	21,450	20,420	19,426	18,863
Investments	2,759	3,795	3,052	3,527	5,753
Property, plant and equipment	157,383	176,650	175,470	161,297	218,730
Intangible assets	2,805	2,340	3,272	3,092	4,509
Total assets	222,068	251,366	246,983	230,521	298,687
Liabilities and equity:					
Total current liabilities	25,051	24,948	24,903	28,573	31,118
Non-current liabilities(1)	43,334	42,871	36,159	24,411	30,373
Non-current finance debt(2)	80,508	102,045	108,371	111,482	120,218
Total liabilities	148,893	169,864	169,433	164,466	181,709
Equity					
Share capital (net of share issuance costs)	107,101	107,101	107,101	107,101	107,101
Reserves and other comprehensive income (deficit)(3)	(35,557)	(27,299)	(30,322)	(41,865)	9,171
Equity attributable to the shareholders of Petrobras	71,544	79,802	76,779	65,236	116,272
Non-controlling interests	1,631	1,700	771	819	706
Total equity	73,175	81,502	77,550	66,055	116,978
Total liabilities and equity	222,068	251,366	246,983	230,521	298,687

(1) Excludes non-current finance debt.
(2) Excludes current portion of long-term finance debt.
(3) Capital transactions, profit reserves and accumulated other comprehensive income (deficit).

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STATEMENT OF INCOME AND OTHER INFORMATION

Summary Financial Data

	For the Year Ended December 31,				
	2018(1)	2017(2)	2016(3)	2015(4)	2014(5)
	(US$ million, except for share and per share data)				
Sales revenues	95,584	88,827	81,405	97,314	143,657
Net income (loss) before finance income (expense), results in equity-accounted investments and income taxes	17,432	11,219	4,308	(1,130)	(7,407)
Net income (loss) attributable to the shareholders of Petrobras	7,173	(91)	(4,838)	(8,450)	(7,367)
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	1.34	0.86	0.33	(0.09)	(0.57)
Common and Preferred ADS	2.68	1.72	0.66	(0.18)	(1.14)
Basic and diluted earnings (losses) per:					
Common and Preferred shares	0.55	(0.01)	(0.37)	(0.65)	(0.56)
Common and Preferred ADS	1.10	(0.02)	(0.74)	(1.30)	(1.12)
Cash dividends per(6):					
Common shares	0.07				
Preferred shares	0.24				
Common ADS	0.14				
Preferred ADS	0.48				

(1)

In 2018, we recognized the effects of the settlement of open matters with the DoJ and the SEC investigation, in the amount of US$ 853 million. We also recognized impairment losses of US$2,005 million.

(2) In 2017, we recognized US$3,449 as other income and expenses, due to the provision for legal proceedings relating to the agreement to settle the Consolidated Securities Class Action as defined in Item 8. Financial Information Legal Proceedings Class Action before the United States District Court for the Southern District of New York. We also recognized impairment losses of US$1,191 million.

(3) In 2016, we recognized impairment losses of US$6,193 million.

(4) In 2015, we recognized impairment losses of US$12,299 million.

(5) In 2014, we recognized impairment losses of US$16,823 million.

(6) Pre-tax interest on capital and/or dividends proposed for the year. Amounts were based on the exchange rate prevailing at the date of the approval, except for the complement of minimum mandatory dividends, based on the closing exchange rate at the date of release of our audited consolidated financial statements.

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RISK FACTORS

Risks Relating to Our Strategy

We are exposed to health, environment and safety risks 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, ultra-deepwater and refining activities present various risks, such as oil spills and explosions in our refineries and exploration and production units, including platforms, ships, pipelines, terminals and dams, among other assets owned or operated by us. 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, 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 cash flow and profitability are exposed to the volatility of prices of oil, gas and oil products.

Most of our revenue derives primarily from sales of crude oil, oil products and, to a lesser extent, natural gas. International prices for oil and oil products are volatile and strongly influenced by conditions and expectations of world supply and demand. Volatility and uncertainty in international oil prices are structural and likely to continue. Changes in oil prices usually result in changes in the prices of oil products and natural gas.

Currently, our pricing policy for diesel and gasoline allows for price readjustments at any time, also on a daily basis for gasoline, and by periods of not less than 15 days for diesel. 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.

In the past, our pricing policy has been adjusted from time to time by our management. We cannot guarantee that our pricing policy will not change in the future. In previous periods, we have not always adjusted our prices to reflect parity with the international market trends or reflect exchange rate volatility. In the event that 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. Any of such changes in our policy may have a material adverse effect on our businesses, results of operations and financial condition.

Illegal taps (thefts) of oil and oil products may, temporarily or permanently, generate accidents, leaks or damage in our facilities, impacting the continuation of our operations.

In recent months, we suffered a significant increase in acts of intentional interference by third parties in our pipelines, including illegal taps of oil, gas and oil products, especially in the states of São Paulo and Rio de Janeiro. In addition to financial losses, these occurrences present a risk to people, facilities and the environment near these pipelines and us. In 2018, we reported 228 occurrences of illegal taps to Brazilian authorities. In case of new occurrences, we may become involved in accidents, such as explosions or oil and oil products spills, resulting in fatalities, damages to the

environment or interruptions of our operations. In addition, we may face fines and sanctions imposed by environmental and regulatory agencies for the damages resulting from acts of intentional interference by third parties. As a consequence of illegal taps, we may also be compelled to indemnify for any damages caused to the environment or to third parties.

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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, and 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.

We are subject to the granting of 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 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, including the decommissioning of mature fields, will not be affected by demands of new regulatory bodies or that the relevant licenses and permits will be issued in a timely manner. Potential delays in obtaining licenses may impact our crude oil and natural gas production objectives, negatively influencing our results of operations and financial condition.

We rely on suppliers of goods and services for the operation and execution of our projects and, as a result, we may be adversely affected by failures or delays of such suppliers.

We are susceptible to the risks of performance and product quality within our supply chain. If our suppliers and service providers delay or fail to deliver goods and services owed to us, we may not meet our operational goals within the expected timeframe. We may ultimately need to postpone one or more of our projects, which may 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. Even taking into account the flexibility in certain of our projects, we may not meet the minimum percentages of local content required in those agreements and, as a result, we may need to search for international providers in the foreign market, which may subject us to consequences as defined in our agreements or delays in our investment projects.

Additionally, there may be risks of delays in the customs clearance process caused by external factors, which may impact the supply of goods to us and affect our operations and projects.

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.

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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 of these factors could result in delays, which may negatively impact our business and results of operation.

Our partnerships and divestments depend on external factors that could impede their successful implementation.

Pursuant to our 2019-2023 Business Plan, we expect to develop partnerships and divest of assets totaling up to US$26.9 billion by 2023. External factors, such as the sustained decline in oil prices, injunctions and claims by third parties or public authorities in judicial, arbitral or administrative proceedings, exchange rate fluctuations, the deterioration of Brazilian and global economic conditions, the Brazilian political scenario and judicial decisions, among other factors, may reduce, delay or hinder sale opportunities for our assets or affect the price at which we can sell our assets.

If we are unable to successfully implement our planned partnerships and divestments, 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 may 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.

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 make it difficult for us to access 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, towards a lower carbon matrix, with the insertion of substitute products for fossil fuels and the increasing use of electricity for 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.

Water scarcity in some regions where we operate may generate unavailability (temporary or permanent) of water in the quantity and/or quality required for our operations, as well as difficulties in obtaining grants of the right to use water resources, impacting the business continuity of our industrial units.

We have 455 industrial facilities that demand the use of water, ranging from large users such as refineries to small users like distribution bases and terminals, which are logistically important within our chain. In recent years, several regions of the world, including some regions in Brazil, have experienced a shortage of freshwater, including for public consumption. In case of water scarcity, the grants pursuant to which we have the right to use water resources may be suspended or modified and, as a result, we may be required to reduce or suspend our production activities, since water

for public consumption and watering of animals has priority over industrial use. This may jeopardize our business continuity, as well as generate financial and environmental impacts on us and our image.

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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 consists of a minimum of seven and a maximum of eleven members, who are elected at our shareholders meeting for a term of up to two years, with a maximum of three consecutive reelections allowed. Brazilian law requires that the Brazilian federal government owns 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, 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.

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, as mentioned above.

As our controlling shareholder, the Brazilian federal government has guided and may continue to guide certain macroeconomic and social policies through us, pursuant to Brazilian law. Accordingly, we may have our activities guided by the Brazilian federal government to contribute to the public interest, and, as a result, we may make investments, incur costs and engage in transactions with parties or on terms that may have an adverse effect on our results of operations and financial condition.

In December 2017, we included the definition of public interest in our bylaws, as required by Brazilian law. We also stated in our bylaws that the Brazilian federal government may direct our activities to pursue the public interest under certain circumstances, which distinguishes us from any other private company, including oil and gas companies. More specifically, the Brazilian federal government may direct us to assume obligations or responsibilities that contribute to the public interest, including the execution of investment projects and the incurrence of certain operating costs, if certain conditions are met. First, the obligations or responsibilities must be clearly defined by law or regulation and established in a contract or agreement with the competent public authority. Second, the investment projects must have their costs and revenues disclosed in a transparent manner.

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. Economic policies adopted by the Brazilian federal government 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 response of the Brazilian federal government 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;

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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.

Risks Relating to Our Operations

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. 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.

Additionally, our insurance policies do not cover all types of risks and liabilities related to safety, environment, health, government fees, fines or punitive damages, which may impact our results of operations. 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.

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.

Disagreements about how we manage our business, in particular divestments and their implications for our personnel, changes in our business strategy, human resources policies regarding remuneration, benefits and headcount, employee contributions to cover the deficit of our pension plan Petros, implementation of regulations recently created relating to health and pension plans (CGPAR resolutions No. 22 and 23) and changes in labor law may lead to judicial inquiries, labor unrest, strikes and stoppages.

Strikes, work stoppages or other forms of labor unrest at any of our facilities or in major suppliers, contractors or their facilities or in sectors of society that affect our business could impair our ability to complete major projects and impact our ability to continue our operations and achieve our long-term objectives.

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 effective in training and qualifying our workforce sufficiently, nor that we will be able to achieve this goal without incurring additional costs. Any such failure could adversely affect our results of operations and our business.

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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.

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, of which 43%, or US$58 billion (including interest), will mature in the next five years. 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 2019-2023 Plan.

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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.

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, 2018, 81% of our financial debt was denominated in currencies other than the *real* (74% 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 any of 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.

Foreign exchange variations may have an immediate impact on our reported income, 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).

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, 2018, approximately 50% 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.

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The obligations relating to our pension plan (Petros) and health care benefits (AMS) are estimates, which are reviewed annually, and may diverge from actual future contributions due to changes in market and economic conditions, as well as changes in actuarial assumptions.

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. 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.

With respect to health care benefits (AMS), the projected cash flows can also be impacted by (i) higher medical costs than expected; (ii) additional claims arising from the extension of benefits; and (iii) difficulties in adjusting the contributions of participants to reflect increases in health care costs.

These risks may result in an increase in our liabilities and adversely affect our results of operations and our business.

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. 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.

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

Failures to prevent, detect in a timely manner, or correct behaviors inconsistent with our ethical principles and rules of conduct 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 benefit or of third parties, against our interest. 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.

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We cannot guarantee that all of our employees and contractors will comply with our principles and rules of ethical behavior and professional conduct aimed at guiding our management, employees and service providers. Any failure, whether actual or perceived, to abide by our ethical principles or to comply with applicable governance or regulatory obligations could harm our reputation, limit our ability to obtain financing and have a material adverse effect on our results of operations and financial condition.

Although our management has concluded that our internal control over financial reporting was effective as of December 31, 2018, 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 has concluded that our internal control over financial reporting was effective as of December 31, 2018. 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 and we cannot be certain that in the future additional material weaknesses will not occur or otherwise be identified in a timely manner.

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 reports and cannot be sure that in the future significant deficiencies will not exist or will be identified 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.

Any violation of the agreements that resolved the investigations conducted by the SEC and the DoJ and potential future 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 (FCPA). The DoJ conducted a similar inquiry.

On September 27, 2018, we announced the settlement of the SEC and DoJ investigations related to our internal controls, accounting records and financial statements for the period of 2003 to 2012. Pursuant to the non-prosecution agreement (NPA) with the DoJ, we admitted that certain of our former executives and officers took action that gave rise to violations of books and records and internal controls provisions under U.S. law. As part of the SEC resolution, we settled charges of violations of the United States Securities Act of 1933 and the books and records and internal control provisions of the Securities Exchange Act of 1934, without admitting the SEC allegations.

The agreements, subject to the terms thereof, fully resolve the investigations carried out by the DoJ and SEC. Under the terms of the agreements, Petrobras paid in the United States US$85.3 million to the DoJ and paid US$85.3 million to the SEC. In addition, the agreements credited Petrobras s remittance of US$682.6 million to the Brazilian authorities, which were deposited by Petrobras on January 30, 2019 and will be used under the terms of an agreement signed with the Federal Prosecution Office of Brazil (MPF). The SEC also credited the payments Petrobras already made under our previously announced settlement of a securities class action lawsuit in the United States. The amount of US$853.2 million was recorded in other operating expenses in the third quarter of 2018.

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If, during the term of the NPA (three years, unless extended), the DoJ determines that we have committed a felony under U.S. federal law, provided deliberately false or misleading information or otherwise breached the NPA, we could be subject to prosecution and additional fines or penalties, including charges under the FCPA.

The Lava Jato investigation is still in progress by Brazilian authorities and additional relevant information affecting Petrobras interests may come to light.

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 any further investigations or proceedings carried out by any authorities in Brazil or in any other jurisdiction, or any violation of the NPA, 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.

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.

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 audited consolidated financial statements for the year ended December 31, 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 audited consolidated financial statements for the year ended December 31, 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.

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

We were subject to a number of U.S. civil proceedings relating to the Lava Jato investigation, including the Consolidated Securities Class Action before the United States District Court for the Southern District of New York (SDNY), 33 lawsuits filed by individual investors before the same judge in the SDNY and one lawsuit filed in the United States District Court for the Eastern District of Pennsylvania (collectively, the Individual Actions). See Item 8. Financial Information Legal Proceedings and Note 31.4 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 31.4 to our audited consolidated financial statements, we entered into an agreement to settle the Consolidated Securities Class Action, which was approved by the SDNY, as well as agreements to settle 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$456 million to reflect settled Individual Actions and pending Individual Actions in advanced stages of negotiations, of which US$8 million was provisioned in 2018, US$76 million in 2017 and US$372 million in 2016 .

The settlement of the Consolidated Securities Class Action eliminates the risk of an unfavorable judgment, which, as previously reported by us, could have a material adverse effect on us and our financial situation, as well as eliminate uncertainties, burdens and costs associated with the continuation of this dispute.

On March 1, 2018, Petrobras and PGF disbursed the first US$983 million installment of the Class Action Settlement into an escrow account designated by the lead plaintiff and accounted for it as other current assets. The second installment of US$983 million was deposited on July 2, 2018, 10 days after the final approval of the Class Action Settlement, and Petrobras accounted for it as other current assets. The third installment of US$984 million was deposited by January 15, 2019. Foreign exchange losses on the provision amounted to US$452 million and were accounted for as other expenses.

Certain objectors have appealed the SDNY s final decision to approve the Class Action Settlement, and one such appeal remains pending. In the event that a higher court annuls the agreement, or if the agreement does not become final for other reasons, we will return to our position prior to the settlement of the Consolidated Securities Class Action and, depending on the outcome of the subsequent litigation, we might be required to pay substantial amounts, which could have a material adverse effect on our financial condition, its consolidated results of operations or its consolidated cash flows for an individual reporting period.

Individuals are seeking measures against us in Brazil to annul and/or suspend the settlement of the Consolidated Securities Class Action. No adverse decision has been rendered to date against the settlement.

We are also currently party to a class action commenced in the Netherlands, to an arbitration proceeding in Argentina, 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 (or entities that allegedly represent investors interests) 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, LLC (EIG Management) and eight of EIG Management s managed funds (EIG Funds) (together with EIG Management, EIG) filed a complaint against us on February 23, 2016 before the United States District Court for the District of Columbia (DC Court). The dispute arises out of the EIG Funds indirect purchase of equity interests in Sete Brasil Participações S. A., and EIG currently has claims against us for fraud and aiding and abetting fraud related to the Lava Jato investigation. EIG seeks damages of at least US$221 million.

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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. 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. Any of these occurrences could have a material adverse effect on our financial condition and results of operations.

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, such as the ANP. Issues such as local content requirements, procedures for the unitization of areas, definition of reference prices for the calculation of royalties and governmental participation, among others, are subject to a regulatory regime overseen by the ANP.

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. 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 assumptions that guide our investment decisions.

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.

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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.

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

Generally, transactions with related parties are part of the business of large companies. 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 where we operate. These laws, regulations and requirements may require us to incur significant costs, which may have a negative impact on the profitability of the projects we intend to implement or may make such projects economically unfeasible.

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.

Business Risks

Developments in the economic environment and 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.

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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 obtain additional reserves and to successfully develop our existing reserves.

Our ability to obtain additional reserves depends upon exploration activities, which demands significant capital investments, exposes us to the inherent risks of drilling, and may not lead to the discovery of commercially productive crude oil or natural gas reserves. Deepwater reservoirs exploitation demands significant resources to be successful and involves numerous factors beyond our control, such as delays in availability of offshore equipment, shortages in access to critical resources, and unexpected operational conditions, including equipment failures or incidents, that may cause 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.

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 economically recoverable from a given date forward from known reservoirs under existing economic and operating conditions (i.e. using 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 are subject to uncertainties and contingencies that are beyond our control. If the geological and engineering data that we use to estimate 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. 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.

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, according to the Brazilian concession regime, 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. 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.

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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.

Our partners or members of joint arrangements to which we are a party may not be able to meet their financial or other obligations, which may threaten the viability of certain projects in which we are engaged. Where we are the operator of joint arrangements, the other partner(s) may be able to veto or block certain decisions, which may also affect the viability of certain projects. Even when we are not operating the project, we may be exposed to the risks associated with these operations, including reputational, litigation (where joint and several liability could apply, in relation to the ANP, in the case of a concession agreement, and in relation to ANP and third parties, in the case of a production sharing regime) and government sanction risks, which could have a material adverse effect on our operations, cash flow and financial condition.

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. 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 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. 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.

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.

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The performance of companies licensed to use our brands may impact our image and reputation.

Our divestments and partnerships plan includes the sale of some of our companies in the fuel distribution segment. Some of these transactions include licensing our brands to future buyers and partners. Once a licensee holds the right to display our brands in products, services and communications, it can be perceived by stakeholders as our legitimate representative or spokesperson. Licensees actions or events related to their business, such as, failures, accidents, errors in business performance, environmental crises, corruption scandals and improper use of our brand, among other factors, may negatively impact our image and reputation.

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

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.

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 ME (former 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. As a result, we may not be able to make all the investments we envision, including those intended to expand and develop our crude oil and natural gas fields, which may adversely affect our results of operations and financial condition.

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 other related 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.

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 depositary, 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 depositary as to voting will depend on the timing and procedures for providing instructions to the depositary, 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.

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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
- 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 we have been carrying out crude oil and natural gas production and refining activities in Brazil on behalf of the government. As of December 31, 2018, 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.

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Following the discovery of large pre-salt reservoirs in offshore Brazil, Congress passed additional laws in 2010 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. 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 and our website is 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.

Overview of the Group

Business Segments

We are a publicly-held company operating on an integrated basis and specializing in the oil, natural gas and energy industry. 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.

We are world-renowned for our ultra-deepwater oil exploration technology. Our business however goes beyond reaching the field and lifting out the oil and gas. It entails a long process through which we get the oil and gas to our refineries which themselves must be equipped and in constant evolution to supply the best products.

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 2018, our average domestic daily oil production was 2,035 mmbbl/d, which represents 79% 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 48 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, 2018, we had proved developed oil and gas reserves of 5,146.4 mmboe and proved undeveloped reserves of 4,326.4 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.

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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 mbbl/d and our domestic refining throughput in 2018 was 1,715mbbl/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 through stakes in various companies. 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.

Outside Brazil, we maintain activities in 10 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 through a joint venture and until January 2019, had have refining operations in the United States. In Africa, through a joint venture, we produce oil in Nigeria. We have controlled companies in London, Rotterdam, Houston and Singapore that support our trade and financial activities. They comprise a complete and active Petrobras trading desk for markets worldwide, and are in charge of market intelligence and marketing of oil, oil products, natural gas, derivatives, shipping and vessel operation.

In 2018, our total production of oil and gas, including NGL, was 2.63 mmboe/d. Our total proved reserves totaled 9,606.2 million boe in the end of 2018.

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 (E&P): this segment covers the activities of exploration, development and production of crude oil, NGL (natural gas liquid) and natural gas in Brazil and abroad, for the primary purpose of supplying our domestic refineries. The E&P segment also operates through partnerships with other companies, including holding interests in foreign entities operating in this segment;

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

Gas and Power: this segment covers the activities of logistics and trading of natural gas and electricity, transportation and trading of LNG (liquefied natural gas), generation of electricity by means of thermoelectric power plants, as well as holding interests in transporters and distributors of natural gas in

Brazil and abroad. It also includes fertilizer operations;

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

Biofuel: this segment covers the activities of production of biodiesel and its co-products, as well as ethanol-related activities through interest in entities producing and trading ethanol, sugar and surplus electric power generated from sugarcane bagasse.

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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, provision for the class action settlement, 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 30 to our audited consolidated financial statements.

The following table sets forth key information for each business segment in 2018:

Key Information by Business Segment, 2018

	Exploration and Production	Refining, Transportation and Marketing	Gas and Power	Biofuel	Distribution	Corporate	Eliminations	Group Total
				(US$ million)				
Sales revenues	52,382	73,448	12,269	255	27,960		(70,730)	95,584
Income (loss) before income taxes	18,421	3,362	874	3	722	10,514	(770)	12,098
Total assets at December 31	132,313	44,083	15,609	216	5,140	28,168	(3,461)	222,068
Capital Expenditures According to Our Plan Cost Assumptions	11,592	1,107	433	16	136	155		13,439

Portfolio Management

Our active portfolio management, part of our 2019-2023 Business Plan, is the key driver to our partnerships and divestments, which aim to improve our operating efficiencies and returns on capital, and generate additional cash to service our debt and our investment opportunities. Currently, our partnerships and divestments comprise 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.

In 2018 and in the beginning of 2019, we completed, among others, the following partnerships and divestments.

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Signing Date	Closing Date	Transaction	Transaction Nominal Value* (US$billion)
02/28/2017	01/12/2018	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**
02/16/2018	02/21/2018	Sale of the total amount of our shares in São Martinho S.A (6.593%).	0.14
11/22/2017	04/30/2018	Assignment of Azulão Gasfield	0.06
28/12/2016	04/30/2018	Sale of Companhia Petroquímica de Pernambuco (PetroquímicaSuape) and Companhia Integrada Têxtil de Pernambuco (Citepe)	0.44
12/18/2017	06/14/2018	Strategic Partnership with Equinor (formerly Statoil) which includes: (i) assignment of 25% of Petrobras interest in the Roncador field to Equinor; (ii) strategic technical alliance agreement for technical cooperation aiming at maximizing recovery factor; (iii) subject to regulatory requirements, an option for Equinor to hire a certain processing capacity of natural gas at the Cabiúnas Terminal (TECAB).	2.9
10/10/2016	11/30/2018	Partnership with Murphy Exploration & Production Company (Murphy) in order to establish a joint venture company (JV), of which Murphy has 80% stake and Petrobras America Inc. (PAI) 20% stake, with the contribution from both companies of all of their producing oil and natural gas assets located in the Gulf of Mexico.	1.1***
06/27/2018	03/08/2019	Full sale of our stake in Petrobras Paraguay Distribución Limited (PPDL UK), Petrobras Paraguay Operaciones y Logistics SRL (PPOL) and Petrobras Paraguay Gas SRL (PPG).	0.38
Total			**7,2**

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

** This amount includes the payment related to the sale of Lapa and Iara in the amount of US$1.95 billion, as well as a credit line, which may be activated by us in the amount of US$400 million, and contingent payment of US$150 million, associated with the volume of production in the Lapa field.

*** This amount is comprised of US$900 million to be paid at the closing day (reflecting the price adjustments, the amount received was US$795 million), in addition to contingent payments of up to US$150 million and an investment charge of up to US$50 million of costs for the development of the field of St. Malo, to be performed by Murphy.

In 2018 and early 2019, we received proceeds from the sale of assets amounting to US$6.5 billion, which includes US$250 million relating to the distribution of dividends from PO&G BV to Petrobras. The proceeds resulted mainly from the (i) strategic alliance with Equinor (formerly Statoil) including assignments of rights in the Roncador field, (ii) strategic alliance with Total including assignment of rights in the Iara and Lapa Oilfields and (iii) formation of a joint venture between Petrobras America Inc (PAI) and Murphy Exploration & Production Company (Murphy).

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In addition, in 2018 and in the beginning of 2019, we have signed agreements in transactions that are currently pending closing. Completion of such transactions is subject to compliance with certain contractual and legal conditions precedent.

Signing Date	Transaction	Transaction Nominal Value* (US$ billion)
10/31/2018	Sale of our entire 50% interest in PO&G.	1.53
11/28/2018	Sale of our stake in the fields of Pargo, Carapeba and Vermelho, the so-called Polo Nordeste, located in shallow waters off the coast of Rio de Janeiro state.	0.37
12/21/2018	Assignment of 10% rights from the Lapa field to Total, in Block BM-S-9. Exercise of the option to sell the remainder of our interest, as provided for in the agreement signed in January 2018, when Total acquired a 35% stake in Petrobras, within the scope of the strategic partnership.	0.05
1/30/2019	Sale of all of the shares held by Petrobras America Inc (PAI) in the companies that encompass Pasadena s entire refining operations system in the United States.	0,56
03/08/2019	Sale of our full stake in the Maromba field	0.09
Total		**2.6**

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

Regarding the sale of Liquigás Distribuidora S.A. (Liquigás), the court of the Administrative Council for Economic Defense (CADE) did not approve the purchase of Liquigás by Companhia Ultragaz S.A. CADE s decision triggered the termination of Liquigás sale contract, which required 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.

Our partnership and divestment processes are subject to continuous Brazilian judicial scrutiny. In 2018 and early 2019, various ongoing bidding processes for the sale of our assets were subject to preliminary injunctions, which were later suspended due to reviews by the Brazilian courts. For more information on judicial proceedings related to our divestments, see Item 8. Financial Information Legal Proceedings Legal Proceedings and Preliminary Procedure on TCU Divestments.

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 approved changes to result in a reduction of 11% of all management positions in operational areas until 2021. In addition, we expect these changes in the organizational structure to lead to cost savings around US$9.21 million per year after 2021, when the final structure shall be entirely implemented.

The initiative to implement such changes had 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 focused 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 management positions of our refiner.

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Law No. 13,303 of June 30, 2016 (Law No. 13,303/16) introduced new bidding and contracting procedures. In compliance with Article 40 of Law No. 13,303/16, the new bid and contract regulation (RLCP) was published on January 15, 2018, at Brazilian Federal Register (*Diário Oficial da União* DOU). The RLCP entered into force on the date of its publication, having progressive effects per organizational unit, under the terms of the implementation schedule, and was fully implemented to us by May 15, 2018, before the deadline provided for by Law No. 13,303/16 (i.e., June 30, 2018).

Social Responsibility

In 2018, we improved the management of our community relationships by locating and identifying around 650 priority communities. We also prepared 23 relationship plans for the communities nearby our operational units.

We strengthen our work with communities, civil society organizations, public sector and universities through our social-environmental program (namely, *Petrobras Socioambiental*). This initiative contributes to environmental conservation and the improvement of living conditions where we operate. The program is aligned with our social responsibility policy, which aims at providing energy, respecting human rights and the environment, managing responsibly our relationship with nearby communities and overcoming sustainability challenges.

In 2018, our voluntary social investment totaled US$24 million (R$87 million), which amount supports 123 social-environmental projects. In order to improve our social risk management process, since 2017, we have been incorporating new requirements into our capital investment projects guidelines for our decision-making process, such as a social risk analysis by a multidisciplinary group composed of our employees. Following this new guideline, 19 investment projects were assessed in 2018.

2040 Strategic Plan and 2019-2023 Business Plan

In December 2018, our board of directors approved our 2040 Strategic Plan and our 2019-2023 Business Plan. The strategic monitoring process generated adjustments in the set of strategies established in our strategic plan approved in 2017 resulting in 10 strategies, with longer outlook and linked with the recent conditions of our business and internal resources.

Our process consists of the continuous evaluation of the business environment and the implementation of the plan, allowing adjustments to be made in a more efficient way. Our 2040 Strategic Plan and our 2019-2023 Business Plan are focused on oil and natural gas exploration and production, notably in the Brazilian pre-salt area, which is one of our greatest strengths and sources of value creation. In the medium term, we expect that the use of natural gas as a source of energy generation will gain more relevance in our operations, in accordance with energy transition trends. In the long term, we plan to study opportunities in renewable energies that have synergies with our activities and competitive advantages. In this way, we will work towards a more environmentally sustainable portfolio. Digital technology should permeate our activities along this timeframe with the goal of cost reduction and increase in productivity.

Our purpose is to provide energy that moves society to fulfill its potential and our valuesare (i) respect for life, (ii) respect for people and the environment, (iii) ethics and transparency, (iv) market orientation, (v) resilience and confidence and (vi) and results.

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Our strategies are adjusted, defining the focus of our actions by business segment:

Exploration and Production (E&P): (i) Maximize our value through active management of the E&P portfolio; and (ii) ensure the sustainability of oil and gas production, prioritizing activities in deepwaters.

Gas and Power: Optimize our position in the natural gas and energy segment in Brazil and develop positions in the global market through partnerships:

Refining, Transportation and Marketing: (i) Maximize our value through active management of our portfolio for refining, logistics, trading and petrochemicals integrated into the activities of national oil and gas production; and (ii) exit the fertilizer business, LPG distribution, biodiesel and ethanol holdings and production.

Renewables: Operate in profitable renewable energy businesses, with a focus on wind and solar energy in Brazil.

Corporate Strategies:(i) Develop critical skills and a culture of high performance to meet the new challenges of the company; (ii) prepare us for a more competitive environment based on cost and scale efficiency and digital transformation; (iii) assess current and future partnerships seeking integrity and value generation; and (iv) strengthen our credibility, pride and reputation among our stakeholders.

Our 2019-2023 Business Plan details the operational variables, with a focus on safety, as well as the financial performance and the profitability in our businesses for the next five years (2019-2023).

Additionally, our 2019-2023 Business Plan incorporates a new metric, seeking to ensure profitability, in addition to maintaining the safety and debt reduction metrics that guide our strategies: (i) total recordable injuries per million man-hour frequency rate (TRI) below 1.0 in 2019; (ii) Net debt/adjusted EBITDA in US dollars below 1.5 in 2020; and (iii) return on capital employed (ROCE) above 11% in 2020. Our 2019-2023 Business Plan investment portfolio adds up to US$84.1 billion distributed among our business segments as follows:

(1) Exploration and Production 82%

(2) Refining, Transportation and Marketing 10%

(3) Gas and Power 6%

(4) Renewables 0.5%

(5) Corporate 2%

Our 2019-2023 Business Plan also brings a commitment to the decarbonization of processes and products, establishing zero growth of absolute operational emissions until 2025, considering 2015 as reference and excluding a national water crisis, even with increase in production. Targets are set to reduce emissions intensity by 32% in E&P and 16% in refining between 2015 and 2025, when we aim to reach 15 kg CO_2e/boe in E&P and 36 kg CO_2e/t CWT in refining.

Due to the volatility in oil price, and the exposure of Petrobras cash flow results to this variable, in March 2019, our Executive Board approved a Resilience Plan which includes additional actions to 2019-2023 Business Plan and was structured in three value generation levers, as described below.

Expansion of the portfolio management program, with the inclusion of more mature fields of oil and gas in land and in shallow waters, midstream and downstream assets. This adjustment does not include the revision of the refineries divestment package, still under study.

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The second lever comprises a decrease in manageable operating costs estimated at US$ 8.1 billion (6.6%) compared to the total amount of US$ 122.6 billion budgeted in the 2019-2023 Business Plan. Staff expense cuts as well as reduction in discretionary expenses, in addition to savings from optimization of use of office buildings are the main sources of cost reduction. We will focus on digital transformation to pursue the target reduction in operating costs.

Finally, we are working to release the excess capital parked in cash, which allows its allocation to more productive uses.

The Resilience Plan doesn´t change the investment program approved in the 2019-2023 Business Plan.

Exploration and Production

	Exploration and Production Key Statistics		
	2018	2017	2016
	(US$ million)		
Exploration and Production:			
Sales revenues	52,382	42,184	33,675
Income (loss) before income taxes	18,421	10,633	2,055
Property, plant and equipment	116,153	126,487	123,056
Capital Expenditures According to Our Plan Cost Assumptions	11,592	12,397	13,509

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 2018 and accounted for 99% of our reserves on December 31, 2018. 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 2018, offshore production accounted for 93% of our production in Brazil and deepwater production accounted for 85% 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. The pre-salt polygon occupies an area of approximately 149,000 km² (36.8 million acres), of which we have rights to produce from 18% of the total area (around 26,500 km² or 6.6 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 97% of our worldwide exploratory blocks, 97% of our global oil production and 99% of our oil and natural gas reserves.

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The following map shows our exploration and production areas in Brazil as of December 2018.

Campos Basin

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^2 (28.4 million acres). 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.

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 2018, the Campos Basin pre-salt area average production of oil was 213.4mbbl/d, which represents a decrease of 8.1% compared to 2017. We have a 100% working 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 2018, we started producing in the Búzios field, through the FPSOs P-74 and P-75.

In 2013, a consortium led by us was awarded with 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. In 2017, we presented to the ANP the declaration of commerciality of the northwestern portion of the Libra area, proposing the name Mero for the new oil field, which holds a field s total recoverable estimated volume of 3.3 billion barrels of oil. In 2017 and 2018, we were awarded the rights and obligations of seven other areas under production sharing regime in Brazil. See Item 4. Information on the Company Regulation of the Oil and Gas Industry in Brazil and Item 10. Additional Information Material Contracts.

We currently have 16 pre-salt production units in the Santos Basin, of which one is 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 1,393 mmbbl/d in 2018, which represents an increase of 8.2% when compared to 2017. Despite these important results, we continue to concentrate our efforts on gathering information about the pre-salt reserves through EWTs. In 2018, two EWTs were performed in the Sururu and Mero fields and there is another onstream in the Mero field.

Other Basins

We produce hydrocarbons and hold exploration acreage in 17 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 are 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 subsidiary Petrobras Operaciones S.A., or POSA, we have a 33.6% working interest in the Rio Neuquén production asset. Our unconventional gas and condensate production is concentrated in the Neuquén Basin.

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

In Colombia, we are operators of, and hold a 40% working interest in, the Tayrona offshore exploration block, which includes the Orca gas discovery, and the Villarica Norte onshore exploration block (50% WI).

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North America

In the United States, we focus on deepwater fields in the Gulf of Mexico. Our production in 2018 originated mainly from the Cascade, Chinook, Saint Malo and Lucius fields. On November 30, 2018, we concluded the operation that has resulted in the formation of a joint venture (JV) with Murphy Exploration & Production Company (Murphy). The JV was established through the contribution by both companies of their production assets in the Gulf of Mexico. Murphy oversees the operations with an 80% working interest and Petrobras America Inc. (PAI) holds a 20% stake. PAI and Murphy also signed a Limited Liability Company Agreement, a shareholders agreement that governs the JV, a Master Service Agreement (MSA), through which Murphy will operate the assets included in the JV, and a Transition Services Agreement (TSA), through which PAI will operate its previously owned assets until the takeover by Murphy.

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.

Africa

We explore oil and gas opportunities in Africa exclusively through our 50% working interest in Petrobras Oil & Gas B.V. (PO&G), a joint venture with BTG Pactual. The assets of this joint venture include the Agbami, Akpo, and Egina fields, and the Preowei and Egina South discoveries appraisal projects, all of them in Nigeria. Our subsidiary Petrobras International Braspetro BV (PIBBV) signed on October 31, 2018 a sale and purchase agreement for the sale of its 50% working interest in PO&G with Petrovida Holding B.V. (Petrovida), the latter owned by members of Vitol Investment Partnership II Ltd (Vitol), Africa Oil Corp (Africa Oil) and Delonex Energy Ltd (Delonex). The closing o this transaction is subject to certain conditions precedent, such as obtaining approvals by relevant Nigerian government bodies. See Item 4. Information on the Company Overview of the Group Portfolio Management.

Oil and Gas Production Activities

In 2018, our total production of oil and gas, including NGL was 2.63 million barrels of oil equivalent per day (boed), of which 2.53 million boed were produced in Brazil and 101,000 boed were produced abroad. Our own production of oil in Brazil was 2.03 million barrels per day (bpd).

The annual average of our total operated production of oil and gas, including NGL (share of both Petrobras and associates), in 2018 was 3.29 million boed, of which 3.16 million boed were produced in Brazil.

The main highlights of our production in 2018 were the following: (i) starting four new production systems: (a) the P-74 and P-75 platforms, located in the Búzios Field, in the pre-salt area of the Santos Basin; (b) the P-69 platform, located in the Lula Field, also in the pre-salt area of the Santos Basin; and (c) the FPSO Cidade de Campos dos Goytacazes, located in the Tartaruga Verde Field, in the post-salt of the Campos Basin; (ii) the continuous development of our pre-salt production, which has been in development for 10 years and achieved an annual production of oil and natural gas of 1.75 million boed and the monthly record of 1.85 million boed December; (iii) achieving a new annual record in the use of associated gas produced in our production facilities in Brazil at 96.6%, as a result of the efforts undertaken over the past years through a program focused on the optimization for the use of gas; and (iv) divestments in the Lapa, Sururu, Berbigão, Oeste de Atapu and Roncador fields, as well as the joint venture formed by Petrobras America Inc. and Murphy Exploration & Production Co.

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Our production per region in the last three years is summarized in the following table:

	Oil (mmbbl) (1)(4)			Gas (mmcf) (2)(4)			Total (mboe)(4)			Stationary production units(4)		
	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2017	2016
Brazil(3)	742.7	786.1	784.8	541.8	556.0	534.0	833.0	878.8	873.8	113	114	115
South America (excluding Brazil)	1.6	1.9	8.0	75.4	85.4	144.7	14.2	16.1	32.1			
North America (5)	14.3	13.2	12.1	4.2	21.5	32.1	15.0	16.7	17.4		2	2
Equity and non-consolidated affiliates	7.5	8.2	9.2	0.2	0.0	0.1	7.6	8.2	9.2			
South America (excluding Brazil)			0.5			0.1			0.5			
North America	0.4			0.2			0.5					
Africa	7.1	8.2	8.7				7.1	8.2	8.7			
Total	766.2	809.4	814.1	621.6	662.8	710.9	869.8	919.8	932.6	113	116	117

(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.
(4) This table contains only definitive production systems and units performing EWT (Extended Well Tests) or EPS (Early Production Systems). We had 115 units (being 2 drilling units) in 2018, 120 units (6 drilling units) in 2017 and, 121 units (6 drilling units) in 2016, all of these including drilling units that may have also contributed to production.
(5) Due to the joint venture formed by Petrobras America Inc. and Murphy Exploration & Production Co, our production in the United States was reported on a consolidated basis from January through November 2018, and as an equity method investee from December 2018 onward.

For 2019, we expect to produce 2.3 mmbbl/d of oil in Brazil (10% more than our average in 2018). For more information on new production systems, see Item 4. Information on the Company Exploration and Production Production Development.

We recognized impairment losses for the fiscal year ended December 31, 2018 of US$1,391 million with respect to the E&P segment, primarily reflecting higher estimates of decommissioning costs in producing properties in Brazil (driven by costs related to subsea facilities and equipment) and depreciation of the Brazilian real against the US dollar (US$1,054 million), as well as the impacts of the agreement to establish a joint venture through the E&P field in the Gulf of Mexico (US$715 million). These effects were partially offset by reversals of impairment previously

recognized due to upward revision in the estimated production curves following a review of certain investment projects, as set out in the 2019-2023 Business Plan (US$530 million).

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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 further information on impairment losses in 2018, 2017 and 2016, see Note 14 to our audited consolidated financial statements.

Lifting Cost

In 2018, our average lifting cost excluding government fees was US$10.7 per boe, which is a decrease of 2.7% compared to the average cost of US$11.0 per boe mined in 2017.

Capital Expenditures According to Our Plan Cost Assumptions E&P

In our 2019-2023 Business Plan, we maintain our focus on the development of our reservoirs in Brazil, especially in the pre-salt layer.

Out of US$68.8 billion Capital Expenditures According to Our Plan Cost Assumptions in exploration and production for the next five years, 70% will be allocated to production development, 16% to exploration and 14% to infrastructure and R&D.

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The Capital Expenditures According to Our Plan Cost Assumptions in exploration and production activities in 2018 (in Brazil and abroad) amounted to US$11.6 billion, a 7% decrease compared to Capital Expenditures According to Our Plan Cost Assumptions for the fiscal year ended December 31, 2017 (US$ 12.4 billion), mainly attributable to the postponement of some construction activities for FPSOs, gains in efficiency of capital expenditure and depreciation of local currency against dollar (higher USD/BRL). This amount includes US$0.8 billion related to signature bonuses paid by us as a result of exploratory blocks contracted in ANP bidding rounds held in 2018. See Item 5. Operating and Financial Review and Prospects Liquidity and Capital Resources Uses of Funds for further information on our investments.

Exploration

As of December 31, 2018, we had 137 exploratory blocks in which 24 discoveries were under evaluation. We also had 5 discoveries being assessed in production areas. As of December 31, 2018, we had a 100% working interest in 43 exploratory blocks. We also had exploration partnerships with 23 foreign and domestic companies, for a total of 94 exploratory blocks. We serve as the operator in 64 of these exploration partnership blocks. We hold working 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 2018, which totaled US$1.35 billion.

	Net Exploratory Area (km^2)			**Exploratory Blocks**			**Evaluation Plans**			**Wells Drilled**		
	2018	**2017**	**2016**	**2018**	**2017**	**2016**	**2018**	**2017**	**2016**	**2018**	**2017**	**2016**
Brazil	51,600	41,820	43,966	133	123	131	26	28	37	8	8	16
Other S. America	6,081	5,425	11,444	4	2	7	1	1	1	0	1	5
North America	0	198	376	0	10	28	0	0	0	0	0	0
Africa	0	0	0	0	0	0	2	2	0	0	0	0
Total	**57,681**	**47,641**	55,786	**137**	**135**	166	**29**	**31**	38	**8**	**9**	21

In 2018, we announced an oil discovery in the Campos Basin post-salt section in the Marlim Leste field. This discovery occurred with the drilling of a well (9-MLL-79D-RJS, named as Traca-3 well). In 2018, we also received a declaration of commerciality in the Espirito Santo Terra Basin, Cancã Leste field, and three declarations of commerciality in the Santos Basin, for the Noroeste de Sapinhoá, Sudoeste de Sapinhoá, Nordeste de Sapinhoá fields, and one in the Campos Basin, for the Tartaruga Verde Sudoeste field. In Libra, we started the seismic reprocessing over the Central and Southeastern areas, in order to start the activities until March 1, 2020, when the extension of the exploratory phase approved by the MME expires.

We acted selectively in the bidding rounds carried out by the ANP, 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 2018, we contracted 11 new offshore exploratory blocks, with a total area of 8.8 thousand km^2 and a signing bonus of US$0.8 billion (equivalent to R$3.3 billion) at the acquisition date. In the pre-salt polygon, we contracted four areas under the production sharing regime, in partnerships with Chevron, Shell,

Equinor, ExxonMobil, BP, Equinor, and Galp. In the Campos Basin, we contracted four blocks outside of the pre-salt polygon, under the concession regime, in partnerships with ExxonMobil, Qatar Petroleum and Equinor. We also contracted three blocks in Potiguar Basin, two of them as partnerships with Shell.

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In January 2019, we exercised the pre-emption right for the 6th bidding round of exploration blocks under the production sharing regime for the blocks of Aram, Norte de Brava and Sudeste de Sagitário, located in the Santos and Campos Basins, as operator and with the percentage of 30%. The amount corresponding to the signature bonus to be paid, considering that the auction results confirm the minimum stake indicated above, is US$ 0.5 billion (equivalent to R$1.8 billion).

Production Development

In 2018, four new systems came on stream and we connected 30 new wells (21 production and 9 injection wells) in our production systems. The FPSO Pioneiro de Libra, in the Mero Field, finished the first Extended Well Test (EWT). During the EWT, the producer reached the record production of 58 kboed. With the completion of the tests, the FPSO Pioneiro de Libra will operate the subsequent Early Production Systems (EPS) in other Mero wells. The Libra consortium continues to progress with the beginning of the construction of the Mero 1 FPSO in China, and an additional FPSO for Mero 2 is for bidding.

Over the last eight 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 60.6% in 2018, 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 Nominal Capacity (bbl/d)	Natural Gas Nominal Capacity (mmcf/d)	Water Depth (meters)	E&P Regime
2019	Santos	Búzios 4	FPSO	P-77	150,000	211,9	2,100	Assignment Agreement
2019	Santos	Búzios 3	FPSO	P-76	150,000	211,9	2,100	Assignment Agreement
2019	Santos	Lula Norte	FPSO	P-67	150,000	211.9	2,100	Pre-salt Concession
2018	Campos	Tartaruga Verde	FPSO	Cid. De Campos dos Goytacazes	150,000	176.6	765	Post-salt Concession
2018	Santos	Lula Extremo Sul	FPSO	P-69	150,000	211.9	2,100	Pre-salt Concession
2018	Santos	Búzios 1	FPSO	P-74	150,000	211.9	2,100	Assignment Agreement
2018	Santos	Búzios 2	FPSO	P-75	150,000	211.9	2,100	Assignment Agreement
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 Agreement
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	Cid. de Maricá	150,000	211.9	2,100	Pre-salt Concession

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Main Systems to be Installed through 2021

In addition to the P-67 in the Lula field, and the P-76 and P-77 in the Búzios field, operations which started in early 2019, there are still four major systems to be installed in the next three years, all in the Santos Basin, in Brazil. The fields under the Assignment Agreement will be particularly important to support our production growth. Moreover, we will install the first definitive system in the Mero field, the first under the production sharing regime in Brazil. The table below lists our upcoming system start-ups.

Projected Start Up (year)	Basin	Field/Area	Unit Type	Crude Oil Nominal Capacity (bbl/d)	Natural Gas Nominal Capacity (mmcf/d)	Water Depth (meters)	E&P Regime
2019	Santos	Berbigão	FPSO	150,000	211.9	2,280	Pre-salt Concession
2020	Santos	Atapu 1	FPSO	150,000	211.9	2,300	Assignment Agreement
2021	Santos	Mero 1	FPSO	180,000	423.8	2,100	Production Sharing
2021	Santos	Sépia	FPSO	180,000	211.9	2,200	Assignment Agreement

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 14 as of December 31, 2018 (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. In 2018, our specialized vessels were sufficient to meet our needs.

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

	2018		2017		2016	
	Leased	Owned	Leased	Owned	Leased	Owned
Brazil	17	4	29	7	31	10
Onshore	1	3	1	4	1	4
Offshore, by water depth (WD)	16	1	28	3	30	6
Jack-up rigs	0	0	0	2	0	2
Floating rigs:	16	1	28	1	30	4
500 to 999 meters WD	1	0	1	0	1	2
1000 to 1999 meters WD	2	0	3	1	3	2
2000 to 3200 meters WD	13	1	24	0	26	0
Outside Brazil	1	0	4	0	4	0
Onshore	1	0	3	0	4	0
Offshore	0	0	1	0	0	0

Worldwide	18	4	33	7	35	10

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Reserves

According to SEC technical criteria for booking proved reserves, as of December 31, 2018, our worldwide net proved oil, condensate and natural gas reserves, including synthetic oil and gas, reached 9.6 bnboe, a 1.5% decrease compared to our proved reserves of 9.8 bnboe as of December 31, 2017, as shown in the table below.

Proved Reserves (1)	Oil (mmbbl)			Gas (bcf)			Total (mmboe)		
	2018	2017	2016	2018	2017	2016	2018	2017	2016
Brazil	8,173.5	8,255.4	8,069.8	7,796.2	7,684.2	8,403.2	9,472.9	9,536.1	9,470.3
Other S. America (2)	1.6	1.2	0.8	214.1	160.2	113.9	37.2	27.9	19.8
North America	26.6	114.6	96.4	10.8	40.9	87.2	28.4	121.5	111.0
Africa	59.8	63.4	69.0	47.3	17.3	12.5	67.7	66.3	71.1
Total	8,261.5	8,434.6	8,236.1	8,068.5	7,902.6	8,616.8	9,606.2	9,751.7	9,672.2

(1) Includes synthetic oil and gas
(2) In the case of Bolivia, the country s Constitution prohibits concessionaires from recording reserves

In 2018, we incorporated 473.3 million boe of proved reserves by revisions of previous estimates, including 233.5 million boe due to economic revisions, mainly due to the increase in prices, and 239.9 million boe due to technical revisions, mainly due to the performance of our reservoirs, in the pre-salt of Santos and Campos basins, both in Brazil. In addition, we added 258.8million boe in our proved reserves resulting from positive responses from improved recovery (water injection), and added 343.6 million boe in our proved reserves due to extensions and discoveries, mainly in the pre- salt of Santos basins. Our proved reserves decreased by 367.8 million boe due to sales of reserves and increased 9.1 million boe in our proved reserves due to the purchase of reserves, resulting in a decrease of 358.7 million boe in our proved reserves due to sales and purchases. Considering a production of 862.6 million boe in 2018, our total proved reserves resulted in 9,606.2 million boe in 2018. This 862.6 million boe production volume is the net volume withdrawn from our proved reserves, therefore excludes NGL (except for North America) and 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 audited consolidated financial statements.

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

Proved reserves

(million barrels of oil equivalent)	2018	2017	2016
Proved reserves, beginning of year	9,751.7	9,672.2	10,516.0
Discoveries and extensions	343.6	82.5	103.2
Improved recovery	258.8	246.7	0.0
Revisions of previous estimates	473.3	670.1	131.0
Sales of proved reserves	(367.8)	0	(168.8)

Purchases of proved reserves	9.1	0	16.3
Production	(862.6)	(919.8)	(925.4)
Proved Reserves, end of year	9,606.2	9,751.7	9,672.2

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We recorded in 2018 a reserve replacement ratio (RRR) of 125%, disregarding the effects of sales and purchases. We also recorded a reserves-to-production ratio (R/P) of 11.1 years and a development ratio (DR), which is the ratio between developed proved reserves and total proved reserves, of 54%.

Refining, Transportation and Marketing

Refining, Transportation and Marketing Key Statistics

	2018	2017	2016
	(US$ million)		
Refining, Transportation and Marketing:			
Sales revenues	73,448	67,037	62,588
Income (loss) before income taxes	3,362	6,099	8,644
Property, plant and equipment	27,356	33,400	35,515
Capital Expenditures According to Our Plan Cost Assumptions	1,107	1,284	1,168

According to global energy market data released by PIRA Energy Group, Inc. for the end of 2018, 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 mbbl/d. As of December 31, 2018, we operated substantially almost 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 wholesale 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, 2018, was 2,176 mbbl/d and our average throughput during 2018 was 1,715mbbl/d.

The following table shows the installed capacity of our Brazilian refineries as of December 31, 2018, and the average daily throughputs of our refineries in Brazil in 2018, 2017 and 2016.

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Capacity and Average Throughput of Refineries

Name (Alternative Name)	Location	Crude Distillation Capacity at December 31, 2018 (mbbl/d)	Average Throughput* 2018 (mbbl/d)	2017 (mbbl/d)	2016
LUBNOR	Fortaleza (CE)	8	8	7	9
RECAP (Capuava)	Capuava (SP)	53	50	50	54
REDUC (Duque de Caxias)	Duque de Caxias (RJ)	239	190	178	194
REFAP (Alberto Pasqualini)	Canoas (RS)	201	135	138	148
REGAP (Gabriel Passos)	Betim (MG)	157	141	143	150
REMAN (Isaac Sabbá)	Manaus (AM)	46	30	32	34
REPAR (Presidente Getúlio Vargas)	Araucária (PR)	208	173	162	167
REPLAN (Paulínia)	Paulínia (SP)	415	286	324	331
REVAP (Henrique Lage)	São José dos Campos (SP)	252	213	208	217
RLAM (Landulpho Alves)	Mataripe (BA)	315	201	198	218
RPBC (Presidente Bernardes)	Cubatão (SP)	170	140	144	142
RPCC (Potiguar Clara Camarão)	Guamaré (RN)	38	32	33	33
RNEST (Abreu e Lima)	Ipojuca (PE)	74	67	68	75
Average crude oil throughput			1,664	1,686	1,772
Average NGL throughput			51	50	47
Average throughput			1,715	1,736	1,819
Crude distillation capacity		2,176			

* Considers oil and NGLs processing (fresh feedstock)

Refinery Investments

We initiated in the last few years the construction of two new refineries RNEST in northeastern Brazil and 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 mbbl/d of crude oil into low sulfur diesel (10 ppm) and other products, this unit started operating with a partial capacity of 74 mbbl/d and since February 2016 it has been authorized to process up to 100 mbbl/d of crude oil. Reaching full capacity for the unit will require the completion of a sulfur dioxide emissions reduction unit (SNOX), which is under evaluation due to a notice of contractual suspension issued by the contractor (Qualiman Engenharia e Montagens) in December 2018, and 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 2019-2023 Business Plan.

With respect to COMPERJ, we, in partnership with the Chinese company CNPC, are currently building a business model and feasibility study. The decision to build the refinery will depend on several factors, including the results of this feasibility study. To support gas processing from the pre-salt areas, in 2018, we started the construction phase to complete the gas processing plant and its utilities.

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In 2018, impairment losses on refining assets mainly related to RNEST and COMPERJ. As set forth in our 2019-2023 Business Plan, the resumption of the COMPERJ project still depends on new partnerships and expected project profitability. However, the construction of COMPERJ s first refining unit facilities that will also support the natural gas processing plant (UPGN) are in progress as the facilities are part of the infrastructure for transporting and processing natural gas from the pre-salt layer in the Santos Basin. Nevertheless, due to the interdependence between such infrastructure and COMPERJ first refining unit, we recognized additional impairment charges, totaling US$47 million in 2018. The impairment assessment over the second refining unit in RNEST resulted in the recognition of an impairment loss amounting to US$22 million, as its start-up was postponed by five months.

In 2017, the resumption of the COMPERJ project depended on new partnerships. Accordingly, due to the same aforementioned reasons, in 2017, we recognized impairment charges totaling US$51 million. Regarding RNEST, a loss of US$464 million was recognized mainly due to higher costs of raw materials and lower refining margin, as set forth in our 2018-2022 business plan.

We previously recognized impairment losses in 2016, following a reassessment of COMPERJ project confirming its postponement until December 2020, with continuous efforts to seek new partnerships to resume the project, on the remaining balance of this project (US$403 million). 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.

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.

Through our subsidiary Liquigás Distribuidora, we have operations in 24 Brazilian states and in the federal district. Its activities are segmented into two business areas: (i) segmented LPG to serve individual clients (residences), with approximately five thousand direct resellers and (ii) bulk LPG, in about 21 thousand customers from different sectors, including trade, industry, agribusiness and services.

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

Petrobras is analyzing the alternatives for the divestment of Liquigás that remains in our portfolio management 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.

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

	2018	2017	2016
Diesel	715	692	775
Gasoline	393	439	444
Fuel oil	178	200	196
Naphtha	67	53	54
LPG	126	126	125
Jet fuel	110	106	100
Others	176	184	193
Total domestic output of oil products	**1,765**	**1,800**	**1,887**
Installed capacity (2)	2,176	2,176	2,176
Crude distillation utilization (%) (3)	76	77	81
Domestic crude oil as % of total feedstock processed	91	93	92

(1) Output volumes are larger than throughput volumes as a result of gains during the refining process.
(2) Installed capacity as of December 31, 2018, 2017 and 2016.
(3) Crude distillation utilization considers average installed capacity as of December 31, 2018, 2017 and 2016.
Our total domestic output of oil products decreased to 1,765 mbbl/d in 2018 from 1,800 mbbl/d in 2017, as a result of lower market demand for gasoline in 2018. In 2018, there was a lower participation of domestic crude oil in our total domestic feedstock processed (91% as compared to 93% in 2017).

Domestic Sales Volumes and Exports from Brazil, mbbl/d

	2018	2017	2016
Diesel	784	717	780
Gasoline	459	521	545
Fuel oil	45	61	67
Naphtha	97	134	151
LPG	231	235	234
Jet fuel	108	101	101
Others	163	171	186
Total oil products	**1,887**	**1,940**	**2,064**
Ethanol, nitrogen fertilizers, renewables and other products	71	112	112
Natural gas	345	361	333
Total domestic market	**2,303**	**2,413**	**2,509**
Exports (1)	608	672	554
Total domestic market and exports	**2,911**	**3,085**	**3,063**

(1) It mainly includes crude oil and oil 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. In 2017 we observed slight signs of improvement in fuel consumption, due to the effects of recovery of some sectors of the Brazilian economy. In 2018, fuel consumption reached the same level as in 2017.

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Despite unchanged Brazilian fuel consumption, our total domestic sales volumes for oil products were 1,887 mbbl/d in 2018, a reduction of 3% compared to 2017. Our market-share increased in 2018 for diesel, and decreased for gasoline. However, factors such as cheaper hydrated ethanol prices, that led to increased biofuel participation in the Otto cycle market, lower sales of naphtha for Braskem and the decrease of fuel oil usage for electricity generation were predominant and resulted in a decrease in our total sales.

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. Despite the domestic market retraction there was an increase in our market share, resulting in higher import levels in 2018 compared to the 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 2018, 2017 and 2016:

Exports and Imports of Crude Oil and Oil Products, mbbl/d

	2018	2017	2016
Exports			
Crude oil	428	512	387
Oil products	178	157	155
Total exports	**606**	**669**	**542**
Imports			
Crude oil	154	127	136
Diesel	59	12	13
Gasoline	19	11	32
Other oil products	117	158	193
Total imports	**349**	**308**	**374**

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 290 mbbl/d and the volume committed through long-term contracts subject to mutual agreement is expected to be around 10mbbl/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. In 2018, approximately 67% of our domestic exported crude oil were committed by our contracts with third parties.

Logistics and Infrastructure for Oil and Oil Products

We own and operate, through Transpetro, 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, 2018, our onshore and

offshore, crude oil and oil products pipelines extended over 7,719km (4,796miles). We operate 27 marine storage terminals and 20 other tank farms with nominal aggregated storage capacity of 64.6 mmbbl. In 2018, our marine terminals handled 8,161 tankers and oil barges.

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We operate a fleet of owned and chartered vessels. We provide shuttle services between our producing offshore areas in Brazil and our terminals onshore, and transportation of crude oil and products internationally and along the Brazilian coast. We are upgrading our own fleet, replacing old vessels with new ones by building or chartering vessels, which is part of our growing strategy. Our long-term strategy continues to focus on the flexibility afforded by operating a combination of owned and chartered vessels.

Also, three new oil tankers and one new LPG carrier were delivered to us in 2018. We plan to have another two vessels delivered to us in 2019, which are being built in Brazilian shipyards.

The table below shows our operating fleet and vessels under contract as of December 31, 2018.

Owned and Chartered Vessels in Operation and Under Construction Contracts at December 31, 2018

	In Operation		Under Contract/ Construction	
	Number	Tons Deadweight Capacity	Number	Tons Deadweight Capacity
Owned fleet:				
Tankers	34	2,943,529	2	229,400
LPG tankers	9	52,148		
Total	43	2,995,676	2	229,400
Chartered vessels:				
Tankers (Petrobras)	58	2,337,862	4	610,800
Tankers (Transpetro)	14	1,576,447		
LPG Tankers (Petrobras)	8	241,463		
Total	80	4,155,772	4	610,800

A decrease in the number of chartered vessels (tankers) in 2018 to 80 (as compared to 89 as of December 31, 2017) is mainly attributable to an increase of operational efficiency and a decrease in the market demand.

The lower freight rates projected in our 2019-2023 Business Plan significantly affected our impairment assessment of the Transpetro s fleet of vessels, resulting in the recognition of impairment losses in the amount of US$428 million in 2018.

We recognized impairment losses for the fiscal year ended December 31, 2017 of US$112 million on transportation 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.

In 2016, impairment losses of US$244 million on transportation assets mainly reflected postponements and suspension of construction projects relating to support vessels of Hidrovias project, the use of a higher discount rate and the commencement of the construction on 5 vessels after securing the projects funding, which avoided potential future claims for breach of contracts.

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

Petrochemicals

Our participation in the petrochemical sector provides an outlet for our growing production volumes of gas and other refined products, which increase their value and provide substitutes for products that are otherwise imported. Our new strategy outlined in the 2040 Strategic Plan is to maximize value through active management of our portfolio for refining, logistics, trading and petrochemicals, integrated into the activities of national oil and gas production.

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

	mmt/y (nominal capacity)	Petrobras interest (%)
Braskem:		
Ethylene	5.00	
Polyethylene	4.11	36.20
Polypropylene	4.05	
DETEN Química S.A.:		
LAB(1)	0.22	27.88
LABSA(1)	0.12	
METANOR S.A./COPENOR S.A.(2):		
Methanol(3)	0.08	
Formaldehyde	0.09	34.54
Hexamine	0.01	
FCC Fábrica Carioca de Catalisadores S.A.:		
Catalysts	0.04	50.00
Additives	0.01	
PETROCOQUE S.A.:		
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 company decided to stop the production of methanol in 2016.
The sale of *Companhia Petroquímica de Pernambuco* (PetroquímicaSuape) and *Companhia Integrada Têxtil de Pernambuco* (Citepe) to Grupo Petrotemex S.A. de C.V. and Dak Americas Exterior, S.L, both subsidiaries of Alpek was completed in April 2018.

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 2017, 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. In 2018, this disposal was completed, after price adjustments established in the purchase and sale agreement. Reversals of impairment in the amount of US$86 million were accounted for in 2018.

Refining Capacity Abroad

Our international crude distillation capacity as of December 31, 2018 was 110 mbbl/d and the utilization factor for our international refinery was 91%.

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The following table shows the installed capacity of our international refineries as of December 31, 2018, and the average daily throughputs in 2018, 2017 and 2016, respectively.

Capacity and Average Throughput of Refineries

Name (Alternative Name)	Location	Crude Distillation Capacity at December 31, 2018 (mbbl/d)	Average Throughput(1) 2018 (2)	2017 (2) (mbbl/d)	2016
Pasadena Refining System Inc.	Texas (USA)	110	100.2	88.4	104.2
Ricardo Eliçabe Refinery (3)	Bahía Blanca (AR)				15.3
Average crude oil throughput			100.2	88.4	119.4
Average external intermediate throughput			7.5	5.2	6.5
Total average throughput		110	107.7	93.6	125.9

(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 used to own this refinery through our interest in PESA, with capacity of 30.5 mbbl/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 average output of oil products of our international refinery in 2018, 2017 and 2016.

International Average Output of Oil Products

	2018	2017 (mbbl/d)	2016
Total average output	107	94	128

Until January 2019, we participated in the refining sector in the United States and owned (i) 100% of the Pasadena Refining System Inc., which was an affiliate of Petrobras America Inc (PAI), and (ii) 100% of its related trading company, PRSI Trading, LLC. On January 30, 2019, Petrobras America Inc. (PAI) entered into a share purchase agreement with Chevron USA Inc. (Chevron) for the sale of the shares held by PAI on Pasadena Refining System Inc. (PRSI) and PRSI Trading LLC (PRST).

Sales Volumes Abroad

Sales Volumes Abroad, mbbl/d

	2018	2017	2016
International Sales	236	**242**	418

Distribution

Distribution Key Statistics

	2018	2017	2016
	(US$ million)		
Sales revenues	27,960	27,567	27,927
Income (loss) before income taxes	722	802	96
Property, plant and equipment	1,529	1,862	1,936
Capital Expenditures According to Our Plan Cost Assumptions	136	109	139

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Domestic Distribution

We are Brazil s leading oil products distributor, operating through our subsidiary Petrobras Distribuidora, a publicly held company, listed at B3, in which we hold 71.25% of common shares. Petrobras Distribuidora has its own retail network and wholesale channels and supplies 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 our brand.

We supply and operate Petrobras Distribuidora, which accounts for 28.7% 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 2018, Petrobras Distribuidora sold the equivalent of 716 mbbl/d of oil products and other fuels to wholesale and retail customers, of which the largest portion 41.9% was diesel.

At December 31, 2018, our Petrobras Distribuidora branded service station network was Brazil s leading market retailer, with 7,665 service stations, according to *Associação Nacional das Distribuidoras de Combustíveis, Lubrificantes, Logística e Conveniência* (Plural). Petrobras Distribuidora owned and franchised stations that represented 23.9% of Brazil s retail sales of diesel, gasoline, ethanol, vehicular natural gas in 2018, 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 686 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 42.8% of the total Brazilian wholesale market in 2018, 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 currently conduct distribution activities in Chile, Colombia and Uruguay and we used to conduct distribution activities in Paraguay:

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 119 service stations and a lubricant plant;

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In Paraguay, our operations included 196 service stations, the distribution and sales of fuel at three airports and an LPG refueling plant. A sale contract for the sale of all of our assets in Paraguay was signed and submitted to local authorities, and the sale of such assets closed on March 8, 2019.

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

Gas and Power

Gas and Power Key Statistics

	2018	2017	2016
	(US$ million)		
Gas and Power:			
Sales revenues	12,269	12,374	9,401
Income (loss) before income taxes	874	3,018	1,252
Property, plant and equipment	11,057	13,231	13,094
Capital Expenditures According to Our Plan Cost Assumptions	433	1,127	717

Our Gas and Power segment comprises gas transmission and distribution, LNG regasification, the manufacture of nitrogen-based fertilizers, gas-fired, oil-fuelled 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 9.190km). 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 Brazilian pipeline networks are owned by TAG, TBG, Transportadora Sulbrasileira de Gás S.A (TSB) and Nova Transportadora do Sudeste (NTS). We are a shareholder with 100% shares of TAG, 51% shares of TBG and 25% shares of TSB, and concluded on April 4, 2017 the sale transaction of 90% of the company s shares in 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, mmm³/d

	2018	2017	2016
Sources of natural gas supply			
Domestic production	48.9	53.7	44.0
Imported from Bolivia	22.1	24.0	28.4
LNG	6.8	5.0	3.8
Total natural gas supply	77.8	82.7	76.2
Sales of natural gas			
Sales to local gas distribution companies(1)	38.6	36.7	34.8
Sales to gas-fired power plants	16.4	20.7	18.0
Total sales of natural gas	55.0	57.4	52.8
Internal consumption (refineries, fertilizer and gas-fired power plants)(2)	22.8	25.3	23.4
Revenues (US$ billion)(3)	8.7	7.9	6.4

(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 2018 was 55.0 mmm³/d, representing a decrease of 4.2% compared to 2017. This decrease is attributable to a lower power generation from gas-fired power plants, although there was an increase in sales to local gas distribution companies due to the growth of our industrial activities from 2017 to 2018. Natural gas consumption by refineries and fertilizer plants decreased by 2.5%. Currently, our main focus is to provide logistics and processing solutions for our planned natural gas production from the pre-salt fields. In 2019, we plan to continue to invest in:

(i) Construction of a new gas offshore pipeline Route 3 with capacity of 636 mmcf/d (18 mmm³/d) connecting the Santos Basin pre-salt producing fields to Itaboraí processing plant. The initial operation is scheduled to start by the end of 2021.

(ii) Construction of a natural gas processing plant with capacity of 742 mmcf/d (21 mmm³/d), located in 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 2021.

(iii) Development of basic engineering design phase for Caraguatatuba natural gas processing plant upgraded project, related to pre-salt reservoirs in Santos Basin.

(iv) Development of basic engineering design phase for a new natural gas plant to be located in the state of Sergipe, associated with deep water reservoirs in Sergipe Basin.

We also own and operate three LNG regasification 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^3/d), another in Pecém (state of Ceará) in Northeastern Brazil with a send-out capacity of 247 mmcf/d (7 mmm^3/d) and the last one located in the Todos os Santos Bay (state of Bahia), with a send-out capacity of 706 mmcf/d (20 mmm^3/d).

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In 2018, we imported 32 LNG cargos in Brazil, as compared to 27 in 2017. In addition, in 2018, we kept our commercial activities primarily abroad, with 12 trading operations overseas (including 11 offshore purchases, 11 offshore sales and one reload 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 149.02 million m3/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 2018 was 65.04 million m³/day, 9.3% higher than in 2017. In 2018, after the processing of natural gas, the main products were 53.12 million m³/day of natural gas and 3.47 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 regasified in terminals in Brazil.

The total average volume of natural gas processed in Bolivia in 2018 was 22.1 million m³/day, 7.8% less than 2017.The map below shows gas pipeline networks, LNG terminals and natural gas processing plants.

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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, all of which are held through Gaspetro and their combined averaged gas distributed volumes in 2018 amounted to 13 mmm³/d, representing 53% of the averaged gas distributed volumes of our nineteen natural gas distributors during 2018.

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 Petroliferos Fiscales Bolivianos, or YPFB, 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 2023 under the current conditions.

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 s Bolivian side, while YPFB has shipper´s obligations, Petrobras agreed to pay, on behalf of YPFB, the amounts related to 24 mmm^3/d directly to GTB until 2019 and pre-paid 6 mmm^3/d until 2039.

For GASBOL s Brazilian side, after 2020, there is 12 mmm^3/d of remaining volume commitment related to Bolivian gas imports and 5.2 mmm^3/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 2019 through 2023.

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.

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	2019	2020	2021	2022	2023
Purchase commitments to YPFB					
Volume obligation (mmm3/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$)(2)	65.54	67.00	72.00	75.00	75.00
Estimated payments (US$ million)(3)	1,640.98	1,477.36	1,496.62	1,695.87	1,802.60
Ship-or-pay contract with GTB					
Volume commitment (mmm3/d)	30.08	6.00	6.00	6.00	6.00
Volume commitment (mmcf/d)	1,062.28	211.89	211.89	211.89	211.89
Estimated payments (US$ million)(4)(5)	114.30				
Ship-or-pay contract with TBG (7)					
Volume commitment (mmm3/d)(6)	35.28	17.20	17.20	11.20	11.20
Volume commitment (mmcf/d)	1,245.91	607.42	607.42	395.53	395.53
Estimated payments (US$ million)(4)	445.96	117.81	119.83	5.63	5.66
Ship-or-pay contract with NTS					
Volume commitment (mmm3/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)	1,301.55	1,321.41	1,344.06	1,359.60	1,367.51
Ship-or-pay contract with TAG (7)					
Volume commitment (mmm3/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)	1,596.24	1,608.45	1,636.02	1,654.94	1,664.56

(1) 23.95% of contracted volume supplied by Petrobras Bolivia.
(2) Brent crude oil price forecast based on our 2019-2023 Business 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 TAG, expected to occur until the end of 2019. 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 interruptible long-term gas sales contracts.

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In 2018, 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 four local distribution companies that represent 46% of the non-thermoelectric natural gas market, with an average price increase of 64%. This increase resulted from certain factors: (i) change of the parametric formula applicable to the price of natural gas and (ii) annual variation of the indexes that apply to the price of natural gas, i.e. oil baskets that follow the Brent index and the exchange rate. The renegotiations will continue in 2019 with 15 remaining local distribution companies. The table below shows our future gas supply commitments from 2019 to 2023, including sales to both local gas distribution companies and gas-fired power plants:

Future Commitments under Natural Gas Sales Contracts, mmm³/d	**2019**	**2020**	**2021**	**2022**	**2023**
To local gas distribution companies:					
Related parties(1)	17.51	17.55	17.34	15.16	14.72
Third parties	21.15	20.95	20.92	18.63	18.61
To gas-fired power plants:					
Related parties(1)	2.41	1.61	2.22	2.31	2.46
Third parties	11.74	10.75	11.28	12.13	11.87
Total(2)	52.81	50.85	51.76	48.23	47.67
Estimated amounts to be invoiced (US$ billion)(3)(4)	5.23	5.92	6.20	5.66	6.23

(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 (104,139 MW of installed capacity), including small hydroelectric power plants, which in total account for 63.6% 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 2018 was 163,654 MW, according to ANEEL. Of this total, 6,148 MW (or 3.8%) was available from 20 thermoelectric plants we operate. These plants are designed to supplement power from the hydroelectric power plants.

In 2018, hydroelectric power plants in Brazil generated 47,707 MWavg, which corresponded to 72% of Brazil s total electricity needs (66,428 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 18,720 MW in 2018, of which our thermoelectric power plants contributed 2,205MWavg, as compared to

3,165 MWavg in 2017 and 2,252 MWAvg in 2016.

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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.

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 a reimbursement for its variable costs (previously declared to MME to calculate its commercial certified capacity) incurred whenever they are requested to generate electricity.

In 2018, the commercial capacity certified by MME for all thermoelectric power plants controlled by us was 3,900 MWavg, although our total generating capacity was 6,148 MWavg. Of the total 4,720 MWavg of commercial capacity available (*capacidade comercial disponível* or *lastro*) for sale in 2018, approximately 59% was sold as standby availability in public auctions in the regulated market (compared to 62% in 2017) and approximately 26% was committed under bilateral contracts and self-production (i.e. sales to related parties) (compared to 25% in 2017).

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 1,309 MWavg in 2019, 1,056 MWavg in 2020, and 1,141 MWavg in 2021. 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.

	2018	2017	2016
Installed power capacity and utilization			
Installed capacity (MW)	6,148	6,148	6,148
Certified commercial capacity (MWavg)	3,900	4,040	4,197
Purchases in the free market (MWavg)	821	888	345
Commercial capacity available (Lastro) (MWavg)	4,720	4,928	4,542

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

	Volumes of Electricity Sold (MWavg)		
	2018	**2017**	**2016**
Total sale commitments	4,020	**4,270**	**4,463**
Bilateral contracts	832	788	835
Self-production	399	424	456
Public auctions to distribution companies	2,788	3,058	3,172
Generation volume	2,205	**3,165**	**2,252**
Revenues (US$ million)(1)	3,066	**4,162**	**2,470**

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

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 can produce ammonium sulfate. The combined production capacity of these plants is 1,852,000 t/y of urea, 1,406,000t/y of ammonia, 319,000 t/y of ammonium sulfate and 800,000 t/y of ARLA-32, however the ammonium sulfate unit in Sergipe did not operate in 2018. Most of our ammonia production is used to produce urea, and the excess production is mainly sold in the Brazilian market. In 2018, we reduced the utilization rate of these plants, resulting in a decrease of 15.53% in sales compared to 2017, as reflected in our economic evaluation carried out monthly.

The table below shows our ammonia and urea sales and revenues for each of the past three years:

	Ammonia and Urea (t/y)		
	2018	**2017**	**2016**
Ammonia	209,157	279,621	286,268
Urea	751,782	858,051	1,033,648
Revenues (US$ million)(1)	323	370	465

(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 mmm³/d of natural gas; and

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

In May 2018, we announced the beginning of negotiations with Acron, a Russian company focused on fertilizers production and commercialization, regarding the process of divesting 100% of our 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.

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In March 2018, we decided to mothball our fertilizer plants located in Sergipe (Fafen-SE) and Bahia (Fafen-BA). Later, on October 30, 2018, we postponed the mothballing process to January 2019. On January 31, 2019, a Bahia court granted an injunction to suspend the mothballing process of Fafen-BA. However, on March 20, 2019, the court issued a favorable decision reversing the injunction, allowing us to continue the mothballing process. The decision to mothball these units is aligned with our strategic position to fully withdraw from fertilizer production activities, as set forth in our 2019-2023 Business Plan.

In January 2019, we initiated the process to lease Fafen-SE and Fafen-BA by starting the prequalification process, in order to qualify companies that wish to participate in future biddings for the leasing of plants, including the ammonia and urea maritime terminals in the Port of Aratu (BA).

In February 2019, we initiated the mothballing process of Fafen-SE and we continue with the lease bidding process for this unit and for Fafen-BA. We are still waiting for proposals from potential interested parties.

In 2018, we recognized impairment loss of US$ 114 million for the fertilizer plant UFN III (Unidade de Fertilizantes e Nitrogenados III) because its fair value was less than its book value.

In 2017, we decided to halt our operations in Fafen-BA and Fafen-SE, following our plans to optimize our investment portfolio as set out in our 2018-2022 business plan. We assessed for impairment separately and since we could not estimate cash flow projections for the period covered by the former business plan, an impairment loss amounting to US$412 million was recognized with respect to these fertilizer plants.

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.

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

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 integrates our assets. The power generation capacity we have (alone and through the equity interests we hold in renewable energy companies) is equivalent to 3.6 MW of hydroelectric capacity, 1.1 MW of solar capacity and 51.5 MW (49.5%) of the 104 MW of Mangue Seco, 1,2,3 and 4 wind capacity. We and our partners sell energy from these plants directly to the Brazilian federal government auctions.

Additionally, we signed in 2018 two memoranda of understanding, one with the Norwegian company Equinor ASA Equinor (formerly Statoil), to evaluate a joint business development in the offshore wind energy industry in Brazil and another with the French companies Total and Total Eren, to analyze the joint business development in solar energy and wind onshore energy segments in Brazil.

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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 Compañia 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., our wholly-owned subsidiary that supplies natural gas to the Montevideo area; and (ii) Conecta S.A., our subsidiary, in which we hold a 55% equity interest (the remaining 45% belongs to ANCAP, Uruguay s state oil company), that supplies natural gas to the rest of country.

Biofuels

Biofuels Key Statistics

	2018	2017	2016
	(US$ million)		
Biofuel:			
Sales revenues	255	213	240
Income (loss) before income taxes	3	(57)	(351)
Property, plant and equipment	90	89	100
Capital Expenditures According to Our Plan Cost Assumptions	16	35	96

Brazil is a global leader in the use and production of biofuels. Since March 2015, the anhydrous ethanol content requirement for the gasoline sold in Brazil is 27%. Biodiesel also has a mandatory blend of 10% in all diesel fuel sold in Brazil since 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, mainly related to the former investees Guarani S.A. and Nova Fronteira Bioenergia S.A. For further information on our partnerships and divestments completed in 2018, see Item 4. Information on the Company Overview of the Group. For further information on impairment, see Note 14 to our audited consolidated financial statements.

Biodiesel

In 2018, we supplied 16.1% of Brazil s biodiesel (assuming 100% of BSBIOS Indústria e Comércio de Biodiesel Sul Brasil S.A. (BSBIOS Sul Brasil) production. 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 mbbl/d.

Ethanol

We have historically been producers of ethanol and sugar and sold the exceeding electricity generated from burning sugarcane bagasse. However, we have strategically decided to leave the biodiesel and ethanol production market, preserving technological competencies in areas with greater development potential. In parallel, we have entered into a number of strategic transactions to that end. In February 2018, we sold, through an auction at B3, shares of São Martinho S.A. (SMTO3). 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

	2018	2017	2016
		(US$ million)	
Corporate:			
Income (loss) before income taxes	(10,514)	(18,111)	(13,723)
Property, plant and equipment	1,237	1,629	1,819
Capital Expenditures According to Our Plan Cost Assumptions	155	132	230

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 2018 and 2017, our loss before income taxes included the investigations settled with the DoJ and the SEC, in the amount of US$895 million, and the provision for the class action settlement, in the amount of US$3,449 million.

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List of direct subsidiaries and joint operations

As of December 31, 2018, we had 21 direct subsidiaries and two direct joint operations as listed below. Eighteen 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.

PETROBRAS

BRAZIL	ABROAD
Petrobras Distribuidora S.A. BR	Petrobras Netherlands B.V. PNBV
Petrobras Transporte S.A. Transpetro	Petrobras International Braspetro PIB BV
Petrobras Logística de Exploração e Produção S.A. PB-LOG	Braspetro Oil Services Company Brasoil
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.	
Termobahia S.A.	
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.

Fábrica Carioca de Catalisadores S.A. FCC (*)

Ibiritermo S.A. (*)

(*) 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.

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As of December 31, 2018, our property, plant and equipment included US$19,306 million (US$22,614 million as of December 31, 2017) 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.

The information gathered made possible the identification of volumes exceeding five million barrels of oil equivalent. However, discussions with the Brazilian federal government are ongoing, and a draft amending the agreement is under the TCU review. For additional information on the TCU review, see Regulation of the Oil and Gas Industry in Brazil Assignment Agreement (*Cessão Onerosa*) and Global Offering.

For detailed information on the Assignment Agreement see Note 12.4 to our audited consolidated financial statements ended December 31, 2018 and also Item 10. Additional Information Material Contracts Assignment Agreement .

We recognized impairment charges of US$2,120 million in 2018 (US$836 million in 2017) on property, plant and equipment and intangible assets. Further information about impairment of our assets is provided in Note 14 to our audited consolidated financial statements.

Moreover, following the adoption of IFRS 16, right-of-use assets arising from lease arrangements will be presented as property, plant and equipment. As a result, the amount of this line item within our statement of financial position will increase significantly as set out in Note 6 to our audited consolidated financial statements ended December 31, 2018. We estimate an increase of approximately US$28 billion in the balance of property, plant and equipment due to the initial application of this standard.

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 on 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. In August 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.

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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. In 2018, the ANP granted us an extension of the production phase of the concession agreement related to the Marlim Sul Field, the Marlim Leste Field, Canto do Amaro Field and the Fazenda Alegre Field until 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 2018, we paid this tax on 17 of our fields, namely Albacora, Albacora Leste, Baleia Azul, Baleia Franca, Barracuda, Caratinga, Jubarte, Leste do Urucu, Lula, Manati, Marlim, Marlim Leste, Marlim Sul, Mexilhão, Rio Urucu, Roncador and Sapinhoá; and

- 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 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.

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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 Law No. 13,365/2016, which modified Law 12,351/2010, we are no longer required to be the exclusive operator of these areas. CNPE must offer us preference to operate the blocks under production-sharing regime. As part of this regulatory change, we have to 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$74,808 million, which was equivalent to US$19,306 as of December 31, 2018. See Item 10. Additional Information Material Contracts Assignment Agreement.

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 commercial production started 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 (i.e., representatives of 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.

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The National Council for Energy Policy, through Resolution No. 12/2018, recommended to the MME, the prior submission of the draft amendment to the Assignment Agreement for analysis by the TCU. The MME sent the draft amendment to the TCU on September 14, 2018. The revision of the Assignment Agreement is still subject to the completion of the analysis by the TCU and approval by the National Council for Energy Policy and our governing bodies (i.e., our board of executive officers and our board of directors). The decision to be taken by our board of executive officers must take into consideration recommendations from our Minority Committee. The draft amendment currently under analysis by the TCU consolidates one of the several scenarios discussed among the Brazilian federal government and our commissions, which may result in a credit in favor of us. However, any amount to be received by us can only be confirmed after completion of the applicable stages.

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 of general interest, 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 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 Chapters 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 related to 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 companies holding concessions or authorizations for 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.

Another important resolution is ANP Resolution No. 52/2011, which (i) establishes that it is the responsibility of ANP to authorize the activity of commercialization of natural gas, within the competence of the Brazilian federal government; (ii) regulates the registration of the gas seller agent, and (iii) regulates the registration of gas sales and purchase agreements.

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In June 2016, the MME created the program Gas to Grow, or *Gás para Crescer*, which aims to promote a competitive market environment to achieve the effective development of gas trading in Brazil, enabling the entry of new agents into the gas market. Therefore, new regulations on the natural gas market shall be created in 2019.

In December 2018, Decree No. 9.616 amended Decree No. 7.382/2010 to allow the change of gas transmission system from capacity hired under the point-to-point system on long-term contracts to an entry-exit system.

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 is authorized to adjust taxes applicable to crude oil, oil and natural gas products, in order to balance price stability to end consumers and also to increase its tax revenues, which it has done eventually.

In May 2018, the Brazilian federal government established a diesel subsidy program by Provisional Measures No. 838 and 847 (later converted into Law No. 13,723) and regulated by Decree No. 9,392, both dated of May 30, 2018, and Decrees No. 9,454/2018 and No. 9,403/2018, extended to all producers and importers, for the period between May 30, 2018 and December 31, 2018.

Law No. 13,723, enacted on October 4, 2018, establishes a subsidy program offered by the Brazilian federal government as an incentive for agents that commercialize diesel to reduce their prices and keep them stable during a predetermined period. In return, those who choose to join the program, may obtain a refund for the discount offered, if there is evidence that diesel has been commercialized under a price equal or lower to the price defined for the predetermined period.

We adhered to all phases of the economic subsidy program for the commercialization of diesel.

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).

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 in order to accommodate recently issued requirements by IBAMA. All of these actions are being met by us within the schedule previously defined, which end date is expected to be in 2020.

In addition to help ensuring the safety of navigation, the Brazilian maritime authority also works towards the prevention of environmental pollution, with random or periodic surveys of offshore units.

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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, civil 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 2018, we invested US$0.8 billion in environmental projects, compared to US$0.8 billion in 2017 and US$0.9 billion in 2016. These investments continued to be primarily directed at reducing emissions and wastes from industrial processes, managing water use and effluents, remedying 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 outlined a new taxation model for the oil and gas industry and, along with the Decree 9,128/2017, established a new special regime for exploration, development and production of oil, gas and other liquid hydrocarbons named Repetro-Sped, which will expire in December 2040.

This regime provides for the continuation of total tax relief over goods imported with temporary permanence in Brazil, as previously established by the former Repetro (Special Customs Regime for the Export and Import of Goods designated to Exploration and Production of Oil and Natural Gas Reserves), and adds this relief to goods permanently held in Brazil. Accordingly, the absence of the need to return such goods to foreign countries eliminates future cost of

removal. This benefit allowed for the migration of all the goods acquired in the former REPETRO to the REPETRO-Sped.

Since 2018, we have been transferring the ownership of oil and gas assets under this regime from our foreign subsidiaries to the parent company in Brazil and we expect to finish this process in 2020.

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

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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 2018 totaled an investment of R$5.9 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, hazardous waste minimization actions, 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 projects and other transportation and logistical aspects of our operations;
- A strategic goal to reduce the intensity of greenhouse gas emissions from our operations, along with a set of performance indicators with targets to monitor progress with respect to this goal; and
- HSE functional participation in divestment projects and in the stage-gate process of capital projects. 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 2018, our emissions were 62 million tons of CO2 equivalent. In 2017, we issued 67 million tons of CO2 equivalent and, in 2016, 66.5 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.

The global reductions were mostly due to a lower production of electricity in our thermal power facilities. Excluding power generation and considering only oil and gas activities, we also observe a 5 year trend in emissions reductions, despite increased production. We are committed to improving the operational carbon intensity of our operations, through initiatives such as the reduction of gas flaring, configuration of new assets and operational improvements.

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In March 2018, our board of directors has approved our 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. OGCI Climate investments, the initiative s investment arm to support the development, deployment and expansion of low-emission technologies will be around US$1 billion over the next ten years, with disbursements distributed equally among all OGCI members during this period. The participation in OGCI is aligned with our business strategy, as disclosed in our 2019-2023 Business Plan, and reinforces our commitment to reduce emissions and toward a more efficient energy matrix. Additionally, in September 2018, we joined the World Bank s Zero Routine Flaring by 2030 program.

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 2018 (compared to 7 in 2017). 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.

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. The execution of these programs are approved and authorized by IBAMA.

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 Environmental Defense Centers (CDAs), located in strategic areas, in order to ensure rapid and coordinated response to onshore or offshore oil spills.

We have around 300 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 shareholder 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 2018, we conducted 21 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. In 2018, we had oil spills totaling 18.47 m^3, compared to 35.8 m^3 in 2017 and 51.9 m^3 in 2016.

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We continue to evaluate and develop initiatives to address HSE concerns and to reduce our exposure to HSE risks on capital projects and operations.

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 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.

Our general civil responsibility policy with respect to our onshore and offshore activities in Brazil, including losses related to third parties due to sudden pollution, such as oil spills, has a maximum indemnity limit of US$250 million with an associated deductible of US$10 million. We also maintain marine insurance with additional protection and indemnity (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 property damage, 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 six countries and maintain different levels of third party liability insurance, as a result of a variety of factors, including country risk assessments, whether we have onshore and offshore operations, or legal requirements imposed by a 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. In addition, such policies 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$470 million depending on the country.

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Additional Reserves and Production Information

In 2018, our oil and gas production in Brazil averaged 2,282 mboe/d, of which 89% was oil and 11% was natural gas. We 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 units in Brazil do 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, 2018, our estimated proved reserves in Brazil totaled 9.5 bnbbl of oil equivalent, including 8.2 bnbbl of crude oil, condensate and synthetic oil and 7.8 tcf of natural gas and synthetic gas. As of December 31, 2018, our domestic proved developed crude oil, condensate and synthetic oil reserves represented 53% of our total domestic proved crude oil, condensate and synthetic oil reserves, and our domestic proved developed natural gas and synthetic gas reserves represented 62% 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. 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. The technical person primarily responsible for overseeing the preparation of our reserves has 15 years of experience in the field and has been with us for 16 years. Our reserve estimates are approved by our board of executive officers, which then informs our board of directors of its approval.

D&M used our reserve estimates to conduct a reserve evaluation of 96% of the net proved crude oil, condensate and natural gas reserves, in terms of oil equivalent, as of December 31, 2018 in Brazil. The amount of reserves reviewed by D&M corresponds to 95% of our total proved reserves on a net equivalent basis. 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.

The reserve estimates were prepared in accordance with the definitions of Rule 4-10(a) of Regulation S-X. Our natural gas reserves volumes include 2.6 tcf of fuel gas volumes, which represent 32% of our proved reserves of natural gas. For further information about our proved reserves, see Supplementary Information on Oil and Gas Exploration and Production beginning on page F-123.

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Changes in Proved Reserves

At year-end 2018, our total proved reserves, including consolidated entities and equity method investees, reached 9,606.2 million boe, a net decrease of 145.5 million boe compared to 2017. This decrease in proved reserves resulted from (i) production of 862.6 million boe from our previous proved reserves, noting that this production excludes NGL (except for North America) and does not include the production of EWTs in exploratory blocks and the production in Bolivia, since the Bolivian Constitution prohibits the disclosure and registration of its reserves; and (ii) a net reduction of 358.7 million boe of our proved reserves due to sales of 367.8 million boe and purchases of 9.1 million boe related the assignment of 35% of Petrobras interest in the Lapa field and 22.5% of Petrobras interest in the Berbigão, Sururu and Oeste de Atapu fields to Total; the assignment of 25% of Petrobras interest in the Roncador field to Equinor; and the establishment of a Joint Venture of PAI with Murphy. See Item 4. Information on the Company Overview of the Group Portfolio Management. We partially offset our decreases in proved reserves by incorporating (i) 473.3 million boe of proved reserves by revising previous estimates, including 233.5 million boe due to economic revisions, mainly due to the increase in prices, and 239.9 million boe due to technical revisions, mainly because of the good performance of our reservoirs, in the pre-salt layer of Santos and Campos basins, both in Brazil, (ii) 258.8 million boe in our proved reserves resulting from positive responses from improved recovery (water injection), and (iii) 343.6 million boe in our proved reserves due to extensions and discoveries, mainly in the pre-salt of Santos basin.

At year-end 2018, our company-wide proved undeveloped reserves decreased 204.2 million boe when compared to year-end 2017. This decrease is a result of the following changes: (i) we converted a total of 977.4 million boe of proved undeveloped reserves to proved developed reserves, mainly as a result of the FPSO P-74 and P-75 start of operation in the Buzios field, the P-69 start of operation in the Lula field, the FPSO Cidade de Campos dos Goytacazes start of operation in the Tartaruga Verde field and the offshore and onshore drilling and tieback operations; (ii) we reduced 92.1 million boe in our proved undeveloped reserves as a result of sales of reserves and increased 2.4 million boe in our proved undeveloped reserves with purchases of reserves, resulting in a net effect of a decrease of 89.7 million boe in our proved undeveloped reserves; (iii) we added 253.4 million boe in our proved undeveloped reserves, as a result of positive responses from improved recovery (water injection), in Brazil; (iv) we added 312.4 million boe in our proved undeveloped reserves because of extensions and discoveries, mainly in the pre-salt of Santos basin; (v) we reached an increase of 10.2 million boe in our proved undeveloped reserves as a result of economic revisions to previous estimates, mainly due to the increase in prices; and (vi) we incorporated 286.9 million boe in our proved undeveloped reserves resulting from technical revisions to previous estimates.

As of December 31, 2018, we had a total of 4,387.9 million boe of proved undeveloped reserves company-wide, approximately 55% (2,404.8 million boe) of which have remained undeveloped for five years or more, mainly due to the inherent complexity of ultra-deep-water development projects in giant fields, particularly in the Santos Basin and in the Campos Basin, in which we are making investments to develop necessary infrastructure.

In 2018, we invested a total of US$10.2 billion in development projects, of which 95% (US$9.7 billion) was invested in Brazil, and converted a total of 977.4 million boe of proved undeveloped reserves to proved developed reserves, approximately 96.1% (939.3 million boe) of which were Brazilian reserves.

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.

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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 2018, 2017 and 2016:

Hydrocarbon Production by Geographic Area

2018				2017				2016			
Synth. Oil + NGL(mbbl) (4)	Nat. Gas (mmcf) (1)	Synth. Gas(mmcf) (1)(4)	Total (mboe)	Oil + NGL (mbbl) (5)	Synth. Oil + NGL(mbbl) (4)	Nat. Gas (mmcf) (1)	Synth. Gas(mmcf) (1)(4)	Total (mboe)	Oil + NGL (mbbl) (5)	Synth. Oil + NGL(mbbl) (4)	Nat. G (mmc (1)
929.5	541,557.3	259.5	832,998.4	785,161.1	969.7	555,820.9	183.6	878,798.2	775,807.5	1,022.0	563,08
	133,518.1		227,084.7	175,663.0		140,931.4		199,151.6	77,592.1		51,9
			12,147.4	717.5				717.5	2,386.8		
929.5	408,039.2	259.5	593,766.3	608,780.6	969.7	414,889.5	183.6	678,929.1	695,828.6	1,022.0	511,1
	75,393.5		14,190.0	1,872.5		85,388.2		16,103.8	14,089.0		173,3
	4,365.4		14,990.8	13,164.5		21,450.4		16,739.5	11,169.0		24,5
	79,758.9		29,180.8	15,037.0		106,838.6		32,843.3	25,258.0		197,8
929.5	621,316.2	259.5	862,179.2	800,198.1	969.7	662,659.5	183.6	911,641.5	801,065.5	1,163.1	760,9
									1,241.0		3
	148.1		452.7								
			7,118.4	8,190.2				8,190.2	9,709.0		
929.5	621,316.2	259.5	869,750.3	808,388.3	969.7	662,659.5	183.6	919,831.7	812,015.5	1,163.1	761,2

(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.

(6) Due to the joint venture formed by Petrobras America Inc. and Murphy Exploration & Production Co, our production in the United States is reported on a consolidated basis from January through November 2018, and using the equity method for investees from December 2018 onward.

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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, 2018.

Estimated Net Proved Developed and Undeveloped Reserves

Reserves category	**Reserves**						
	Oil (mmbbl) (1)	**Natural gas (bncf) (1) (2)**	**Total oil and natural gas (mmboe)**	**Synthetic oil (mmbbl) (3)**	**Synthetic gas (bncf) (3)**	**Total synthetic oil and gas (mmboe)**	**Total oil and gas products (mmboe) (4)**
Proved developed:							
Brazil	4,339.5	4,807.0	5,140.7	4.8	5.7	5.8	5,146.4
International							
South America (outside of Brazil)	1.0	83.5	15.0				15.0
Total consolidated proved developed reserves	4,340.5	4,890.5	5,155.6	4.8	5.7	5.8	5,161.4
Equity method investees							
North America(5)	20.0	8.3	21.4				21.4
Africa	30.9	27.6	35.5				35.5
Total equity method investees	51.0	35.9	56.9				56.9
Total proved developed reserves	4,391.5	4,926.4	5,212.5	4.8	5.7	5.8	5,218.3
Proved undeveloped:							
Brazil	3,829.2	2,983.5	4,326.4				4,326.4
International							
South America (outside of Brazil)	0.5	130.6	22.3				22.3
Total consolidated proved undeveloped reserves	3,829.7	3,114.1	4,348.7				4,348.7
Equity method investees							
North America(5)	6.5	2.5	6.9				6.9
Africa	28.9	19.7	32.2				32.2
Total equity method investees	35.4	22.2	39.1				39.1
Total proved undeveloped reserves	3,865.1	3,136.3	4,387.9				4,387.9
Total proved reserves (developed and undeveloped)	8,256.6	8,062.7	9,600.4	4.8	5.7	5.8	9,606.2

(1) North America oil reserves includes 4.2% of natural gas liquid (NGL) in proved developed reserves and 3.6% of NGL in proved undeveloped reserves. For others regions, we estimate our oil and gas reserves at a reference point prior to the gas processing plants, so we book reserves of oil and wet natural gas only, with no NGL reserves.

(2) Our disclosure of proved gas reserves also includes fuel gas volumes, which represent 32% 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 67.7 millions of barrels of oil equivalent related to PO&G assets classified as held for sale.

(5) Due to the joint venture formed by PAI and Murphy, information regarding proved reserves, acreage, and wells in the United States are reported in the equity method for investees section.

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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 2018, 2017 and 2016:

Total Proved Developed and Undeveloped Reserves (1) (2) (3) (4)
Consolidated Entities

	Oil (mmbbl)	Natural gas (bncf)	Total oil and natural gas (mmboe)	Synthetic oil (mmbbl)	Synthetic gas (bncf)	Total synthetic oil and gas (mmboe)	Total oil and gas products (mmboe)	Equity method investees oil and gas product (mmboe)	Total for all product (mmboe)
Reserves quantity information for the year ended December 31, 2018									
January 1, 2018	8,365.3	7,877.2	9,678.1	6.0	8.1	7.4	9,685.5	66.3	9,751.7
Transfers by loss of control **(5)**	-100.4	-36.8	-106.5				-106.5	106.5	
Revisions of previous estimates	342.7	737.2	465.6	-0.3	-1.0	-0.4	465.2	8.2	473.3
Improved recovery	224.2	207.6	258.8				258.8		258.8
Purchases of proved reserves								9.1	9.1
Extensions and discoveries	309.1	206.9	343.6				343.6		343.6
Production	-715.9	-822.1	-852.9	-0.9	-1.3	-1.2	-854.0	-8.6	-862.6
Sales of proved reserves	-254.8	-165.5	-282.4				-282.4	-85.4	-367.8
December 31, 2018	8,170.3	8,004.6	9,504.3	4.8	5.8	5.8	9,510.1	96.1	9,606.2
Reserves quantity information for the year ended December 31, 2017									
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
Reserves quantity information for the year ended December 31, 2016									
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

(1) North America oil reserves includes 4.2% of natural gas liquid (NGL) in proved developed reserves and 3.6% of NGL in proved undeveloped reserves. For others regions, 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 with no NGL.

(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 (except for North America) 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 32% of our total proved reserves of natural gas.

(4) In December 31, 2018, the total proved reserves includes 67.7 millions of barrels of oil equivalent related to PO&G assets classified as held for sale.

(5) This line represents the amounts of proved reserves transferred from our consolidated total proved reserves to equity method investees, as we concluded the operation that has resulted in a joint venture in which Murphy Exploration & Production Company has an 80% stake and Petrobras America Inc a 20% stake.

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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 working interests as of December 31, 2018. 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. We do not have any material acreage expiring before 2025.

Gross and Net Productive Wells (1)

As of December 31, 2018

	Oil		Natural gas		Synthetic oil		Synthetic gas	
Gross and net productive wells(1):	**Gross**	**Net**	**Gross**	**Net**	**Gross**	**Net**	**Gross**	**Net**
Consolidated subsidiaries								
Brazil	6,504	6,481	384	378	0	0	0	0
International					0	0	0	0
South America (outside of Brazil)	62	27	199	97	0	0	0	0
Total international	62	27	199	97	0	0	0	0
Total consolidated	6,566	6,508	583	475	0	0	0	0
Equity method investees:					0	0	0	0
South America (outside of Brazil)	0	0	0	0	0	0	0	0
North America (2)	45	4	6	0	0	0	0	0
Africa	56	3	0	0	0	0	0	0
Total gross and net productive wells	6,667	6,515	589	475	0	0	0	0

Gross and Net Developed and Undeveloped Acreage

As of December 31, 2018

	Oil		Natural gas (in acres)		Synthetic oil		Synthetic gas	
Gross and net developed acreage:	**Gross**	**Net**	**Gross**	**Net**	**Gross**	**Net**	**Gross**	**Net**
Brazil	4,533,901.4	4,172,742.3	344,666.5	328,636.2	272.8	272.8		
International								
South America (outside of Brazil)			2,304.0	774.1				
North America								
Total international								
Total consolidated	4,533,901.4	4,172,742.3	346,970.5	329,410.3	272.8	272.8		

Equity method investees:						
Africa	21,702.7	1,433.3				
North America (1)	18,917.6	1,870.3	8,738.0	1,224.3		
Total Equity method investees	40,620.4	3,303.6	8,738.0	1,224.3		
Total gross and net developed acreage	4,574,521.8	4,176,045.8	355,708.6	330,634.6	272.8	272.8

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Gross and Net Developed and Undeveloped Acreage
As of December 31, 2018

	Oil		Natural gas (in acres)		Synthetic oil		Synthetic gas	
Gross and net developed acreage:	**Gross**	**Net**	**Gross**	**Net**	**Gross**	**Net**	**Gross**	**Net**
Gross and net undeveloped acreage:								
Brazil	801,940.4	636,318.3	117,667.0	113,519.2				
International								
South America (outside of Brazil)			2,310.0	776.2				
Total consolidated	801,940.4	636,318.3	119,977.0	114,295.4				
Equity method investees:								
Africa	14,275.5	1,142.0						
North America (1)	61,976.6	6,988.4	2,022.0	345.6				
Total Equity method investees	76,252.1	8,130.4	2,022.0	345.6				
Total gross and net undeveloped acreage	878,192.6	644,448.7	121,999.0	114,641.0				

(1) Due to the Joint Venture formed by PAI and Murphy, information regarding proved reserves, acreage, and wells in the United States are reported in the equity method for investees section. For net figures, we used the Working Interest (WI) held by us on December 31, 2018.

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

Net Productive and Dry Exploratory and Development Wells

	2018	2017	2016
Net productive exploratory wells drilled:			
Consolidated subsidiaries:			
Brazil	4.0	7.0	7.7
South America (outside of Brazil)			2.2
Total consolidated subsidiaries	4.0		9.9
Equity method investees:			
North America (1)			

Africa

Total productive exploratory wells drilled	4.0	7.0	9.9

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Net Productive and Dry Exploratory and Development Wells

	2018	2017	2016
Net dry exploratory wells drilled:			
Consolidated subsidiaries:			
Brazil	4.0	0.4	5.1
South America (outside of Brazil)		0.4	1.0
Total consolidated subsidiaries	4.0		6.1
Equity method investees:			
North America(1)			
Africa			
Total dry exploratory wells drilled	4.0	0.8	6.1
Total number of net exploratory wells drilled	8.0	7.8	16.0
Net productive development wells drilled:			
Consolidated subsidiaries:			
Brazil	103.7	174.8	194.4
South America (outside of Brazil)	3.7	2.4	24.5
Total consolidated subsidiaries	107.4	177.8	219.3
Equity method investees:			
North America(1)	0.1	0.6	0.4
Africa	0.4	1.0	1.7
Total productive development wells drilled	107.9	178.8	221.0
Net dry development wells drilled:			
Consolidated subsidiaries:			
Brazil			1.0
South America (outside of Brazil)			
Total consolidated subsidiaries			1.0
Equity method investees:			
North America (1)			
Africa			
Total dry development wells drilled			1.0
Total number of net development wells drilled	107.9	178.8	222.0

(1) Due to the Joint Venture formed by PAI and Murphy, information regarding proved reserves, acreage, and wells in the United States are reported in the equity method for investees section. For net figures, the Working Interest (WI) held in December 31, 2018 was used.

The following table summarizes the number of wells in the process of being drilled as of December 31, 2018. For more information about our ongoing exploration and production activities in Brazil, see Exploration and Production Our activities by region Brazil. Our present exploration and production activities outside of Brazil are described in Exploration and Production Our Activities by Region International. 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.

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Number of Wells Being Drilled as of December 31, 2018

	Year-end 2018	
	Gross	Net
Wells Drilling		
Consolidated Subsidiaries:		
Brazil	9	7.5
International:		
South America (outside of Brazil)	1	1.0
Total wells drilling	10	8.5

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	North America US$	Total	Equity method investees (2)
During 2018					
Average sales prices	66.66	42.44	67.21	66.65	72.76
Oil and NGL, per barrel	7.15	4.09	3.56	7.00	0.76
Natural gas, per thousand cubic feet(1)					
Synthetic oil, per barrel	60.04			60.04	
Synthetic gas, per thousand cubic feet	4.47			4.47	
Average production costs, per barrel total	10.21	4.57	9.75	10.11	31.85
During 2017					
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	
Average production costs, per barrel total	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	
Average production costs, per barrel total	10.36	6.95	6.83	10.18	35.11

(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 until 2016, in Africa until October 2018, and in USA from December 2018, following the creation of a joint venture with Murphy Exploration & Production Company, in which our wholly-owned subsidiary Petrobras America Inc (PAI) has a 20% stake.

Item 4A. Unresolved Staff Comments

None.

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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 audited consolidated 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-7 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 discussed in Note 34.2(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;

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the recoverable amounts of assets for impairment testing purposes; and

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

Sales Volumes and Prices

The profitability of our operations in any particular accounting period is affected by 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 2018 totaled 1,148,312 mboe, representing US$95,584 million in sales revenues, compared to 1,214,358 mboe, representing US$88,827 million in sales revenues in 2017.

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$71.15 per barrel in 2018, US$54.35 per barrel in 2017 and US$44.11 per barrel in 2016. In December 2018, Brent crude oil prices averaged US$56.46 per barrel.

Diesel and Gasoline

In 2018, we continued to follow our pricing policy for diesel and gasoline, approved by our executive board in October 2016 and reviewed in June 2017. In March 2019, our board of executive officers approved a change in the frequency of adjustments in diesel prices. Therefore, the price of diesel at our refineries will be adjusted by periods of not less than 15 days. We will continue to use protection mechanisms, such as hedge with derivatives, aiming to preserve the profitability of our refining operations.

Our marketing and trading technical area has the power to perform adjustments in prices at any time, including on a daily basis for gasoline, and by periods of not less than 15 days for diesel, provided that the accumulated adjustments per product be within a given range (-7% to +7%), based on the Brazilian market average. Any change outside this range needs to be authorized by our Markets and Prices Executive Group (GEMP), composed of our CEO, our executive officer of refining and natural gas and our CFO.

The principles of our pricing policy remain unchanged, taking into consideration the international parity price (IPP), margins that reflect the risks related to operations, and our level of market share.

With respect to diesel, in June 2018 we adhered to the economic subsidy program for the commercialization of diesel, established by the Brazilian federal government. The rules establish a subsidy offered by the Brazilian federal government as encouragement for agents that commercialize diesel to reduce their prices and keep them stable during a predetermined period. In return, those who choose to join the program obtain a refund, upon evidence of stable prices, for the discount offered. The ANP was responsible for the methodology to daily update the price used to calculate the subsidy, which takes into account the international price of diesel and the exchange rate (Reference Price). During the program, which ended on December 31, 2018, the ANP published the Reference Price and the total amount of subsidy paid to each beneficiary, on a daily basis, on its website (www.anp.gov.br). The information on this website, which may be accessible through a hyperlink resulting from this URL, is not and shall not be deemed to be incorporated into this report.

During the period that the diesel subsidy program was effective, we also followed our approved pricing policy. The methodology used to calculate the subsidy was based on IPP, and we monitored the adoption of the applicable methodology on a regular basis. All subsidy amounts due by the Brazilian federal government to us were duly paid (except for a minor amount that represents 1% of the total and is mostly related to the first seven days of the program, which the ANP refused to grant us, alleging that we did not comply with certain requirements. We have taken measures to enable the collection and recognition of such residual amount).

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LPG

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 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 2018, 76.4% of our sales revenues were derived from sales of oil products, natural gas and other products in Brazil, compared to 79.2% in 2017 and 79.9% in 2016.

	For the Year Ended December 31								
	2018			2017			2016		
	Volume (mbbl, except as otherwise noted)	Net Average Price (US$)(2)	Sales Revenues (US$ million)	Volume (mbbl, except as otherwise noted)	Net Average Price (US$)(2)	Sales Revenues (US$ million)	Volume (mbbl, except as otherwise noted)	Net Average Price (US$)(2)	Sales Revenues (US$ million)
Diesel (1)	286,071	103.10	29,491	261,821	95.70	25,049	285,422	89.40	25,524
Automotive gasoline	167,606	94.00	15,757	190,178	88.20	16,765	199,381	81.60	16,263
Fuel oil (including bunker fuel)	16,387	77.30	1,267	22,144	62.90	1,392	24,526	47.60	1,167
Naphtha	35,296	69.60	2,455	48,880	53.90	2,637	55,221	44.80	2,472
Liquefied petroleum gas	84,371	53.20	4,490	85,949	46.50	3,999	85, 486	36.10	3,083
Jet fuel	39,563	100.70	3,985	36,842	85.00	3,131	37,147	69.30	2,573
Other oil products	59,384	71.50	4,247	62,258	60.60	3,775	68,101	49.50	3,372
Subtotal oil products	**688,678**	**89.60**	**61,692**	**708,072**	**80.10**	**56,748**	**755,284**	**72.10**	**54,454**
Natural gas (boe)	125,787	44.60	5,613	131,882	39.20	5,174	121,994	32.40	3,952
Ethanol, nitrogen	26,028	82.10	2,137	40,771	95.10	3,878	40,843	91.60	3,743

products, renewables and other non-oil products									
Electricity, services and others			3,577			4,533			2,753
Total domestic market	**840,493**		**73,019**	**880,725**		**70,333**	**918,121**		**64,902**
Exports	222,004	71.70	15,925	245,275	53.30	13,075	202,744	41.60	8,439
International sales	85,815	77.40	6,640	88,358	61.30	5,419	152,668	52.80	8,064
Total international market	**307,819**		**22,565**	**333,633**		**18,494**	**355,412**		**16,503**
Consolidated sales revenues	**1,148,312**		**95,584**	**1,214,358**		**88,827**	**1,273,533**		**81,405**

(1) In 2018, this line item includes revenues related to the Diesel Price Subsidy Program, described in Note 19.1.1 to our audited consolidated financial statements.
(2) Net average price calculated by dividing sales revenues by the volume for the year.

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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 the development of Brazil, 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 and Our Relationship with the Brazilian Federal Government. These charges imposed by the Brazilian federal government are included in our cost of sales.

Inflation and Exchange Rate Variation

Inflation

Despite the volatility of the exchange rate and the increase in regulated prices, the IPCA of 2018 remained below the target, registering an annual variation of 3.75%. 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 (SELIC) to 6.5% p.a.by the end of 2018. 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. 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.

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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 34.2(d) to our audited consolidated financial statements provides further information about our foreign exchange exposure related to assets and liabilities.

We designated hedging relationships to account for the effects of the existing hedge between a foreign exchange gain or loss from portions of our long-term debt obligations (denominated in U.S. dollars) and foreign exchange gain or loss of our highly probable U.S. dollar denominated future export revenues, so that gains or losses associated with the hedged transaction (the highly probable future exports) and the hedging instrument (debt obligations) are recognized in the statement of income in the same periods. See Item 5. Operating and Financial Review and Prospects Critical Accounting Policies and Estimates Cash Flow Hedge Accounting Involving our Future Exports and Notes 4.3.3, 5.8 and 34.2(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.

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 exchanges rates. See Note 2 to our audited consolidated financial statements for the year ended December 31, 2018 for more information about the translation of *real* amounts into U.S. dollars.

When the *real* appreciates against the U.S. dollar, 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, as it did in 2018, the effect is to generally decrease both revenues and expenses when expressed in U.S. dollars. In 2018, the average *real* depreciated 14.4% against the U.S. dollar, compared to an appreciation of 8.3% in 2017 and a depreciation of 4.2% in 2016. Through March 28, 2019, the *real* has depreciated by 2.4% against the U.S. dollar, when compared to December 31, 2018.

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, a assuming the same exchange rates between each quarter for translation. In 2018, the results on a constant currency basis were computed by converting the 1Q-2018, 2Q-2018, 3Q-2018 and 4Q-2018 results from *reais* into U.S. dollars based on the same average exchange rates used in 1Q-2017, 2Q-2017, 3Q-2017 and 4Q-2017 (3.1451, 3.2174, 3.1640 and 3.2466, respectively).

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The amounts and respective variations presented in constant currency are not measures defined in IFRS (they are non-GAAP measures). 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 2018 U.S.$ million		Variation*	
	2018	2017	D	D(%)	Foreign exchange translation effects	Results on a constant currency basis	D	D(%)
Sales revenues	95,584	88,827	6,757	8	(13,937)	109,521	20,694	23
Cost of sales	(61,517)	(60,147)	(1,370)	(2)	9,010	(70,527)	(10,380)	(17)
Gross profit	34,067	28,680	5,387	19	(4,927)	38,994	10,314	36
Selling expenses	(4,631)	(4,538)	(93)	(2)	665	(5,296)	(758)	(17)
General and administrative expenses	(2,455)	(2,918)	463	16	341	(2,796)	122	4
Exploration costs	(524)	(800)	276	35	73	(597)	203	25
Research and development expenses	(642)	(572)	(70)	(12)	92	(734)	(162)	(28)
Other taxes	(752)	(1,843)	1,091	59	120	(872)	971	53
Impairment of assets	(2,005)	(1,191)	(814)	(68)	375	(2,380)	(1,189)	(100)
Other income and expenses	(5,626)	(5,599)	(27)		941	(6,567)	(968)	(17)
Operating income	17,432	11,219	6,213	55	(2,320)	19,752	8,533	76
Net finance income (expense)	(5,857)	(9,895)	4,038	41	769	(6,626)	3,269	33
Results in equity-accounted investments	523	673	(150)	(22)	(81)	604	(69)	(10)
Net Income before income taxes	12,098	1,997	10,101	506	(1,632)	13,730	11,733	588
Income taxes	(4,684)	(1,828)	(2,856)	(156)	672	(5,356)	(3,528)	(193)
Net income	7,414	169	7,245	4,287	(960)	8,374	8,205	4,855

* 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; production taxes; and inflation rates, adjusted by the depreciation or appreciation of the *real* against the U.S. dollar.

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	2018	2017	2016
Crude oil and NGL production (mbbl/d):			
Brazil	2,035	2,154	2,144
International	44	41	55
Non-consolidated international production(1)	21	22	25
Total crude oil and NGL production	**2,100**	**2,217**	**2,224**
Change in crude oil and NGL production	(5.3)%	0.3%	(0.1)%
Average sales price for crude oil (US$/barrel):			
Brazil	66.66	50,48	39.36
International	66.13	47,16	43.52
Natural gas production (mmcf/d)(2):			
Brazil	2,952	3,006	2,910
International	218	294	486
Total natural gas production	**3,170**	**3,300**	**3,396**
Change in natural gas production (sold only)	(3.9)%	(2.8)%	1.1%
Average sales price for natural gas (US$/mcf)(2):			
Brazil	7.15	6.30	5.22
International	4.06	3.47	3.57
Year-end exchange rate (reais/US$)	3.87	3.31	3.26
Appreciation (depreciation) during the year(3)	(16.9)%	1.5%	(16.4)%
Average exchange rate for the year (reais/US$)	3.65	3.19	3.48
Appreciation (depreciation) during the year(4)	(14.4)%	8.3%	(4.2)%
Inflation rate (IPCA)	3.75%	2.94%	6.28%

(1) Non-consolidated companies 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 2018 compared to 2017

Sales Revenues

Sales revenues increased by 8% to US$95,584 million in 2018 from US$88,827 million in 2017, driven primarily by:

Increase in domestic revenues, in the amount of US$2,686 million, mainly as a result of:

a) Increase in oil products revenues (US$4,944 million), primarily reflecting an increase in the average prices of diesel, gasoline and other oil products, as a result of the increase in international prices, as well as an increase in diesel sales volume due to lower imports from competitors. These effects were partially offset by the decrease in sales volume mainly for gasoline, due to a higher portion of ethanol

in the domestic fuel market, as well as lower sales of naphtha to Braskem; and

b) Decrease in electricity revenues, in the amount of US$1,9592 million, as a result of lower prices when expressed in U.S. dollars.

Increase in export revenues, in the amount of US$2,850 million, driven by an increase in international prices of crude oil and oil products and by higher volume of gasoline exports due to the higher market share of ethanol in the domestic market, partially offset by the decrease in crude oil volume exported due to lower production; and

Increase in revenues from operations abroad, in the amount of US$1,221 million following higher international prices.

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Cost of Sales

Cost of sales increased by 2% to US$61,517 million in 2018, compared to US$60,147million in 2017, mainly due to:

Higher production tax expenses and import costs of crude oil, oil products and natural gas, due to higher international prices. Production taxes were also impacted by increased production in fields with higher special participation rates;

Increased costs from operations abroad, as a result of higher international prices; and

Higher share of crude oil imports on feedstock processed and of LNG on sales mix, due to lower production.

Foreign exchange translation effects partially offset the aforementioned factors due to the decrease of the average cost of sales when expressed in U.S. dollars, reflecting the depreciation of the average *real*.

Selling Expenses

Selling expenses increased by 2% to US$4,631 million in 2018 from US$4,538 million in 2017, mainly due to increased impairment of trade and other receivables, primarily relating to companies from the electricity sector, higher expenses with LNG regasification terminals and coastal navigation services (cabotage), as well as higher transportation charges. Selling expenses also increased due to the payment of tariffs for the use of third party gas pipelines, following the sale of Nova Transportadora do Sudeste (NTS) in April 2017.

General and Administrative Expenses

General and administrative expenses decreased by 16% to US$2,455 million in 2018 from US$2,918 million in 2017. This decrease mainly reflects lower expenses with outsourced consulting, IT and administrative services, following financial discipline of controlling expenses.

Exploration Costs

Exploration costs decreased by 35% to US$524 million in 2018 from US$800 million in 2017, mainly due to a decrease in exploration expenditures written off on projects without commercial feasibility, in the amount of US$192 million and to a decrease of US$91 million in provisions related to contractual penalties arising from local content requirements. A breakdown of our exploration costs by type is set forth in Note 15 to our audited consolidated financial statements.

Research and Development Expenses

Research and development expenses increased by 12% to US$642 million in 2018 from US$572 million in 2017, 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 59% to US$752 million in 2018 from US$1,843 million in 2017, mainly as a result of our decision, in 2017, to benefit from tax settlement programs,which generated an expense of US$883 million in that year. See Note 21 to our audited consolidated financial statements for further information on these tax amnesty and refinancing programs.

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Impairment of Assets

Impairment of assets in the amount of US$2,005 million was recognized in 2018 mainly for E&P and RTM assets (US$1,391 million and US$442 million, respectively), primarily driven by higher estimates of decommissioning costs in producing properties in Brazil, the sale of production fields in Gulf of Mexico and lower freight rate forecasts pertaining to transportation assets. In 2017, impairment charges of US$1,191 million were mainly related to RTM and Gas & Power assets (US$781 million and US$446 million, respectively), mainly due to higher costs of raw materials and the lower refining margin projection, as well as the lower expectation of a successful sale of fertilizers and nitrogen products plants.

Impairment losses in 2018 were 68% higher when compared to 2017. 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 totaled US$5,626 million of expenses in 2018, remaining relatively flat when compared to 2017, when totaled US$5,599 million of expenses, mainly reflecting:

The agreement to settle Lava Jato Investigations with U.S. authorities (US$895 million) in the third quarter of 2018;

An increase of US$1,142 million in provision for legal, administrative and arbitration proceedings , mainly affected by: (i) unitization agreements with the ANP related to the Parque das Baleias complex entered into in the fourth quarter of 2018 (US$928 million); and (ii) arbitration in the United States for drilling service agreement related to Titanium Explorer (Vantage) drillship, also in the fourth quarter of 2018 (US$698 million). These factors were partially offset by reversal of provision related to proceedings regarding the agreement to settle tax debts with the state of Mato Grosso in the 3Q-2018 (US$347 million), as well as the reversal of disputes involving state taxes after joining Rio de Janeiro State Tax Amnesty Program in the 4Q-2018 (US$319 million).;

Losses on the fair value of commodities put options related to the hedge of part of crude oil production (US$409 million) that were made in 2018;

These increases in other expenses were partially offset by:

Expenses in 2017 that did not recur in 2018, related to the agreement to settle the Class Action in the United States (US$3,449 million); and

Decrease in the net gain on the sale and write-off of assets, in the amount of US$1,079 million, mainly driven by the US$1,952 million gain on sale of interests in NTS recognized in 2017, when compared to the gains in 2018, on sale of Lapa and Iara field (US$689 million) and by the contingent payment received for,

the sale of Carcará area (US$300 million).

Net Finance Income (Expense)

Net finance expense decreased by 41% to US$5,857 million in 2018 from US$9,895 million in 2017, resulting from a reduction of US$1,161 million in debt interest and charges, due to:

lower interest expenses following pre-payment of debts

Financial income recognized in 2018 based on the agreements reached and conclusion of the privatization process of companies in the electricity sector (US$1,418 million); and

Finance expenses in 2017 following our decision to benefit from Brazilian federal settlement programs (US$837 million).

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Results in equity-accounted investments

Gain on equity-accounted investments decreased by 22%, from US$673 million in 2017 to US$523 million in 2018, due to lower results in investments in the petrochemical sector, notably Braskem.

Income Taxes

Income tax expenses were US$ 4,684 million in 2018, a 156% increase (US$ 2,856 million) compared to US$ 1,828 million in 2017, as a result of higher taxable income (before taxes) for the year, partially offset by the tax benefits from the deduction of interest on capital distribution and by our decision, in 2017, to benefit from tax settlement programs.

The effective tax rate based on our results decreased to a rate of 38.7% from a rate of 91.5% in 2017. In 2018 the difference between the statutory corporate tax rate (34%) and our effective tax rate were primarily affected by tax benefits from the deduction of interest on capital distribution (see Item 10 Payment of Dividends and Interest on Capital) and nondeductible expenses and nontaxable income including post-retirement health care plan expenses and results in equity accounted investments.

Tax benefits from interest on capital distribution occur to the extent that we distribute dividends in this manner. Expenses related to post-retirement health care benefits are recognized and we account for results in equity-accounted investees for each reporting period.

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 four material operating business segments for 2018, compared to 2017.

See Item 4. Information on the Company and Notes 4.2 and 30 to our 2018 audited consolidated financial statements for more information about our business segments.

	Year Ended December 31,		
	2018	2017(1)	Percentage Change
	(US$ million)		
Exploration and Production	12,190	7,021	74
Refining, Transportation and Marketing	2,393	4,265	(43)
Gas and Power	480	1,915	(75)
Distribution	344	521	(34)
Biofuel	(1)	(47)	(98)
Corporate(2)	(7,725)	(13,481)	(43)
Eliminations	(508)	(255)	99
Net income	7,173	(91)	(7,982)

(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 and, in 2018, the agreement to settle the investigations with the DoJ and the SEC.

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Exploration and Production

Net income in our E&P segment was US$12,190 million in 2018 compared to US$7,021 million in 2017. Even with lower production, there was an increase in operating income due to the effects of higher Brent prices. In addition, we had greater impairment costs and higher expenses with production taxes and judicial agreements and contingencies, mitigated by the positive result with de-commissioning of areas. See Note 14 to our 2018 audited consolidated financial statements for further information about impairment expenses. The lifting cost decreased 4%, mainly due to lower expenses with interventions in wells.

Refining, Transportation and Marketing

In 2018, net income in our Refining, Transportation and Marketing segment was US$ 2,393 million, lower than 2017 (US$ 4,235 million). Operating income was reduced due to the lower margin of oil products, mainly gasoline, diesel and LPG, and higher selling expenses, partially offset by inventories formed at lower prices and lower impairment costs. The implementation of cost optimization measures resulted in a reduction in the unit cost of refining.

Gas and Power

Net income was US$480 million in 2018 compared to US$1,915 million in 2017, the decrease being attributable to higher selling expenses for the use of pipelines of the southeast grid and the gain with the sale of our interest in NTS in 2017, partially offset by better margins and decrease in impairment.

Distribution

Net income was US$344 million in 2018 compared to US$521 million in 2017. The decrease in our operating income was due to foreign exchange translation effects partly offset by the reversal of the provision for losses on lawsuits arising from the Settlement Agreement signed with the state of Mato Grosso.

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 worsened hydrological conditions; and

c) Higher natural gas revenues (US$1,222 million), reflecting higher thermoelectric dispatches with higher prices and sales.

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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.

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 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.

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Research and Development Expenses

Research and development expenses increased by 9% to US$572 million in 2017 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.

Regarding E&P assets, the enhanced risk perception of the 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, resulting 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 partnerships and divestments, 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).

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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 arising 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).

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 the difference between the statutory corporate tax rate (34%) and our effective tax rate was 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 for overseas subsidiaries occur.

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

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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.

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 in 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 results in equity-accounted investments.

Gas and Power

Net income was US$1,915 million in 2017 compared to US$732 million in 2016, the increase being attributable to growth in natural gas sales, at higher prices, increase in the participation of 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 the 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.

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Additional Business Segment Information

Additional selected financial data by material operating business segments for 2018, 2017 and 2016 is set out below:

	For the Year Ended December 31,		
	2018	2017	2016
	(US$ million)		
Exploration and Production			
Sales revenues to third parties(1)(2)	2,330	1,422	1,480
Intersegment sales revenues	50,052	40,762	32,195
Total sales revenues(2)	52,382	42,184	33,675
Net income (loss)(3)	12,190	7,021	1,425
Capital Expenditures According to Our Plan Cost Assumptions(4)	11,592	12,397	13,509
Property, plant and equipment	116,153	126,487	123,056
Refining, Transportation and Marketing			
Sales revenues to third parties(1)(2)	56,793	50,895	45,498
Intersegment sales revenues	16,655	16,142	17,090
Total sales revenues(2)	73,448	67,037	62,588
Net income (loss)(3)	2,393	4,235	5,746
Capital Expenditures According to Our Plan Cost Assumptions(4)	1,107	1,284	1,168
Property, plant and equipment	27,356	33,400	35,515
Gas and Power			
Sales revenues to third parties(1)(2)	8,842	9,347	6,911
Intersegment sales revenues	3,427	3,027	2,490
Total sales revenues(2)	12,269	12,374	9,401
Net income (loss)(3)	480	1,915	732
Capital Expenditures According to OurPlan Cost Assumptions(4)	433	1,127	717
Property, plant and equipment	11,057	13,231	13,094
Distribution			
Sales revenues to third parties(1)(2)	27,604	27,151	27,507
Intersegment sales revenues	356	416	420
Total sales revenues(2)	27,960	27,567	27,927
Net income (loss)(3)	344	521	67
Capital Expenditures According to Our Plan Cost Assumptions(4)	136	109	139
Property, plant and equipment	1,529	1,862	1,936

(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.

Liquidity and Capital Resources

Overview

Our principal uses of funds in 2018 were for debt service obligations (US$39,854 million), including pre-payment of debt, and acquisition of PP&E and intangibles assets (US$12,021 million). We met these requirements with cash provided by operating activities (US$26,353 million), proceeds from financing (US$10,950 million) and cash provided by the disposal of assets (US$5,791 million).

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As of December 31, 2018, our foreign currency debt totaled US$68,167 million, representing 81% of our total financial debt. When compared to 2017, our debt denominated in foreign currency decreased by 22% mainly reflecting repurchase of global bonds and pre-payment of debts during 2018.

In 2019, our major cash needs are to meet our budgeted Capital Expenditures According to Our Plan Cost Assumption for the year, currently amounting to US$16.2 billion, and to make principal and interest payments of US$7,360 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 2019 and going forward in the following ways: (i) moving forward with our portfolio management program and continuing with partnerships and divestments driven by active portfolio management; (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.

On January 31, 2019, we issued simple, non-convertible, unsecured debentures amounting to US$929million (R$ 3,600 million), which settled on February 12, 2019.

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.

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.

In 2019, S&P and Fitch upgraded our stand-alone credit profile ratings (S&P two-notches upgrade, from BB- to BB+, and Fitch one-notch upgrade, from BB- to BB, both with stable perspective), maintaining our global rating at BB-. This upgrade was awarded as a result of the overall improvement in our operating and financial performance.

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Government Regulation

As a federal state-owned company, we are subject to certain rules that limit our investments, and we are required to submit our annual capital expenditures budget (*Orçamento Anual de Investimentos*, or OAI) to the ME (former MPDM) and the MME. Following the review by these governmental authorities, the Brazilian Congress must approve our 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.

Credit operations promoted by us, our Brazilian subsidiaries or non-Brazilian subsidiaries, including PGF, 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.

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 2018, the resources needed to fund the acquisition of PP&E and intangibles assets (US$12,021 million) and service our debt (US$39,854 million) were met by cash flow from operations (US$26,353 million), proceeds from financing (US$10,950 million) and cash provided by the disposal of assets (US$5,791 million). As of December 31, 2018, our balance of cash and cash equivalents amounted to US$13,899 million, compared to US$22,519 million as of December 31, 2017 and our balance of government bonds and time deposits with maturities of more than three months was US$1,083 million as compared to US$1,885 million as of December 31, 2017.

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$14,982 million as of December 31, 2018 as compared to US$24,404 million as of December 31, 2017.

Net cash provided by operating activities decreased by 3% to US$26,353 million from US$27,112 million, primarily reflecting the payment of two installments of the agreement to settle the Class Action and lower sales volumes, which were partially offset by higher margins in domestic sales of oil products and oil exports.

In 2018, proceeds from financing totaled US$10,950 million principally reflecting: (i) funds raised from the domestic and international banking market in the amount of US$7,513 million maturing from 4.5 to 6.5 years; (ii) global notes issued in the capital markets in the amount of US$1,962 million and maturing in 2029; and (iii) proceeds from Export Credit Agency financing amounting to US$1,041 million.

Proceeds in 2018 from disposals of assets totaled US$5,791million were used for repayment of financing (and interest payments) and for the acquisition of PP&E and intangibles assets. See Note 10 to our audited consolidated financial statements for further information regarding disposals of assets as part of our partnerships and divestments. For further information on our partnerships and divestments, please see Item 4. Information on the Company Overview of the Group.

The uses of cash were primarily for the acquisition of PP&E and intangibles assets and investments in operating units, which totaled US$12,021 million in 2018, representing a 12% decrease when compared to 2017 (US$13,639 million).

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Our board of directors proposed distribution of dividends in 2018, in the amount of US$1,850 million, most of it proposed as interest on capital. For further information, please see Item 8 Financial Information Dividend Distribution.

Free Cash Flow

We use free cash flow as a supplemental measure to assess our liquidity and support leverage management. This measure is not defined under IFRS and should not be considered in isolation or as a substitute for cash and cash equivalents calculated in accordance with IFRS. Additionally, it may not be comparable to the free cash flow of other companies.

Our free cash flow comprises net cash provided by operating activities less acquisition of PP&E and intangibles assets, investments in investees and dividends received, as presented below:

	Jan-Dec	
	2018	**2017**
Reconciliation of Free Cash Flow		
Net cash provided by (used in) operating activities	26,353	27,112
Acquisition of PP&E and intangibles assets, investments and dividends received	(11,257)	(13,262)
Free Cash Flow	**15,096**	**13,850**

Our free cash flow in 2018 increased by 9%, primarily reflecting lower investments in PP&E and intangible assets. Our free cash flow has remained positive for the last four years.

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, 2018, our total debt due in the short-term, including accrued interest, amounted to US$3,667 million, compared to US$7,001 million as of December 31, 2017.

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$80,508 million as of December 31, 2018, compared to US$102,045 million as of December 31, 2017. This decrease was primarily due to repurchase of global bonds and 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 debt by source and other information.

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The following international debt issues are included in these figures at December 31, 2018:

Notes	Carrying amount as of December 31, 2018 (US$ million)
PGF s Floating Rate Global Notes due 2020	84
PGF s 3.750% Global Notes due 2021	324
PGF s 5.375% Global Notes due 2021(*)	1,110
PGF s 8.375% Global Notes due 2021	899
PGF s 5.875% Global Notes due 2022(*)	685
PGF s 6.125% Global Notes due 2022	1,306
PGF s 4.250% Global Notes due 2023	517
PGF s 4.375% Global Notes due 2023	3,099
PGF s 6.250% Global Notes due 2024	2,432
PGF s 4.750% Global Notes due 2025	910
PGF s 5.299% Global Notes due 2025	3,562
PGF s 6.250% Global Notes due 2026(*)	881
PGF s 8.750% Global Notes due 2026	2,970
PGF s 7.375% Global Notes due 2027	3,880
PGF s 5.999% Global Notes due 2028	4,795
PGF s 5.375% Global Notes due 2029	524
PGF s 5.750% Global Notes due 2029	1,868
PGF s 6.625% Global Notes due 2034	757
PGF s 6.875% Global Notes due 2040(*)	1,105
PGF s 6.750% Global Notes due 2041(*)	1,259
PGF s 5.625% Global Notes due 2043	750
PGF s 7.250% Global Notes due 2044	1,755
PGF s 6.850% Global Notes due 2115	2,019

(*) Originally issued by PifCo.

Net Debt/Adjusted EBITDA Metric

The Net debt/Adjusted EBITDA ratio is an important metric used in our 2019-2023 Business Plan that supports our management in assessing the liquidity and leverage of Petrobras Group. All of the metrics included in our 2019-2023 Business Plan are in *reais*. We have reached our 2.5 target and will keep working in order to reduce our ratio to the level of the main oil and gas companies.

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.

In calculating Adjusted EBITDA for 2018, we adjusted our EBITDA for the year by adding foreign exchange gains and losses resulting from provisions for legal proceedings denominated in foreign currencies. Legal provisions in foreign currencies primarily consist of Petrobras s portion of the class action settlement provision created in December

2017. The foreign exchange gains or losses on legal provisions are presented in other income and expenses for accounting purposes but management does not consider them to be part of our primary business. In addition, they are substantially similar to the foreign exchange effects presented within net finance income. No adjustments have been made to the comparative measures presented as amounts were not significant in these periods.

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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 three 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 forth in Note 2 to our audited consolidated financial statements ended December 31, 2018 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 results in *reais* and U.S. dollars. However, we are pursuing 1.5 target based on our net debt and Adjusted EBITDA computed in *reais*, as described in Item 4. Information on the Company Information on the Company 2040 Strategic Plan and 2019-2023 Business Plan.

The following table presents, in both currencies, the reconciliation for 2018 and 2017 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:

	2018	2017	2018	2018
	(R$ million)		(US$ million)	
Cash and cash equivalents	**53,854**	**74,494**	**13,899**	**22,519**
Government securities and time deposits (maturity of more than three months)	4,198	6,237	1,083	1,885
Adjusted cash and cash equivalents	58,052	80,731	14,982	24,404
Current and non-current debt Gross Debt	**326,876**	**361,483**	84,360	**109,275**
Net Debt	**268,824**	**280,752**	69,378	**84,871**
Net cash provided by operating activities OCF	**95,846**	**86,467**	26,353	**27,112**
Income taxes	(17,078)	(5,797)	(4,684)	(1,828)
Impairment of trade and others receivables	324	2,271	102	708
Trade and other receivables, net	(4,631)	(3,140)	(1,191)	(978)
Inventories	(7,206)	(1,130)	(1,994)	(336)
Trade payables	3,343	(160)	804	(62)
Deferred income taxes, net	2,787	1,452	764	467
Taxes payable	(1,389)	6,911	(312)	2,153
Others	4,844	9,503	1,362	2,949
Adjusted EBITDA	**114,852**	**76,557**	**31,502**	**24,039**

Gross debt net of cash and cash equivalents / OCF ratio	**2.85**	**3.32**	**2.67**	**3.20**
Net debt/Adjusted EBITDA ratio	**2.34**	**3.67**	**2.20**	**3.53**

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Our Net debt/Adjusted EBITDA ratio computed in *reais* decreased from 3.67 to 2.34, as a result of the combination of an increase in our operational performance, reflecting on EBITDA, and a decrease on our net debt, as our resources generated from operations were more than sufficient to cover our investments. We have reached our 2.5 target and will continue working in order to reach a level more consistent with oil and gas industry standards.

In the same way, our Net debt/Adjusted EBITDA ratio computed in US dollar decreased from 3.53 at December 31, 2017 to 2.20 at December 31, 2018 reflecting the increase of our Adjusted EBITDA over the decrease of our net debt.

Off Balance Sheet Arrangements

As of December 31, 2018, we had no off-balance sheet arrangements that have, or are reasonably likely to have, a material effect on our financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources.

Uses of Funds

Capital Expenditures According to Our Plan Cost Assumptions

We disbursed a total of US$13,439 million in 2018, a 11% decrease when compared to our capital expenditures of US$15,084 million in 2017. In line with our previous 2018-2022 Plan, our capital expenditures in 2018 were primarily directed toward the most profitable investment projects relating to oil and gas production. Of this amount, US$11,592 (86%) relates to E&P business.

These expenditures are based on our Plan Cost Assumptions and financial methodology, and the following table sets forth a breakdown of them for each of our business segments for 2018, 2017 and 2016:

	For the Year Ended December 31,		
	2018	2017	2016
	(US$ million)		
For the Year Ended December 31			
Exploration and Production	11,592	12,397	13,509
Refining, Transportation and Marketing	1,107	1,284	1,168
Gas and Power	433	1,127	717
Distribution	136	109	139
Biofuel	16	35	96
Corporate	155	132	230
Total	**13,439**	**15,084**	**15,859**

We announced projected Capital Expenditures According to Our Plan Cost of US$84.1 billion for the 2019 2023 period. For further information on our 2019-2023 Business Plan, see Item 4. Information on the Company 2040 Strategic Plan and 2019-2023 Business Plan. We plan to meet our budgeted Capital Expenditures According to Our Plan Cost Assumptions primarily through cash flow from our operations and through partnerships and divestments. Our actual Capital Expenditures According to Our Plan Cost Assumptions may vary substantially from the projected numbers set forth above as a result of market conditions and the cost and availability of the necessary funds.

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Dividends

Our board of directors proposed distribution of dividends in 2018, in the amount of US$1,850 million, most of it proposed as interest on capital. See Note 24.6 to our audited consolidated financial statements.

For more information on our dividend policy see Mandatory Distribution and Payment of Dividends and Interest on Capital in Item 10. Additional Information Memorandum and Articles of Incorporation.

Contractual Obligations

The following table summarizes our outstanding contractual obligations and commitments at December 31, 2018:

	Payments Due by Period				
	Total	**< 1 year**	**1-3 years**	**3-5 years**	**> 5 years**
			(US$ million)		
Contractual obligations					
Balance sheet items(1)(5)**:**					
Debt obligations(2)	84,175	3,667	10,933	22,268	47,307
Finance lease obligations	185	23	33	20	109
Provision for decommissioning costs (3)	16,064	659	790	859	13,756
Total balance sheet items	100,424	4,349	11,756	23,147	61,172
Other long-term contractual commitments					
Natural gas ship-or-pay (4)	20,660	1,324	2,638	2,638	14,065
Service contracts	37,521	14,742	9,349	3,226	10,204
Natural gas supply agreements (4)	7,859	1,233	2,454	2,751	1,421
Operating leases(6)	95,378	11,132	17,480	13,693	53,073
Purchase commitments	7,730	4,730	2,116	552	332
Total other long-term commitments	169,148	33,161	34,037	22,855	79,095
Total	**269,572**	**37,510**	**45,793**	**46,002**	**140,267**

(1) Excludes the amount of US$35,405 million related to our pension and medical benefits obligations, which are partially funded by US$12,655 million in plan assets. Information on employees post-retirement benefit plans, including a schedule of expected maturity of pension and medical benefits obligations, is presented in Note 23 to our audited consolidated financial.

(2) Includes accrued interest, short-term and long-term debt (current and non-current portions). Information about our future interest and principal payments (undiscounted) for the coming years is presented in Note 34.6 to our audited consolidated financial statements.

(3) Includes US$931 million of liabilities related to assets classified as held for sale.

(4) The current import contract is expected to terminate in December 2019, but it will be automatically extended until the entire contracted volume be taken by Petrobras up to, at least, April 2022.

(5) Our Brazilian oil and gas agreements require us to invest at least 1% of our gross revenue originating from high productivity oil fields on research and development.

(6) IFRS 16 standard, effective as of January 1, 2019, eliminates the classification of leases as either operating or finance leases. For more information on IFRS 16, see Item 5.Operating and Financial Review and

Prospects Critical Accounting Policies and Estimates and Note 6 to our audited consolidated financial statements.

Critical Accounting Policies and Estimates

Information about those areas that require the most judgment or involve a higher degree of complexity in the application of the accounting policies that currently affect our financial condition and results of operations is provided in our audited consolidated financial statements. See Note 5 Critical accounting policies: key estimates and judgments to our audited consolidated financial statements. Additional information about our accounting policies and new accounting standards and interpretations are provided in Notes 4 and 6 to our audited consolidated financial statements.

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The accounting estimates we make in these contexts require us to make assumptions about matters that are highly uncertain. Note 5 to our audited consolidated financial statements addresses the estimates that we consider most significant based on the degree of uncertainty, the potential events that may negatively affect our estimates and the likelihood of a material impact if we used a different estimate. These assumptions are based on past transactions and other relevant information and are periodically reviewed by our management. Actual results could differ from these estimates.

The following addresses only those estimates that we consider most important based on the degree of uncertainty and the likelihood of a material impact if we used a different estimate. There are many other areas in which we use estimates about uncertain matters, but the reasonable likelihood of changes based on the use of different estimates in those cases is not material to our financial presentation.

Oil and gas reserves

Note 5.1 to our audited consolidated financial statements addresses qualitative information on oil and gas reserves estimates, such as uncertainties associated with the methods and assumptions involved in determining oil and gas reserves, as well as estimates underlying the process through which we determine these reserves and the main impacts of these in our audited consolidated financial statements. Reserve quantities information, such as annual changes in proved reserves, including quantitative data and qualitative discussion, is presented in the Supplementary information on Oil and Gas Exploration and Production (unaudited) section of our audited consolidated financial statements.

Impairment testing

Information on impairment testing is presented in detail in our audited consolidated financial statements. It is regarded as a significant accounting policy, as described in detail in Notes 4.10 and 4.11 to our audited consolidated financial statements, as well as a critical accounting estimate. For information about the impairment of certain of our assets, see Item 5. Operating and Financial Review and Prospects Results of Operations 2018 compared to 2017 and Item 5. Operating and Financial Review and Prospects Results of Operations 2017 compared to 2016, and Notes 5.2 and 14 to our audited consolidated financial statements.

Note 5.2 to our audited consolidated financial statements describes the key assumptions for impairment testing of our property, plant and equipment and intangible assets: average Brent prices and *real*/U.S. dollar average exchange rate. Note 5.2 also addresses the process through which we estimate these assumptions, which takes into account our 2019-2023 Plan and our strategic plan, and discusses the related uncertainties and potential events that we reasonably expect could negatively affect our assumptions. For further information, see Item 3. Key Information Risk Factors Business Risks We are exposed to the effects of fluctuations in the prices of oil, gas and oil products.

Identifying cash-generating units (CGUs) is also a critical accounting policy as described in Note 5.3 to our audited consolidated financial statements. The aggregation of assets into CGUs requires management judgment based on the consideration of certain assumptions and our business and management model. Note 5.3 addresses the underlying assumptions for the determination of our operating segment CGUs.

A comprehensive disclosure about impairments and the impacts of impairment testing for 2018, 2017 and 2016 is presented in Note 14 to our audited consolidated financial statements, which also includes impairment related to assets held for sale and impairment losses on equity-method investments. For further information, see Item 3. Key Information Risk Factors Business Risks Developments in the economic environment and 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.

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Pension and other post-retirement benefits

As set out in Note 4.17 to our audited consolidated financial statements, actuarial commitments related to post-employment defined benefit plans and health-care plans are based on actuarial calculations that are revised annually by an independent qualified actuary. The most significant financial and demographic assumptions when measuring the post-retirement benefits recognized in our audited consolidated financial statements are described in Note 5.4 to our audited consolidated financial statements. Note 23 to our audited consolidated financial statements presents a comprehensive disclosure on our net actuarial liability, describing qualitative and quantitative information about our main defined pension and health care plans, including the changes in the amounts recognized in our audited consolidated financial statements, a sensitivity analysis of the defined benefit plans and detailed data concerning actuarial assumptions.

Estimates related to contingencies and legal proceedings

As described in Note 5.5 to our audited consolidated financial statements, we are a defendant in numerous legal proceedings involving issues arising from the normal course of our business. This note addresses the process through which we estimate the amounts and the probability of outflow of resources, which are based on reports and technical assessments from legal advisors and on our management s assessment. Note 31 to our audited consolidated financial statement provides information regarding provisions for legal proceedings, judicial deposits made in connection with legal proceedings, as well as detailed disclosure about lawsuits or proceedings for which we are unable to make a reliable estimate of the expected financial effect that might result from resolution of the proceeding.

Decommissioning costs estimates

As described in Note 4.14 to our audited consolidated financial statements, we accrue as part of the cost of an asset, a corresponding liability in the form of estimated costs of future decommissioning obligations. This amount is based on the present value of the expected future cash outflows associated with performing environmental restoration, and dismantling and removing a facility when we terminate its operations, discounted at a risk-adjusted rate.

Note 5.6 to our audited consolidated financial statements outlines the main uncertainties when performing the complex calculation of estimating decommissioning costs and Note 20 to our audited consolidated financial statements provides quantitative and qualitative information about the provision for decommissioning costs.

Deferred income taxes

Deferred income taxes are recognized on temporary differences between the tax base of an asset or liability and its carrying amount. Note 4.16 to our audited consolidated financial statements provides information on the recognition of deferred income taxes.

As described in Note 5.7 to our audited consolidated financial statements, deferred income tax assets involve significant estimates and judgments by our management, as deferred tax assets are recognized to the extent that it is probable that the entity will have sufficient taxable profit in future periods. This note also addresses the assumptions used when forecasting future taxable profit, supported by our 2019-2023 Business Plan, and mainly driven by Brent crude oil prices, foreign exchange rates and our projected net finance expenses (income).

Additionally, Note 21.5 to our audited consolidated financial statements presents the changes in the deferred income taxes and their expected timing of reversal.

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Cash flow hedge accounting involving our future exports

As set out in Note 4.3.6 to our audited consolidated financial statements, we have designated cash flow hedging relationships in which the hedged items are foreign exchange gains or losses of our highly probable future U.S. dollar-denominated future export revenues, and the hedging instruments are foreign exchange gains or losses from proportions of our long-term debt obligations denominated in U.S. dollars. The risk hedged is the effect of changes in exchange rates between the U.S. dollar and our functional currency, the *real* as both items are exposed to the *real*/U.S. dollar foreign currency risks at their respective spot exchange rates. See also Item 3. Key Information Risk Factors Risks Relating to Our Operations 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.

Note 5.8 to our audited consolidated financial statements addresses how we estimate highly probable future exports. Note 5.1d) to our audited consolidated financial statements also describes the impacts of oil and gas reserves estimates on highly probable future exports designated in cash flow hedging relationships.

Note 33.2 to our audited consolidated financial statement contains further information on how we designate these cash flow hedging relationships, their impact on our audited consolidated financial statements, such as the amounts recognized in our equity and our statement of income for the last fiscal years, as well as a schedule of the expected recycling of cumulative foreign exchange gains or losses from equity to our income statement in future periods, among other detailed information.

Write-off for overpayments incorrectly capitalized

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. To account for these overpayments, we developed an estimation methodology, as set out in Note 3 to our audited consolidated financial statements, which involves a significant degree of uncertainty. As we also describe in Note 5.9 to our audited consolidated financial statements, we continue to monitor the ongoing investigations and the availability of other information concerning the amounts it may have overpaid in the context of the payment scheme and, if reliable information becomes available that indicates with sufficient precision that our estimate should be modified, we will evaluate materiality and, if so, adjust. However, we believe we have used the most appropriate methodology and assumptions to determine the amounts of overpayments incorrectly capitalized and there is no evidence that would indicate the possibility of a material change in the amounts written-off.

Allowance for impairment on financial assets

As described in Notes 4.3.1 and 5.10 to our audited consolidated financial statements, we use judgment with respect to both inputs and assumptions, such as risk of default, expectation of recovery, current and forward-looking information and credit risk, in order to measure the expected credit loss on financial assets.

The measurement of credit loss comprises the difference between all contractual cash flows that are due to us and all the cash flows that we expect to receive, discounted at the original effective interest rate weighted by the probability of default.

We recognize credit losses provision primarily on trade receivables, as presented in Note 8 to our audited consolidated financial statements. Note 8.4 to our audited consolidated financial statements provides further discussion on the provision for receivables from the isolated electricity system in the northern region of Brazil.

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New Accounting Standards

Impacts of New International Financial Reporting Standards

On January 1, 2018, two new accounting standards and an interpretation issued by IASB became effective: IFRS 9 Financial Instruments, IFRS 15 Revenue from Contracts with Customers and IFRIC 22 Foreign Currency Transactions and Advance Consideration.

IFRS 9 sets out, among others, new requirements for classification and measurement of financial assets, measurement and recognition of expected credit losses on financial assets, changes in the terms of financial assets and financial liabilities, hedge accounting and related disclosures. We did not restate the comparative information and presented the impacts related to our first application of this standard, which are immaterial, in retained earnings at January 1, 2018.

IFRS 15 establishes a comprehensive approach to determine when and in what amount, revenue from a contract with a customer should be recognized. We initially applied this standard retrospectively with the cumulative effect recognized at the date of initial application. The changes in our accounting policies arising from IFRS 15 only affect the way certain revenues from contracts with customers are disclosed within the statement of income and do not impact net income.

IFRIC 22 applies to a foreign currency transaction when an entity recognizes a non-monetary asset or non-monetary liability arising from the payment or receipt of advance consideration before the entity recognizes the related asset, expense or income. We applied this interpretation prospectively from its effective date and the impact on our audited consolidated financial statements is immaterial.

For additional information on new requirements, changes in accounting policies and impacts brought up by IFRS 9, IFRS 15 and IFRIC 22, see Note 2.3 to our audited consolidated financial statements ended December 31, 2018.

New International Financial Reporting Standards not adopted until December 31, 2018

IFRS 16 Leases became effective at January 1, 2019, setting out new principles for the recognition, measurement, presentation and disclosure of leases, from the lessees and lessors perspectives. Among the changes arising from IFRS 16, this standard eliminates the classification of leases as either operating leases or finance, providing for a single lessee accounting model in which all leases result in the recognition of a right-of-use asset and a lease liability.

According to the transition provisions set forth this standard, we will apply it retroactively with the cumulative effect of its initial application recognized at January 1, 2019, without restatement of prior period information. The right-of-use assets will be presented as property, plant and equipment (PP&E), primarily comprising the following underlying assets: drilling rig and other exploration and production equipment, vessels and support vessels, helicopters, lands and buildings. The lease liabilities will be presented as finance debt.

We estimate that our PP&E and Finance debt will increase by approximately by US$ 28 billion, due to changes resulting from the initial application of the recognition, measurement and disclosure provision under IFRS 16. As the right-of-use assets will be recognized at an amount equal to the lease liability, the change will not affect equity.

The changes arising from IFRS 16 adoption will affect, prospectively, the Net Debt/Adjusted EBITDA ratio and the impacts on this metric in 2019 will be provided only for comparative purposes. We do not intend to implement changes in its business practice and there was no need to renegotiate covenant clauses in finance debts.

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IFRIC 23 Uncertainty over Income Tax Treatments also became effective in January 1, 2019, providing for clarification on how to apply the recognition and measurement requirements when there is uncertainty over income tax treatments. According to the transition provisions set forth in this interpretation, we will apply it retrospectively with the cumulative effect of its initial application recognized at January 1, 2019 within equity. We do not identify any material impact arising from IFRIC 23.

For additional information about impacts arising from the application of new accounting standard, see Note 6 to our audited consolidated financial statements.

Research and Development

We are deeply committed to research and development as a means to extend our reach to new production frontiers and achieve continuous improvement in operations. We have a history of successfully developing and implementing innovative technologies, including the means to drill, complete and produce wells in increasingly deep water.

Our Brazilian oil and gas agreements require us to invest at least 1% of our gross revenues originating from high productivity oil fields on research and development, of which up to half is invested in our research facilities in Brazil and the remainder is invested in Brazilian universities and institutions accredited by the ANP for this purpose. We believe that this makes us one of the largest research and development investors among the world s major oil companies.

Digital technologies have been increasingly considered in our research and development activities. Currently, about 27% of our research and development portfolio includes digital technologies such as big data, high performance computing and artificial intelligence, in the search for solutions to support the development of our business.

Our research and development activities are based on strategic choices that we make regarding technological development, which we call our Technological Focus, namely:

- Process safety, integrity and reliability of plants and equipment;
- Protection of our values in environmental and social matters;
- Opening of new exploratory frontiers;
- Integration, increased accessibility and quality of reservoir and oil system databases;
- Increase of reservoir recovery factor;
- Reduction of the oil price break-even point and of the operating cost;

Assets decommissioning;

Flexibility of the downstream productive chain;

Value aggregation to downstream products;

Productive processes optimization and efficient use of energy;

Integration and optimization of the logistic chain; and

Transition to low carbon matrix.

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In the three-year period ended December 31, 2018, our research and development operations were awarded 186 patents in Brazil and 94 overseas. Our portfolio of patents covers all of our areas of activities.A dedicated research and development facility in Rio de Janeiro, Brazil, was founded in 1963. As a result of its expansion in 2010, this is one of the largest facilities of its kind in the energy sector and the largest in the southern hemisphere, with laboratories especially dedicated to pre-salt technologies. As of December 31, 2018, this facility had 1,300 employees, 90.2% of which are dedicated to research and development.

We also have several semi-industrial scale prototype plants throughout Brazil that are in proximity to our industrial facilities and that are aimed at scaling up new industrial technologies at reduced costs. In 2018, we conducted research and development through joint research projects with more than 120 universities and research centers in Brazil and abroad and participated in technology exchange and assistance partnerships with several oilfield service companies, small technology companies and other operators.

Trends

In 2018, the Brazilian economy grew approximately 1.1%, continuing the slow process of recovery after the crisis of 2015. On the supply side, industry and services were essential for this recovery, while the demand side was driven by investment and consumption. Amid trade disputes between the U.S. and China and the electoral uncertainties in Brazil, there was a reduction in the contribution of the external sector and in the industry confidence index, with negative impacts on economic dynamics.

The exchange rate was the macroeconomic variable most affected by the worsening of the international scenario and the electoral uncertainty. At the beginning of the year, the *real*/U.S. dollar exchange rate was 3.27, and it reached its maximum in September (*real*/U.S. dollar at 4.18), decreasing again after the election results. The annual average exchange rate was 3.66.

Rising vehicle ownership rates, population growth and the need to transport goods from production sites to end-consumers connect the anticipated medium and long-term economic growth with additional demand for oil products. However, future economic downturns, internationally as well as in Brazil, could negatively affect these assumptions. Until 2014, we responded to the incremental growth in demand by increasing oil and oil products imports and by improving the output of our refineries since our oil production and our refining capacity were not enough to meet the increased demand. This means that the oil product demand in Brazil surpassed the refining output, leading Brazil to import oil products in order to meet domestic consumption needs. Large volumes of crude oil and oil products imports increased our cost of sales and reduced our refining margins in those years, because we had not fully adjusted our domestic prices to reflect the higher international oil cost.

However, this dynamic changed in 2015. The fall in oil prices was a consequence of an over supplied market, implicating in a strong demand for oil products, especially gasoline. In that scenario, refining margins were higher when compared to the previous periods. In the following years, 2016 and 2017, oil prices remained at low levels, sustaining global oil demand and high downstream profitability.

Additionally, at the end of 2017, the Brazilian federal government put in place a new policy (RenovaBio) to curb CO_2 emissions from the transport sector by fostering biofuels usage. This policy set a target of a 10.1% reduction in carbon intensity by 2028 relative to 2017. As an outcome of this policy, we expect that biofuels consumption will increase in Brazil over the long term, resulting in a reduction in the pace of growth of Brazilian gasoline and diesel demand.

With respect to international oil market trends, after showing low levels in the first semester of 2017, the annual average price was US$54.34 per barrel, an increase of 23% compared to the previous year. In 2018, the average price

of crude oil further increased, reaching US$71.15 per barrel, showing an increase of 33% over the average price of 2017. After four years, the Brent price surpassed the plateau of US$ 80/bbl, peaking at US$ 86.09/bbl in October 2018, its highest level since 2014.

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In the first months of 2018, the compliance level to Organization of the Petroleum Exporting Countries (OPEC) production cuts surpassed 100% involuntarily due to production disruptions in several OPEC member countries. Simultaneously, the U.S. unilaterally withdrew from the Joint Cooperative Plan of Action (JCPOA), indicating new economic sanctions against Iran, which would affect its production, beginning in November 2018. In July 2018, concerned with the possibility of a production shortage, during the 174th ordinary meeting and the 4th Ministerial OPEC/Non-OPEC meeting, OPEC and Russia agreed to increase their oil supply in order to offset oil production declines in Venezuela and the instability in other countries, such as Angola, Libya and Nigeria and the new sanctions on Iran.

Despite the agreed decision, oil prices continued to rise in the following months. Higher production from Saudi Arabia and other OPEC members resulted in decreasing levels of spare production capacity. Furthermore, logistical bottlenecks slowed down the expansion of U.S. unconventional production in the Permian play. From August to September, several importers of Iranian oil started to reduce their volumes in preparation for the U.S. sanctions that would be effective in November.

In early November, the U.S. confirmed sanction waivers for countries that were not fully prepared to stop importing oil from Iran. Eight countries were awarded with six months waivers (China, India, Turkey, Taiwan, South Korea, Italy, Japan and Greece), allowing a greater availability of crude oil in the international market. This decision, coupled with the increasing production from Saudi Arabia and Russia reverted the oil market trend. The expectation of an oversupplied market and increasing stocks of crude in the U.S. put downward pressure on oil prices. The price of crude oil decreased from its peak in October to a low of US$49.73 in December.

In order to sustain the balance of the international oil market in December 2018, in its 175th Ordinary Meeting, OPEC decided to cut the group s production by 800 Mbpd. According to the decision, the baseline for this production cut will be the OPEC oil production of last October. This agreement will take place from January to June 2019. The OPEC countries managed to renew the agreement with non-OPEC countries to cut their production by an additional volume of 400 Mbpd, in the same basis, amounting to a total cut of 1.2 MM bpd, between OPEC and Non-OPEC members. This decision halted the decline in oil prices by the end of the year.

Each year, we review and revise our long-term business and management plan in order to adapt to changing market conditions and to revise our capital expenditure levels in accordance with updated scenarios and projected cash flows.

Item 6. Directors, Senior Management and Employees

Directors and Senior Management

Directors

Our board of directors, which we refer to as the *conselho de administração*, is composed of a minimum of seven and maximum eleven members and is responsible for, among other things, establishing our general business policies. The members of the board of directors are elected at the annual general meeting of shareholders, including the employee representative previously selected by means of a separate voting procedure. The term of office may not exceed two years and members may be re-elected at most three consecutive times. Our bylaws were amended in April 2018 to expressly stipulate that, in compliance with the unified management term of its members, the composition of board of directors shall be alternated in order to allow the permanent renewal of the body, without compromising the history and experience with respect to the company´s business. For further information regarding the attributions and duties of our board of directors, see Exhibit 1.1 for a copy of our bylaws, which were further amended in November 2018.

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Under Brazilian Corporate Law, shareholders representing at least 10% of the company s voting capital have the right to demand that a cumulative voting procedure be adopted to entitle each common share to as many votes as there are board members and to give each common share the right to vote cumulatively for only one candidate or to distribute its votes among several candidates. Pursuant to regulations promulgated by the CVM, the 10% threshold requirement for the exercise of cumulative voting procedures may be reduced depending on the amount of capital stock of the company. For a company like ours, the applicable threshold is 5%. Thus, shareholders representing 5% of our voting capital may demand the adoption of a cumulative voting procedure.

Our bylaws enable (i) minority preferred shareholders that together hold at least 10% of the total capital stock (excluding capital stock held by the controlling shareholders) to elect and remove one member to our board of directors, in a separate voting procedure at the general meeting; (ii) minority common shareholders to elect and remove one member to our board of directors, if a greater number of directors is not elected by such minority shareholders by means of the cumulative voting procedure; and (iii) our employees to directly elect one member to our board of directors by means of a separate voting procedure, pursuant to Law No. 12,353/2010 and MPDM s Act No. 26; and, (iv) subject to the provisions of applicable law, the ME to elect and remove one member of our board of directors.

Our bylaws provide that, regardless of the rights above granted to minority shareholders, the Brazilian federal government always has the right to elect the majority of our directors, independently of their number. In addition, under Provisional Measure No.870/2019, one of the board members elected by the Brazilian federal government must be indicated by the Minister of the Economy. The maximum term for a director is two years, and re-election is permitted three times consecutively. In accordance with the Brazilian Corporate Law, the shareholders may remove any director from office at any time with or without cause at an extraordinary meeting of shareholders. Following an election of board members pursuant to the cumulative voting procedure, the removal of any board member by an extraordinary meeting of shareholders will result in the removal of all of the other members, after which new elections must be held.

In accordance with Law No. 13,303/2016 and Decree No. 8,945/2016, 25% of the members of our board of directors, and at least one member of our board of directors in case of adoption of multiple voting by minority shareholders, must comply with independence requirements. The rules of the B3 s State-Owned Enterprise Governance Program, or *Programa Destaque em Governança de Estatais,* requires a board of directors to be formed by at least 30% of independent members. The B3 Level 2 Regulation requires at least 20% of the members of the board of directors to be independent.

Our bylaws were amended in April, 2018, to provide that the board of directors must be composed, at least, of 40% (forty percent) independent members, in compliance with Law No. 13,303/2016 and Decree No. 8,945/2016, as well as the rules of the State-Owned Enterprise Governance Program from B3 and B3 Level 2 Regulation. The more stringent criteria prevails in case of divergence between the rules. See Item 9. The Offer and Listing B3 for further information on Level 2 listing segment.

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We currently have eleven directors. The following table sets forth certain information with respect to these directors:

Name	Date of Birth	Position	Current Term Expires	Business Address of Permanent Directors
Ana Lúcia Poças Zambelli (1)	November 25, 1972	Director	April 2020	Avenida Henrique Valadares, 28, Tower A, 19th floor, Centro, Rio de Janeiro, RJ ZIP code: 20.231-030
Clarissa de Araújo Lins (1)	April 12, 1967	Director	April 2020	Avenida Henrique Valadares, 28, Tower A, 19th floor, Centro, Rio de Janeiro, RJ ZIP code: 20.231-030
Danilo Ferreira da Silva (2)	September 22, 1982	Director	April 2020	Avenida Henrique Valadares, 28, Tower A, 19th floor, Centro, Rio de Janeiro, RJ
Eduardo Bacellar Leal Ferreira (1)	June 2, 1952	Chairman	(5)	Avenida Henrique Valadares, 28, Tower A, 19th floor, Centro, Rio de Janeiro, RJ
Jerônimo Antunes (1)	November 18,1955	Director	April 2020	Avenida Henrique Valadares, 28, Tower A, 19th floor, Centro, Rio de Janeiro, RJ ZIP code: 20.231-030
João Cox Neto (1)	May 2, 1963	Director	(5)	Avenida Henrique Valadares, 28, Tower A, 19th floor, Centro, Rio de Janeiro, RJ ZIP code: 20.231-030
Marcelo Mesquita de Siqueira Filho (3)	December 20, 1969	Director	April 2020	Avenida Niemeyer, 2, sala 201, Leblon, Rio de Janeiro, RJ ZIP code: 22.450-220
Nivio Ziviani	August 27, 1946	Director	(5)	Avenida República do Chile, 65, 24 floor, Centro, Rio de Janeiro, RJ ZIP code: 20031912
Roberto da Cunha Castello Branco (1)	July 20, 1944	Director	(5)	Avenida República do Chile, 65, 24 floor, Centro, Rio de Janeiro, RJ ZIP code: 20031912
Segen Farid Estefen (1)	January 20, 1951	Director	April 2020	Avenida Henrique Valadares, 28, Tower A, 19th floor, Centro, Rio de Janeiro, RJ ZIP code: 20.231-030
Sonia Julia Sulzbeck Villalobos (4)	June 6, 1963	Director	April 2020	Avenida Henrique Valadares, 28, Tower A, 19th floor, Centro, Rio de Janeiro, RJ ZIP code: 20.231-030

(1) Appointed by our controlling shareholder.
(2) Represents our employees.
(3) Appointed by the minority common shareholders.
(4) Appointed by the minority preferred shareholders.
(5) Term expires on the date of our next shareholders meeting, in April 2019.

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Ana Lúcia Poças Zambelli Mrs. Zambelli is a member of the board of directors at Petrobras, the appointment, remuneration and succession committee and the communication and social responsibility committee, and is the chairwoman of the finance committee. She sat as a member of the board of directors of Alcoa América Latina from 2012 to 2014, was senior commercial vice president of Maersk Drilling from 2015 to 2017, vice president of submarine operations and president of South America at Transocean from 2012 to 2015 and Brazil president of Schumberger from 2007 to 2011. Ms. Zambelli holds a degree in mechanical engineering from the Universidade Federal do Rio de Janeiro UFRJ, with a master s in petroleum engineering from Heriot Watt University and a post-graduate degree in leadership, innovation and technology from the Massachusetts Institute of Technology.

Clarissa de Araújo Lins Ms. Lins is a member of the board of directors at Petrobras, president of the health, safety and environment committee, a member of the strategic committee and the communication and social responsibility committee, and a permanent guest to the finance committee. She is a founding partner at Catavento, a consulting firm that specializes in strategy and sustainability. She specializes in the mapping of global trends and strategic vision and articulation with relevant parties, with an emphasis on the impact of energy transition and climate change on businesses. Additionally, Ms. Lins is the executive director of the Instituto Brasileiro de Petróleo, Gás e Biocombustíveis (IBP) as of April 2016, and an independent member of the sustainability committee at Vale, a statutory body to advise the Vale of board of directors, as of May 2017. She is also a fellow at Centros de Energia e de Infraestrutura do Centro Brasileiro de Relações Internacionais (CEBRI), as of July 2017. Ms. Lins was a member and president of the external review committee at Royal Dutch Shell from 2012 to 2015, with a focus on sustainability and strategy over the long-term. She was the executive director at Fundação Brasileira para Desenvolvimento Sustentável (FBDS), where she led the corporate sustainability department from 2004 to 2013. At Petrobras, she served as an executive manager of corporate strategy, and assistant to the CEO from 1999 to 2002, conducting the strategic planning process for the company. She was the special assistant to the presidency at Banco Nacional para o Desenvolvimento (BNDES) from 1995 to 1999, and advisor to the economy team at the Ministry of Economy from 1993 to 1994, during the elaboration of the Plano Real. She was also a member of the board of directors of the holding of Grupo Technos from 2008 to 2011. In 2015, Ms. Lins graduated from the administration advisors course from Instituto Brasileiro de Governança Corporativa (IBGC). Clarissa is an economist with bachelor s and master s degrees from Pontifícia Universidade Católica do Rio de Janeiro PUC Rio.

Danilo Ferreira da Silva Mr. Ferreira da Silva is a member of the board of directors at Petrobras. He is working in the engineering and technical operational support departments at the Paulínia refinery at Petrobras. Mr. Ferreira da Silva began his career at Petrobras in 2003, as a maintenance technician at Replan, where he assisted in the implementation of large industrial projects. Mr. Silva was a deliberative counselor from 2011 to 2012 at Fundação Petrobras de Seguridade Social (Petros), an assistant to the presidency from 2013 to 2015 and the administrative financial director from 2015 to 2016. Mr. Silva also acted as a member of the board of directors at Fras Le, from 2014 to 2015, Invepar, from 2015 to 2016, Iguatemi Shopping Centers, from 2016 to 2018, and Totvs, from 2015 to 2017. Mr. Ferreira da Silva is a graduate in social sciences and law from Pontifícia Universidade Católica de Campinas PUC-Campinas, holds a MBA in financial management from Fundação Getulio Vargas FGV with extension from Ohio University, and a global executive MBA from the Instituto Universitário of Lisbon in partnership with FGV. He is currently a candidate for a degree in pedagogy at Universidade Virtual do Estado de São Paulo Univesp.

Eduardo Bacellar Leal Ferreira Mr. Leal Ferreira has been a member of our board of directors since January 2019. He is a Fleet Admiral and was the Commander of the Brazilian Navy until January 2019. Before he held this post, Mr. Leal Ferreira served in the navy for 48 years in many different positions, having been the Commander in Chief of the Navy Fleet and the Commander of Brazil s National War College. He was Director of the Ports and Coasts area of the Brazilian Navy which is responsible for the technical supervision of maritime safety of all vessels in operation in Brazil, including platforms and support vessels. He was also an instructor at the US Naval Academy, Annapolis, in the United States. Mr. Leal Ferreira was trained at the Brazilian Naval School, the Brazilian Naval War College, and the

Naval War College of Chile.

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Jerônimo Antunes Mr. Antunes has been a member of our board of directors since May 2016 and served as chairman of the board from January 1 to January 30, 2019. He is currently an accounting professor at FEA/USP, where he has taught since 1999. Mr. Antunes has taught several MBA and accounting, auditing, finance and business management courses at FIPECAFI USP since 2000 and also teaches at other higher education institutions. He is chairman of the Statutory Audit Committee of Petrobras and of the Statutory Audit Committee of the Conglomerate Petrobras. He is also an independent member of the board of directors and president of the Audit Committee of the Companhia do Metropolitano de São Paulo (Metrô), and a member of the audit committees of Paranapanema S.A. and the Agência de Fomento do Estado de São Paulo (Desenvolve SP). Mr. Antunes has served as an independent auditor of companies for over 30 years. He has been contracted as an expert accountant in several disputes at the Brazil-Canada Chamber of Commerce and the Judiciary since 2005. He has previously served as an alternate member of our board of directors and was a member of the board of directors and a coordinator of the audit committee for Petrobras Distribuidora and Basic Sanitation Utility Company of the State of São Paulo Sabesp. Mr. Antunes received a bachelor s degree in accounting and business administration, a master s and a PhD in controlling and accounting from FEA/USP.

João Cox Neto Mr. Cox has been a member of our board of directors since January 2019. He is an economist with a specialization in petrochemical economics. He has had a prolific career as an executive, having served as President of Telemig Celular and President of Claro, and in other distinguished positions. Mr. Cox has vast experience as a member of the board of directors of various companies including Tim Brasil, where he is the chair of the board, Tim Participações, Embraer, Linx and Braskem. Mr. Cox received a degree from the University of Oxford, in the United Kingdom.

Marcelo Mesquita de Siqueira Filho Mr. Mesquita has been a member of our board of directors since August, 2016. He also chairs the Minority Shareholders Committee (COMIN), and is a member of the Finance Committee (COFIN) and the Communication and Social Responsibility Committee (CCRS). He is a non-executive board member at BR Home Centers S.A. and Tamboro Educacional S.A. He is a co-founding partner of Leblon Equities (since 2008) and co-manager of equity funds and of private equity investments. He has 27 years of experience in the Brazilian stock market, having worked 10 years at UBS Pactual (1998-2008) and 7 years at Banco Garantia (1991-1998). At UBS Pactual, he was the co-head of Brazilian Equity Capital Markets (2007-2008); co-head of Brazilian Equities (2005-2007); and head of Brazil Equity Research & Strategy Analysis (1998-2006). At Banco Garantia he was a commodities stocks analyst (1991-1997) and investment banker (1997-1998). Since 1995, he was appointed by investors as one of the leading analysts of Brazil according to several surveys made by Institutional Investor magazine. He was ranked #1 Brazil Analyst from 2003 to 2006 (#3 in 2002, #2 in 2001 and #3 in 2000). He was also ranked as #1 Stock Strategist in Brazil from 2003 to 2005. Mr. Mesquita worked in more than 50 transactions in the Brazilian stock market (IPOs), both in Garantia and UBS Pactual. Mr. Mesquita is 48 years old. He has a degree in Economics from the Pontifícia Universidade Católica do Rio de Janeiro PUC-Rio, in French Studies from Nancy University II and an OPM (Owner/President Management) from Harvard Business School HBS. He also holds a CPA-20 certification.

Nivio Ziviani Mr. Ziviani has been a member of our board of directors since March 2019. He is emeritus professor at UFMG. He has also been a member of the Brazilian Academy of Sciences since 2007, and of the Ordem Nacional do Mérito Científico in the Comendador class (2007) and the Grã-Cruz class (2018). Mr Ziviani has also been a member of the boards of directors of Parque Tecnológico da Cidade de Belo Horizonte since 2017 and Kunumi since 2016. At UFMG, he was a Member of the Research Chamber (1992-1995), CEPE (1992-1995), the University Council (1998-1999) and the FUNDEP Curator Council (1999-2001). At CNPq, he was the coordinator of the Advisory Committee on Computer Science (1991-1993, 1999-2001) and a member of the Multidisciplinary Articulation Committee (2000-2001). He is a Level 1A Productivity Fellow at CNPq, author of five books in the field of Algorithm Design and co-author of over 180 technical articles in the areas of algorithms, information retrieval, and machine

learning. Mr. Ziviani has trained more than 60 masters and doctoral students. An entrepreneur, he co-founded four startups: (1) Miner, established in 1998, the first Brazilian search engine, acquired by Grupo Folha de São Paulo/UOL in 1999; (2) Akwan, a search engine created in 2000 and acquired by Google Inc. in 2005 an acquisition from which Google created a R&D center for Latin America, located in Belo Horizonte; (3) Neemu, a search and price comparison company established in 2010 and acquired by Linx in 2015; (4) Kunumi established in 2016 and which produces machine learning knowledge technology. Mr. Ziviani holds a bachelor s degree in mechanical engineering from UFMG, a master s in information technology from PUC-Rio and a PhD in computer science from the University of Waterloo.

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Roberto da Cunha Castello Branco Dr. Castello Branco has been a member of our board of directors and the Chief Executive Officer of Petrobras since January 2019. Dr. Castello Branco was the Director of the Center for Economic Growth and Development Studies at FGV, from 2014 to 2018, Professor of Economics at the Escola de Pós-Graduação em Economia da Fundação Getúlio Vargas EPGE FGV, Vice President for the board of directors and member of the Audit Committee at Invepar S.A., from May 2017 to December 2018, a member of the board of directors of Guarulhos International Airport, from May 2018 to December 2018. He also served as member of the board of diretors, chair of the finance committee and member of the audit committee at Petrobras S.A. from May 2015 to April 2016, director of Vale S.A. from July 1999 to January 2014, member of the board of directors at ABRASCA, from 2009 to 2013, director of AMCHAM, Rio de Janeiro, from 2012 to 2013, member of the curator council at Fundação Getúlio Vargas FGV from 2012 -2013, vice-president for the Brazil-Canada Chamber of Commerce from 2012 to 2014, member of board of directors at IBEF, Rio de Janeiro, 2017, president of Instituto Brasileiro de Relações com Investidores from 2002 to 2003, Associate at Banco Pactual from 1997 to 1999, executive director of Banco InterAtlântico S.A. from 1994 to 1997, director of Banco Arbi S.A. from 1990 to 1994, executive director of Banco Boavista de Investimentos S.A. from 1985 to 1990, executive director of Banco Boavista S.A. from 1987 to 1990, director of Banco Central do Brasil from March 1985 to September 1985, Professor of Economics at the Escola de Pós-Graduação em Economia da Fundação Getúlio Vargas EPGE FGV from 1979 to 1985 and executive president of IBMEC from 1981-1983. He is the author of the book *Crescimento Acelerado e o Mercado de Trabalho: a Experiência Brasileira*, (Accelerated Growth and the Labor Market: the Brazilian Experience), and has published various academic articles in academic journals (Revista Brasileira de Economia (FGV), Economia Aplicada (USP), Pesquisa e Planejamento Econômico and Brazilian Economic Studies (IPEA) and several Brazilian newspapers (Valor Econômico, Globo, Folha de São Paulo and others). Dr. Castello Branco has been a lecturer at conferences held in Brazil and abroad (USA, UK, Canada, Hong Kong, Shanghai, Singapore and Sydney), including conferences at FGV, Fundação FHC, Harvard Business School, Chicago Booth School of Business and Kellogg Business School, Northwestern University. He has taught mining economics in a training programa at Vale S.A. for managers and analysts from 2014 to 2018, and economics for mineral resources for the MBA program at FGV in the ECEME-Escola de Comando e Estado Maior do Exército from 2016 to 2018. Dr. Castello Branco holds a PhD in economy from the post-graduate school of Fundação Getulio Vargas FGV which he attended 1973 to 1977 and was a Post-Doctoral Fellow in Economics at The University of Chicago from 1977 to 1978. Additionally, he participated in the executive training in change management at the Sloan School of Management, MIT in 2004 and the Leadership training at the International Institute for Management Development IMD in 2007.

Segen Farid Estefen Professor Estefen has been a member of our board of directors since May, 2015, and was chairman of the board of directors of Petrobras Distribuidora from November 2015 to April 2016. He is professor of ocean structures and subsea engineering at the Universidade Federal do Rio de Janeiro COPPE, where he held the position of dean from 1998 to 2001. He is also the general manager of the Subsea Technology Laboratory and the coordinator of the Ocean Renewable Energy Group, both at Universidade Federal do Rio de Janeiro COPPE, and is a member of the advisory committee of the Ocean, Offshore and Arctic Engineering division of the American Society of Mechanical Engineers (ASME), fellow of the Society for Underwater Technology SUT (UK) and member of the Academia Nacional de Engenharia ANE. Professor Estefen is a co-author of the Report on Renewable Energy Sources of the Intergovernmental Panel on Climate Change. He is the president of the Strategic Committee, member of the Safety, Environment and Health Committee, member of the Appointment, Remuneration and Succession Committee and member of the Communication and Social Responsibility Committee, all under the board of directors of Petrobras. He received a bachelor s degree in civil engineering from the Universidade Federal de Juiz de Fora UFJF, a master s degree in ocean engineering from Universidade Federal do Rio de Janeiro COPPE, a Ph.D. in civil engineering from Imperial College of Science, Technology and Medicine (London) and he was a post-doctoral research fellow at the Institute for Marine Technology, Norwegian University of Science and Technology.

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Sonia Julia Sulzbeck Villalobos Ms. Villalobos has been a member of the board of directors at Petrobras and a member of the Statutory Audit Committee since May 2018. She has 33 years of experience in the Brazilian stock market and in 1994 became the first person from South America to receive CFA credentials. Ms. Villalobos worked from 1985 to 1987 at Equipe DTVM, and from 1987 to 1989 at Banco Iochpe as an investment analyst. From 1989 to 1996, she worked at Banco Garantia as the head of the investment analysis department, where she was elected best analyst in Brazil by Institutional Investor Magazine in 1992, 1993 and 1994. She worked for Bassini, Playfair & Associates from 1996 to 2002 and was responsible for private equity in Brazil, Chile and Argentina. From 2005 to 2011, she worked for Larrain Vial as an asset manager. From 2012 to 2016, Ms. Villalobos worked as a founding partner and equity fund manager in Latin America for Lanin Partners. Since 2016, she has been a professor at Insper for post-graduate students in disciplines related to asset management and financial statement analysis. Since May 2016, she has been a member of the board of directors for Telefônica do Brasil. Ms. Villalobos has been a member of the board of directors for LATAM Airlines Group S.A. since August of 2018. She has also served as member of the board of directors for TAM Linhas Aéreas, Método Engenharia (Brasil), Tricolor Pinturas e Fanaloza/Briggs (Chile), Milkaut e Banco Hipotecario (Argentina). Ms. Villalobos holds a bachelor s degree in public administration and a master s degree in business administration with a focus in finance, both from the Escola de Administração de Empresas de São Paulo EAESP-FGV.

Executive Officers

Our board of executive officers, which we refer to as the *diretoria*, is composed of the Chief Executive Officer (CEO) and seven executive officers, and is responsible for our day-to-day management. Our executive officers are Brazilian citizens residing in Brazil. Pursuant to our bylaws, the board of directors elects the executive officers, including the CEO, and in electing executive officers to their respective areas, must consider personal qualification, expertise and specialization. The maximum term for our executive officers is two years, with no more than three consecutive re-elections allowed. The board of directors may remove any executive officer from office at any time with or without cause. Three of our current executive officers are experienced Petrobras career managers, engineers or technicians. For further information regarding our board of executive officers, see Exhibit 1.1 for a copy of our bylaws.

The following table sets forth certain information with respect to our executive officers:

Name	Date of Birth	Position	Current Term
Roberto da Cunha Castello Branco	July 20, 1944	Chief Executive Officer	March 2021
Rafael Salvador Grisolia(1)	February 16, 1966	Chief Financial Officer and Chief Investor Relations Officer / Interim Chief Strategy and Performance Officer	March 2019
Rafael Mendes Gomes	September 29, 1960	Chief Governance and Compliance Officer	March 2021
Eberaldo de Almeida Neto	November 19, 1962	Chief of Corporate Affairs Officer	March 2021
Anelise Quintão Lara	May 24, 1961	Chief Refining and Natural Gas Officer	March 2021
Carlos Alberto Pereira de Oliveira	September 11, 1957	Chief Exploration and Production Officer	March 2021
Rudimar Andreis Lorenzatto	January 06, 1965	Chief Production Development and	March 2021

Technology Officer

(1) On March 18, 2019 our CEO, Mr. Castello Branco, appointed Ms. Andrea Marques de Almeida as our Chief Financial and Investor Relations Officer (CFO) and Mr. Rafael Salvador Grisolia as CEO of our subsidiary Petrobras Distribuidora. Pursuant to our bylaws, the nomination of Ms. Almeida is still subject to our internal corporate governance procedures, including our compliance and integrity analysis and approval by our board of directors. Mr. Grisolia will continue as our CFO until Ms. Almeida s appointment is final and confirmed.

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Roberto da Cunha Castello Branco Mr. Castello Branco has been our Chief Executive Officer since January 2019. For biographical information regarding Mr. Castello Branco, see Directors.

Rafael Salvador Grisolia Mr. Grisolia has been our Chief Financial Officer and Chief Investor Relations Officer since June 2018 and our Interim Chief Strategy and Performance Officer since January 2019. He has a 30 year extensive career experience having worked at the financial department of Esso - an affiliate of ExxonMobil Corp., and at Cosan Combustíveis e Lubrificantes SA, held a position of Chief Financial Officer (CFO) and Investor Relations Officer (IRO) of Cremer SA, CFO of Grupo Trigo SA, CFO and IRO of Inbrands SA. From August 2017 to June 2018, he was a Chief Financial Officer (CFO) and Investor Relations Officer (IRO) at Petrobras Distribuidora SA (BR). Mr. Grisolia is a Production Engineer, holding an MBA from the Instituto de Pós-Graduação e Pesquisa em Administração da Universidade Federal do Rio de Janeiro COPPEAD/UFRJ.

Rafael Mendes Gomes Mr. Gomes has been our Chief Governance and Compliance Officer since May 2018. He has worked as an attorney at the corporate law firm Tozzini, Freire Advogados and as Legal Manager and Assistant General Counsel at Sun Microsystems, Inc. He has also acted as Legal Vice-President, General Counsel, and Chief Ethics and Compliance Officer for Walmart Brasil Ltda., where he oversaw Walmart Brasil s compliance program. His latest position was senior partner at the law firm Chediak Advogados, where he led the Compliance and Investigation practice. Mr. Gomes has acted as professor at several institutions such as the IBP (Brazilian Institute of Petroleum, Natural Gas and Biofuels), CPEC (Center for Compliance Research and Education, in partnership with the University of Castilla-La Mancha, Spain), LEC (Legal Ethics and Compliance) among others. He is a graduate from the Faculdade de Direito da Universidade de São Paulo USP, and holds post-graduate degrees in Business Law from the Pontifícia Universidade Católica de São Paulo PUC-SP, and in Business in the Digital Era from the Fundação Getúlio Vargas FGV. In 2009, he concluded the Advanced Management Program from the University of Navarra s IESE Business School, and was certified by the Society of Corporate Compliance and Ethics as a Certified Compliance and Ethics Professional CCEP.

Eberaldo de Almeida Neto Mr. Eberaldo de Almeida Neto has been our Chief of Corporate Affairs Officer since January 2018. Mr. Almeida joined Petrobras in 1986 and has held various positions since then. He was our Executive Manager of Supply Chain from 2016 to January 2018, General Manager of Rio de Janeiro Operations Unit from 2012 to 2016, General Manager of Contracting Services Unit from 2006 to 2012 and General Manager of Subsea Services Unit from 1998 to 2006. Mr. Almeida holds a degree in Electrical Engineering from the Universidade Federal do Rio de Janeiro UFRJ, a degree in Advanced Management Program from IESE Business School University of Navarra, Spain and a MBA in Advanced Business Management from the Instituto de Pós-Graduação e Pesquisa em Administração da Universidade Federal do Rio de Janeiro - UFRJ.

Anelise Quintão Lara Mrs. Lara has been our Chief Refining and Natural Gas Officer since March 2019. She joined Petrobras in 1986 and has held various positions since, including Executive Manager for Acquisitions & Divestments between April 2016 and March 2019. Prior to that, Mrs. Lara was the Joint Project Team Director for the Libra Consortium, ruled by the first Production Sharing Contract in Brazil. She has managed several activities related to exploration and production, including in reservoir technology, reservoir engineering, subsurface studies, and production development projects for deepwater fields. Mrs. Lara earned a Bachelor of Science degree in chemical engineering and an Master of Science degree in petroleum engineering from Universidade Federal de Ouro Preto in Minas Gerais, Brazil, as well as a PhD in Earth Sciences from Université Pierre et Marie Curie (Paris 6), France. She also completed the Top Management Executive MBA program at the Universidade Federal do Rio de Janeiro/COPPEAD Graduate School of Business.

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Carlos Alberto Pereira de Oliveira Mr. Oliveira has been our Chief Exploration and Production Officer since January 2019. Mr. Oliveira joined Petrobras in 1981 and has held various positions since then. He was our General Manager of E&P Integrated Asset Management from 2016 to January 2019, Executive Manager of Strategy and Organization in 2016, Executive Manager of Production Development Projects from 2013 to 2016, Executive Manager of E&P Investment Management Programs in Drilling Rigs and Stationary Production Units from 2012 to 2013, Executive Manager of Technical Support for International Affairs from 2008 to 2012, Director of Exploration and Production of Oil and Gas in Petrobras Energia S.A. from 2003 to 2008, Executive Manager of E&P Corporative from 1999 to 2003, General Manager of Reservoirs from 1998 to 1999. Mr. Oliveira graduated with a degree in Mechanical Engineering from the Instituto Militar de Engenharia do Rio de Janeiro IME, and with a degree in Business Management from Universidade Federal do Rio de Janeiro UFRJ. He holds a postgraduate degree in oil engineering and a master s degree in finance and investments from Pontifícia Universidade Católica do Rio de Janeiro PUC-RJ. Mr. Oliveira also completed a course in Petroleum Finance and Accounting at the University of Texas, in the United States.

Rudimar Andreis Lorenzatto Mr. Lorenzatto has been our Chief Production Development and Technology Officer since January 31, 2019. He joined Petrobras in 1987 and since 1995, has held management positions in several areas as Offshore Wells, Production Operations and Subsea Systems. Between 2013 and 2019, he was Executive Manager of Offshore Wells Construction and Subsea Systems. Between 2008 and 2012, he was General Manager of Technical Support for Production and Development in the International Business Area. Between 2007 and 2008, he was Production Process Manager (Upstream Basic Engineering) at our R&D Center (CENPES). Between 1995 and 2007, he held various management positions in the Exploration and Production Area (Manager of Well Evaluation and Completion Equipment, Operation Manager of P-19 Platform in Marlim Field, and Asset Manager (South and Marlim Fields) in Campos Basin. Mr. Lorenzatto graduated in Civil Engineering from the Universidade Federal de Santa Maria (RS) in 1987. He completed a specialization in Petroleum Engineering at Petrobras University in 1989. He also holds MBAs from the Fundação Getúlio Vargas (FGV),Columbia University (USA), and a degree from the Advanced Management Program from INSEAD(France). Between 2012 and 2013, he also worked as a lecturer in the of Production Development field of the Post-Graduation in Oil and Gas program at the Universidade Federal do Rio de Janeiro UFRJ.

Compensation

For 2018, the aggregate amount of compensation we paid to all members of our board of directors and executive officers of Petrobras (parent company) was US$7.2 million. As of December 31, 2018 we had six executive officers and ten board members. The average monthly number of members of our board of directors that received compensation throughout 2018 was 6.00, while the number of executive officers that received compensation during this period was 7.92. Each of the average annual compensation, the highest annual compensation and the lowest annual compensation paid to our executive officer was of US$608,910.32, US$641,934.09 and US$552,133.94, respectively. See table below and Note 19.2 to our audited consolidated financial statements for further information regarding compensation of our employees and officers.

	December 31, 2018		
Number of members	7.92	10.08	5.00
Numbers of members receiving compensation	7.92	6.00	5.00
Value of maximum compensation	641,934.09	61,660.93	50,520.90
Value of minimum compensation	552,133.94	49,296.14	42,100.75
Average value of compensation	608,910.32	51,036.88	48,803.20

In addition, the members of our board of directors and executive officers receive medical assistance benefits, as it is generally provided to our employees and their families. Our executive officers also receive supplementary social security benefits and housing allowance.

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We have no service contracts with members of our board of directors providing for benefits upon termination of employment. We have a remuneration and succession committee in the form of an advisory committee. See Other Committees.

Share Ownership

As of February 28, 2019, the members of our board of directors and our executive officers as a group beneficially held a total of no common shares and 31,160 preferred shares of our company, and the members of our fiscal council beneficially held a total of 5,000 common shares and 16,381 preferred shares of our company. Accordingly, on an individual basis, and as a group, our directors, executive officers, and fiscal council members beneficially owned less than one percent of any class of our shares. The shares held by our directors, executive officers, and fiscal council members have the same voting rights as the shares of the same type and class that are held by our other shareholders. None of our directors, executive officers, and fiscal council members holds any options to purchase common shares or preferred shares nor any other person has any option to purchase our common or preferred shares. Petrobras does not have a stock option plan for its directors, officers or employees.

Fiscal Council

We have a permanent fiscal council (*Conselho Fiscal*) in accordance with applicable provisions of the Brazilian Corporate Law, composed of up to five members. As required by the Brazilian Corporate Law our fiscal council is independent of our management and external auditors. The fiscal council s responsibilities include, among others: (i) monitoring management s activities and (ii) reviewing our annual report and financial statements. The members and their respective alternates are elected by the shareholders at the annual general shareholders meeting. Holders of preferred shares without voting rights and minority common shareholders are each entitled, as a class, to elect one member and his respective alternate to the fiscal council. The Brazilian federal government has the right to appoint the majority of the members of the fiscal council and their alternates. One of these members and his respective alternate are appointed by the Minister of Finance, representing the Brazilian Treasury. The members of the fiscal council are elected at our annual general shareholders meeting for a one-year term and two consecutive re-elections are permitted.

The following table lists the current members of our fiscal council:

Name	Year of First Appointment
Adriano Pereira de Paula	2017
Eduardo César Pasa	2017
Marisete Fátima Dadald Pereira (Chairman)	2011
Reginaldo Ferreira Alexandre	2013
Daniel Alves Ferreira	2018

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The following table lists the alternate members of our fiscal council:

Name	Year of First Appointment
José Franco Medeiros de Morais	2017
Mauricyo José Andrade Correia	2017
Agnes Maria de Aragão da Costa	2015
Susana Hanna Stiphan Jabra	2018
Rodrigo de Mesquita Pereira	2018

Audit Committee

We have a statutory audit committee (Audit Committee) that advises our board of directors, composed exclusively of members of our board of directors. Our Audit Committee must be composed of three members.

On June 17, 2005, our board of directors approved the creation of our Audit Committee in accordance with the audit committee requirements of the Sarbanes-Oxley Act of 2002 and Rule 10A-3 under the Securities Exchange Act of 1934. On February 26, 2016, our board of directors approved changes to the written charter of our Audit Committee so that it now adheres to the rules set forth in Instruction CVM No. 509/2011 applying to statutory audit committees.

The Audit Committee is responsible for, among other matters:

- monitoring, analyzing, and making recommendations to our board of directors with respect to the appointment and dismissal of our independent auditors as well as evaluating the independence of our independent auditors for issuing an opinion on the financial statements and their qualifications and expertise;
- advising our board of directors on the review of our annual and quarterly consolidated financial statements, monitoring compliance with relevant legal and listing requirements and ensuring appropriate disclosure of our economic and financial situation filed with the CVM, the SEC and the Comisión Nacional de Valores;
- advising our board of directors and our management, in consultation with internal and independent auditors and our risk management and internal controls units, in monitoring the quality and integrity of our internal control over financial reporting systems, our audited consolidated financial statements and related financial disclosures;
- reviewing and submitting proposals to our board of directors relating to the resolution of conflicts between management and the independent auditor relating to our audited consolidated financial statements;
- assessing and monitoring, together with our internal management and audit area, the adequacy of actions to prevent and combat fraud and corruption;

evaluating and monitoring, in conjunction with our management and our internal auditors, our transactions with related parties, including a review, at least once a year, of all related party transactions and a previous analysis of related-party transactions above certain levels;

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establishing and reviewing procedures for the receipt, retention and processing of complaints regarding accounting, internal control and auditing matters, including procedures for the confidential submission of internal and external complaints relating to the scope of the committee s activities, as well as receiving, retaining and processing any such complaints;

evaluating the parameters underlying the actuarial calculations, as well as the actuarial result of the benefit plans maintained by Petrobras s social security foundation, or *Fundação Petrobras de Seguridade Social*;

conducting the formal evaluation of our internal audit executive manager on an annual basis; and

monitoring and verifying compliance with the governance program for state-owned companies, or *Programa Destaque em Governança de Estatais*, developed by B3, which we have joined on a voluntary basis, with respect to our disclosure of information, our Code of Conduct, compliance with our nomination policy and the performance of our nomination committee.

Our Audit Committee files a report with the CVM, together with our audited consolidated financial statements, on an annual basis, listing its responsibilities and the activities performed during each fiscal year. For further information, see https://www.sec.gov/Archives/edgar/data/1119639/000156459019005546/pbr-6k_20190228.htm. The information on this website, which may be accessible through a hyperlink resulting from this URL, is not and shall not be deemed to be incorporated into this annual report.

The current members of our Audit Committee are Jerônimo Antunes (Chairman), Clarissa de Araújo Lins and Sonia Julia Sulzbeck Villalobos. All of the current members of our Audit Committee satisfy the requirements set forth in Rule 10A-3 under the Exchange Act.

Other Committees

Our board of directors has a total of six additional statutory advisory committees:

Comitê de Indicação, Remuneração e Sucessão (Appointment, Remuneration and Succession Committee), responsible for advising our board of directors with respect to the compensation of members of our senior management and with respect to our general compensation policies and mechanisms, among other matters. Since September 2016, this Committee has also been responsible for advising our board of directors with respect to the changes proposed in our appointment policy; verifying the compliance of the appointment of the members of our fiscal council, our board of directors, our executive board and external participants from our board of directors advisory committees, among other matters. This Committee is also in charge of acting as eligibility committee for us and some of the entities part of Petrobras Group in compliance with Law No. 13,303/16 and Decree 8,945/16. As such, the Committee helps our shareholders to nominate members of our board of directors and our fiscal council. The current members of our Appointment, Remuneration and Succession Committee are Ana Lúcia Poças Zambelli (current Chairwoman of the Committee), Marcelo Mesquita de Siqueira Filho, Segen Farid Estefen and Tales José Bertozzo Bronzato (external member);

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Comitê de Segurança, Meio Ambiente e Saúde (Health, Safety and Environmental Committee), responsible for advising our board of directors with respect to global policies related to the strategic management of health, safety and environmental issues, among other matters. The Committee oversees among other issues, those related to our HSE strategy, goals and policies, including the climate strategy. The current members of our Health, Safety and Environmental Committee are Clarissa de Araújo Lins (Chairwoman), Segen Farid Estefen and Sonia Aparecida Consiglio (external member);

Comitê Financeiro (Finance Committee), responsible for advising our board of directors with respect to risks and strategies concerning financial management. The current members of our Finance Committee are Ana Lúcia Poças Zambelli (Chairwoman), Marcelo Mesquita de Siqueira Filho and Sonia Julia Sulzbeck Villalobos;

Comitê Estratégico (Strategic Committee), responsible for advising the board of directors on our strategic plan, 2019-2023 Business Plan, and other strategic issues. Since December 2016, the Strategic Committee has held monthly seminars to promote the better understanding of strategic topics, to consolidate its vision and to improve the solidity of its recommendations to our board of directors. The current members of the Strategic Committee are Segen Farid Estefen (Chairman), Ana Lúcia Poças Zambelli, Clarissa de Araújo Lins and Guilherme José Macedo Pinheiro de Lima (external member);

Comitê de Minoritários (Minority Committee), responsible for advising our board of directors on transactions with related parties involving us, the Brazilian federal government, its entities and foundations, or federal state-owned enterprises on a permanent basis, including following up the revision process of the Assignment Agreement. The Minority Committee also advises our shareholders and issuing its opinion on certain matters that require approval in shareholders meetings, pursuant to article 30, § 4 of our bylaws. The current members of the Minority Committee are Marcelo Mesquita de Siqueira Filho (Chairman), who has been elected by minority shareholders, Sonia Julia Sulzbeck Villalobos, who has been elected by preferred shareholders, and Durval José Soledade Santos (external member); and

Comitê de Auditoria do Conglomerado Petrobras (Conglomerate Audit Committee) approved on June 26, 2018 to meet the requirements of Law No. 13,303/16, which provides for the possibility that controlled companies share the costs and structures of their corresponding parent companies. It is responsible for the companies of our group that do not have a local audit committee. The current members of the Conglomerate Audit Committee are Jerônimo Antunes (Chairman), Durval José Soledade Santos (external member) and Francisco Vidal Luna (external member).

In addition, our board of directors has another advisory committee that contribute to discussions on the topics covered by such committee and, ultimately, to our decision-making process:

Comitê de Comunicação e Responsabilidade Social (Communication and Social Responsibility Committee), a permanent non-statutory committee, responsible for discussing topics relating to communication, sponsorship and social responsibility. The current members of our Communication and Social Responsibility Committee are Ana Lúcia Poças Zambelli, Clarissa de Araújo Lins, Jerônimo Antunes, Marcelo Mesquita de Siqueira Filho and Segen Farid Estefen.

Also, on November 28, 2018, our board of directors approved the dissolution of the special committee, created in December 2014 to act as a reporting line for independent investigations led by two independent law firms: U.S. firm Gibson, Dunn & Crutcher LLP and Brazilian firm Trench, Rossi e Watanabe. It also approved the conclusion of investigation activities conducted by external offices.

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The special committee was composed of Andreas Pohlmann, Ellen Gracie Northfleet and the Executive Director of Governance and Compliance of Petrobras, was created to act independently, focused on collecting evidence regarding the nature, extent and impact of alleged illegal acts that may have been committed against us, as have been reported in testimony under plea bargain agreements provided to Brazilian courts within the Lava Jato investigation, as well as to investigate related facts and circumstances that may have a significant impact on our business and results of operations.

The special committee acted independently, but it reported directly to our board of directors. It was responsible for (i) approving the plan of independent law firms for internal investigation, (ii) receiving and analyzing information produced by independent law firms, (iii) ensuring that the independence of investigations is not compromised, (iv) reviewing and recommending to our board for approval and enabling the implementation of recommendations made by independent law firms, (v) communicating and/or authorizing communications between independent law firms and competent authorities, including regulators, regarding the status of the investigation, its findings, and the actions taken by the company in relation to such investigations (vi) preparing a final report on the results of independent investigations by law firms, as well as providing the company with recommendations to improve our internal policies and procedures.

In March 2019, our board of directors decided to reorganize some of our statutory advisory committees, in order to dissolute the Finance Committee and the Strategic Committee and replace them with the Investment Committee, as well as relabel the Appointment, Remuneration and Succession Committee, which will be called the People Committee. These changes are yet subject to approval in our shareholders meeting, scheduled to occur on April 25, 2019. For more information, see http://www.investidorpetrobras.com.br/en/corporate-governance/shareholdersu-meeting. The information on this website, which may be accessible through a hyperlink resulting from this URL, is not and shall not be deemed to be incorporated into this report.

Ombudsman

The Petrobras General Ombudsman s Office has been an official part of our corporate structure since October 2005, when it became directly linked to the board of directors. The General Ombudsman s Office is the official channel for receiving and responding to denunciations and information regarding possible irregularities in accounting, internal controls and auditing. The General Ombudsman s Office reports directly to our board of directors and guarantees the anonymity of informants.

The Ombudsman Officer has been appointed by our management as the person responsible for the implementation of the Public Access to Information Law (Law No. 12,527/2011), which regulates the constitutional right for people to have access to public information. This law states that all information produced or held in custody by the government and not classified as confidential must become accessible to all citizens. In this respect, the General Ombudsman s Office ensures compliance with the rules on access to information by the public, monitors the implementation of this law and submits periodic reports to our board of directors. It also makes recommendations and provides guidance to our business units with respect to the enforcement of this law.

The Ombudsman Officer, together with our Ethics Commission, is also responsible for implementing the Public Federal Employee Conflict of Interest Law (Law No. 12,813/2013) within Petrobras. This law regulates the circumstances in which a conflict may arise between the public interest and the interests of certain current and past employees of the Brazilian federal government, which includes Petrobras s employees, and establishes subsequent restrictions on the activities performed by such people.

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The responsibilities of the General Ombudsman Officer includes tasks such as receiving and analyzing demands from our employees concerning the existence of conflict of interests, communicating to stakeholders the results of those analyses, performing preliminary reviews about the existence of potential conflicts of interest, verifying these potential conflicts of interest before authorizing employees to engage in certain activities, as well as informing employees on how to prevent or avoid those conflicts.

In May 2015, our board of directors approved an unified Whistleblower Channel applicable for all Petrobras units and all Petrobras subsidiaries. This channel, which began operating in November 2015, and is overseen by the General Ombudsman Office, is in charge of registering formal fraud and reported corruption allegations. Our board of directors also approved the hiring of an independent third-party company responsible for receiving any complaints recorded through the Whistleblower Channel. Further information about our Whistleblower Channel is available at https://contatoseguro.com.br/petrobras.

The General Ombudsman Office has established a methodology for classifying allegations of fraud and corruption received by Petrobras based on a risk matrix. This measure has had the key objective of setting up a strategic approach to the areas responsible for investigation and enabling senior management to understand the severity of the fraud and corruption allegations received. In addition, we have been strengthening our internal control over the whistleblower channel process.

In May 2018, our board of directors approved an updated version of the Policies and Directives of the Petrobras Ombudsman Office. This new version is important to maintain the alignment of the General Ombudsman s practices with those of other ombudsman offices in our group, contributing to the improvement of our corporate governance. This version also maintained the three-year mandate for the Ombudsman Officer, during which he cannot be discretionarily dismissed by management, ensuring his independence in performing his duties.

Employees and Labor Relations

We attract and retain valuable employees by offering competitive compensation and benefits, merit-based promotions and a profit-sharing plan.

The table below shows our employee numbers for the last three years:

	As of December 31,		
	2018	**2017**	**2016**
Petrobras employees:			
Parent company	47,556	46,979	51,255
Subsidiaries	13,935	13,914	13,936
Abroad	1,870	1,810	3,638
Total Petrobras Group	**63,361**	62,703	**68,829**
Parent company by region:			
Southeastern Brazil	35,699	34,456	36,883 (1)
Northeastern Brazil	8,608	8,963	10,565 (1)
Other locations	3,249	3,560	3,807 (1)

Total parent company	**47,556**	46,979	**51,255**

(1) We adjusted the distribution of parent company employees by region in 2016 (all regions) since we identified employees in the Southeastern and Northeastern regions of Brazil that had been identified under the heading Other Locations.

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The table below sets forth the main expenses related to our employees for the last three years:

	2018	2017	2016
Salaries	4,559.0	5,221.2	5,353.7
Employee training	55.5	44.2	41.8
Profit-sharing distributions	462	151	

We value transparency in our relationships with all our stakeholders, including trade unions. We maintain relationships with seventeen trade unions and one federation of Oil Tankers, as well as with eight unions and one federation of Maritime Workers. Of our employees, 45% are unionized and all of our employees are covered by collective bargaining agreements. These contracts consist of social clauses (which relate to work, safety conditions, benefits, among other matters), which are valid for two years under the current collective bargaining agreement.

By February 2018, we concluded the negotiation of the 2017-2019 collective bargaining agreement (CBA) with all the oil workers trade unions, offering an 1.73% increase in salaries and benefits from 2017, as well as the commitment to readjust all economic items of the CBA in September 2018 by the IPCA of the period. We also concluded, in August, the negotiations with the maritime unions of the 2017-2019 collective bargaining agreement offering an 1.83% increase in salaries and benefits. In September, we implemented an automatic 4.19% salary and benefits readjustment, as agreed on the 2017-2019 CBA of the oil workers. In addition, in 2018 we paid out employee profit-sharing. We also have started the negotiation of a new profit-sharing plan agreement. By January 2019, we finished the negotiations with the maritime unions of the economic clauses of their collective bargaining agreement offering a 4.56% increase in salaries.

During the year, there have been no strikes or protests that affected production.

Currently, our workforce is comprised of 47,556 employees, of which about 150 are maritime workers.

Knowledge Transfer Initiatives

We have developed knowledge management corporate practices, such as our mentoring program, communities of practice, lessons learned, job rotation, storytelling, tutoring and other initiatives in order to ensure the preservation, sharing and use of knowledge within our corporate structure.

We systematically include knowledge management actions in our voluntary separation incentive program (PIDV), in order to preserve knowledge within company and ensure the continuity of our operations.

In addition, we have been developing customized projects with our business segments to identify, preserve, share and apply relevant knowledge that may positively impact our results.

We have been investing efforts to include knowledge management in our management processes, since it is considered an important tool to manage people, culture, projects and processes.

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Voluntary Separation Incentive Program PIDV

In January 2014, we launched a voluntary separation incentive program with the goal of contributing to the achievement of the performance targets set forth under our previous strategic plan, including the improvement of our productivity.

This voluntary separation incentive program has been developed along with knowledge management and managerial succession tools so that all knowledge is retained by Petrobras in this process, allowing a planned and systematic voluntary separation of the employees that enroll in this program. Voluntary separation of employees under this program must achieve the following results: (i) adjust the number of our personnel to our business needs, (ii) achieve our interests in line with employees expectations, (iii) preserve existing knowledge within Petrobras and (iv) permit the development of leadership succession plans.

The target group of this voluntary separation incentive program was 12,196 of our employees over the age of 55, regardless of their position in our company, that would be eligible to retire under the Brazilian Social Security National Institute rules until the end of incentive program enrollment period (March 31, 2014). Of our employees, 7,634 have taken advantage of our voluntary separation incentive program and were classified into different categories with retirement dates as far into the future as May 2018. From the launch of the program until December 2018, 7,165 employees retired under the program.

In April 2016, we announced a new voluntary separation incentive program the (2016 PIDV), open to all of our employees, and designed to adjust the size of our workforce to our 2017-2021 Plan, raising productivity and adding value for us. The 2016 PIDV was developed based on the premise of preserving a sufficient number of employees to ensure the regular continuity of our operations, while adjusting the size of our workforce in all business segments. We had 11,865 employees enrolled in the 2016 PIDV with departure dates as far into the future as August 2018. Since the program s launch until December 2018, 9,335 employees have left Petrobras under the 2016 PIDV.

The retirement dates of both programs will last until May 2020 as a result of postponement in departure dates of a certain number of employees working in our strategic operational areas and also due to the possibility of voluntary separation of employees, who have suspended or interrupted their employment contract and returned to us during this period.

Through December 2018, there were estimated cost savings of US$5 billion with the resignations from the 2014 and 2016 PIDVs.

In addition, in January 2016 Petrobras Distribuidora adopted a voluntary separation incentive program to encourage voluntary disconnection. The target group for this program included retired employees over the age of 55 years as of December 30, 2015. In October 2016, Petrobras Distribuidora announced a new voluntary separation incentive program (PIDV BR 2016), which target group included employees with over 10 years of service. Dismissals started in January 2017 and 1,107 employees have already enrolled. Petrobras Distribuidora had 3,714 employees at the end of 2016, which corresponds to a decrease of 341 employees (8.4%) compared to 2015. The number of employees who voluntarily separated under PIDV BR 2016 as of December 2018, was 751.

In December 2018, Petrobras Distribuidora announced a new voluntary separation incentive program (PIDV BR 2018), aiming to adequate the number of employees considering business needs, reduce staff costs, balance our interests with employees expectations and guarantee continuity of our operations. The target group for this program was retired employees.

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Employees Internal Relocation Program Mobiliza

In 2013, we launched an internal relocation program in order to make our human resources organizational needs compatible with the interests of our employees by offering to our employees relocation opportunities in areas that were expecting an increase in demand in the number of employees. In this way, by re-allocating our current human resources within our organization, we reduced the need for additional short-term hiring. In 2016, we published 266 opportunities and 151 employees were relocated under this program. In light of our 2017-2021 Plan, staff mobility has become especially relevant to our activities. As a consequence, in December 2016, we structured a program to make it continuous (Continuous Corporate Mobility Process). As a result, the number of published opportunities increased 221% to 853 and 458 employees were relocated in 2017. In 2018 884 opportunities have been published, with 535 employee transfers approved.

Careers and Remuneration Plan PCR

In July 2018, the Careers and Remuneration Plan (PCR), was implemented, replacing the Plan for Classification and Evaluation of Positions (PCAC). The PCR represents one of the results of the Petrobras Strategic Initiatives and derived from the 2017-2021 Plan. Its objective is to modernize this important instrument of personnel management for us, following the dynamics of the market, as well as to meet the expectations and wishes of our employees.

The PCR provides a series of criteria to improve the management of personnel through the enhancement of skills and performance, and to stimulate the professional development of employees, enabling them to achieve higher levels of responsibility and, consequently, career development and remuneration.

One of the greatest benefits of PCR is the flexibility that it provides in employee mobility within the company, thus allowing for a better management in fulfilling the needs of personnel allocation.

Approved by our board of executive officers and our board of directors, PCR is the result of almost two years of work by human resources professionals and other areas that, among other things, have benchmarked with oil & gas companies and public companies, modeling workshops with executive managers and focus groups with employees of several of our units.

Teleworking

In April 2018, we implemented a pilot project for telecommuting, called Teleworking, available to administrative workers. Among its perceived benefits, there is greater flexibility and quality of life, and improvement in the commitment and satisfaction of our employees. Since its implementation, approximately 800 employees in 11 areas have participated in the project. The expansion of our program to the other employees is expected to start in 2019.

Working Time Reduction

In 2017, we offered to reduce the daily working hours from 8 to 6 hours in exchange for a 25% pay cut. The offer was optional and only available to workers with no managerial duties. In 2018, we offered another option to reduce the weekly working days from 5 to 4 days in exchange for a 20% pay cut. This type of reduction was also only available to workers with no managerial duties. Both modalities of working time reductions are not permanent and have a one year span that can be renewed automatically for another year, if there is no indication to the contrary by a worker or leader. As of December 31, 2018, we had 655 workers with reduced daily working hours and 128 workers with reduced weekly working days.

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Employees Variable Compensation (PLR e PRVE)

We offer variable compensations to our employees based on our results of operation. The amount of compensation distributed to our employees, as profit sharing (PLR), is negotiated by the Brazilian federal government and representatives of our employees (i.e., unions). Our board of directors approved the implementation of the Employees Variable Compensation Program (PRVE) with a focus on meritocracy, in line with other initiatives that we have developed in order to take advantage of and stimulate the potential of our employees.

The amount of the premium due to our employees under PRVE will be paid in a single installment if we present a positive net book income and reach at least 90% of the top targets established in our 2019-2023 Business Plan, combined with the achievement of the overall result of employee performance and goals by business segment. PRVE does not alter or exclude any payment of profit sharing (PLR) agreed with trade unions. The amount paid as PLR as a result of applicable law and collective agreement governing the matter will be deducted from the amount to be paid to each employee under PRVE. If the amount actually paid of PLR per employee is higher than the value of PRVE, there will be no payment of any amount related to PRVE.

Pension and Health Care Plan

Today we sponsor two defined benefit type pension plans, known as Petros Renegotiated (PPSP-R) and Petros Non Renegotiated (PPSP-NR), and a variable contribution or mixed type pension plan, known as Petros 2, which together cover 95% of our employees.

The main purpose of our pension plans has been to supplement the social security pension benefits of our retired employees. Employees, as participants of the plans, make mandatory monthly contributions. Our historical funding policy has consisted of making monthly contributions to the plans in the amounts determined by pension fund regulations and actuarial appraisals employees equal amount. Contributions are intended to provide not only for benefits attributed to services rendered up to the present date but also for those expected to be earned in the future.

The table below shows the benefits paid, contributions made, and outstanding pension and medical liabilities for 2018, 2017 and 2016:

	2018	2017	2016
	(US$ million)		
Total benefits paid pension and medical plans	2,667	2,408	1,701
Total contributions pension and medical plans(1)	973	767	650
Actuarial liabilities(2)	22,750	21,830	22,297

(1) Includes contributions by employees and sponsors (except for contributions under the TFC).
(2) Unfunded pension and medical plans obligations.
As of August 9, 2002, Petros interrupted admitting new participants and since 2003 we have been engaged in complex negotiations with representatives of the Brazilian Oil Worker s National Union to address the deficits of the plan and develop a supplementary pension plan. Accordingly, we signed with Petros the terms of financial commitment (TFC) to cover obligations under the pension plan, which amounts are due in 20 years, with 6% per year semiannual coupon payments based on the updated balance. As of December 31, 2018, the balance of TFC was US$3.3 billion. We have also been subject to material legal proceedings in connection with the Petros Plan. In August 2007, we approved new

regulations for the Petros Plan that readjusted benefits based on an inflation index rather than through salary readjustments proposed by the sponsors and retirement benefits readjustments proposed by the Brazilian Social Security National Institute.

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In 2007, we also implemented Petros 2, a variable contribution pension plan, for employees with no supplementary pension plan. A portion of this plan has defined benefits characteristics including risk coverage for disability and death, a guaranty of a minimum benefit and a lifetime income, and the related actuarial obligations are recorded according to the projected unit credit (PUC) method. The portion of the plan with defined contribution characteristics, earmarked for forming a reserve for programmed retirement, is recognized in the results for the year as the contributions are made.

In July 2016, Petros announced a deficit of US$6.9 billion on Petros Plan, according to what was set out in the Resolution no. 26/2008 of National Manager of Private Pension (CGPC) and complementary normative resolutions, which regulate deficit management issues. Such amount has exceeded the tolerance limit called LATD (Limit of Accumulated Technical Deficit), which is US$2.0 billion as applied to Petros. Thus, Petros and Petrobras have agreed to implement a deficit equalization plan in the amount of US$ 6,9billion, with the goal of reducing the probability of new future deficits, so the equalization has been borne in equal parts between sponsors (50%) and participants and beneficiaries (50%), pursuant to the parity rules under Brazilian law for government employers. This equation carries a maturity of 1.5 times the liability duration and its term was estimated to expire in 18 years.

In addition, according to Resolution no. 26/2008 of National Manager of Private Pension (CGPC) and complementary normative resolutions, the Petros Foundation should have developed and approved an adjustment plan (to be approved by the sponsors), by December 31, 2016, to be implemented within 60 days. However, the Petros Foundation has filed a request for an Adjusting Conduct Term (TAC) with the National Supplementary Pension Authority (PREVIC), requesting a postponement of 210 days after TAC´s approval, due to technical and management reasons.

On June 19, 2017, the PREVIC approved and published the TAC for Petros Foundation granting the requested waiver and establishing deadlines for approval and implementation of the Deficit Equalization Plan (DEP) related to accumulated actuarial deficit in 2015.

On September 12, 2017, the Petros Foundation Deliberative Council approved the Petros Plan DEP 2015, in the total amount of the deficit recorded in 2015 of US$6.9 billion, and submitted it to Petrobras for consideration. This amount was adjusted mainly for interest and inflation until December 2017, reaching approximately US$8.3 billion.

In compliance with the rules of governance established in Brazil, the DEP 2015 was appraised by Petrobras Board of Directors and forwarded to the Secretary of State Company Control (SEST), which, having analyzed and carried out its considerations and complementary requests, approved the implementation in early 2018.

The DEP 2015 began to be implemented in March 2018, with Petrobras totaling US$3.9 billion and BR Distribuidora, US$0.3 billion. The disbursement by the sponsors will be decreasing over the next 18 years and, during 2018, we disbursed US$0.2 billion. The DEP 2015 was implemented through the creation of additional contributions tables to be applied to wages and benefits, as well as with the corresponding employer share.

In accordance with IAS19 (R1), the deficit adjustment plan was considered in the actuarial evaluation of 2017, reducing the present value of the obligation at that year.

On February 15, 2018, PREVIC has approved the splitting of the Petros Plan into two independent portions, expected for March 31, 2018 namely Petros Renegotiated (PPSP-R) and Petros Non Renegotiated (PPSP-NR). The splitting process derived from new regulations governing the Petros Plan released in 2007 and 2012. Pursuant to such regulations, participants could choose to adopt or not the new rules applicable to benefits. In that way, about 75% of the participants chose to follow the new rules that create those two new particular groups: Petros Renegotiated (PPSP-R) and Petros Non Renegotiated (PPSP-NR). As there were no changes in post-retirement benefits rules, the

actuarial liabilities of these plans were reviewed only during the annual actuarial assumptions review carried out in December 2018.

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On April 1, 2018, in accordance with criteria established by PREVIC, Petros Plan was officially split into PPSP-R and PPSP-NR, each of them with new balances, financial and actuarial features based on their participants and proper regulations, such that the DEP 2015 was applied separately for each.

Part of the DEP 2015 additional contributions was suspended by judicial preliminary ruling decisions requested by some of the participants, and their unions. Thus, in order to comply with the parity regulation which demands the matching of sponsor pension contributions, Petrobras initially has decided to suspend its additional contribution portion. Some studies and conversations with regulatory agencies are underway to outline best practices under these circumstances. In 2018, we made contributions amounting to US$166 million with respect to contributions under the DEP 2015.

In order to provide an alternative solution to Petrobras s and Petro s defined benefits pension type plan models (and its recurrent deficit-building structural issues), today Petros and Petrobras are evaluating whether to offer a new alternative Pension Plan called Petros 3 to the participants of PPSP-R and PPSP-NR. Petros 3 is designed to be a defined as a contribution type Pension Plan, in which Petrobras, as sponsor, and employees contribute with a percentage of their paychecks in an account that is intended to fund employees retirement in individual formation of reserves. Additionally, benefits are periodically recalculated based on the individual account balance, in order to keep actuarial balance, and, therefore, generating a low accounting record to us, in accordance with IFRS.

The proposed new plan is in accordance with the new CGPAR Resolution No.25/2018, edited by the Interministerial Committee on Corporate Governance of State-Owned Enterprises (CGPAR), which established important drivers on pension plan managing. Those will be evaluated throughout 2019. The new plan will be submitted to the approval and regulatory bodies so that it can be implemented.

We maintain a health care benefit plan (AMS), which offers medical benefits and covers all employees (active and retired) together with their dependents. We manage the plan, with the employees contributing approximately 30% of the total amount to cover principal risks and a portion of the costs relating to other types of coverage in accordance with participation tables defined by certain parameters, including salary levels.

On January 18, 2018, the CGPAR, through CGPAR Resolutions No. 22/2018 and 23/2018, established new governance and cost guidelines and parameters for self-managed health-care benefits of federal companies, targeting sustainability and financial-actuarial balance. In this scenario, we have 48 months as of January 2018 to adjust our AMS contribution practices to the new rules and started some studies to evaluate impacts. Among such impacts, an actuarial liability reduction is expected, since the change implies parity limit of costs between us and our employees, besides other changes which effects will be timely measured and considered.

Our commitment related to future benefits to plan participants is calculated on an annual basis by an independent actuary, based on the projected unit credit method. The health care plan is not funded or otherwise collateralized by assets. Instead, we make benefit payments based on annual costs incurred by plan participants.

In addition, some of our consolidated subsidiaries have their own benefit plans.

In 2018, contributions paid by Petrobras and its subsidiaries (sponsors) to the pension and medical plans with defined benefit characteristics amounted US$822 million and contributions paid to the variable portion of our Petros 2 pension plan amounted to US$260 million.

For further information on risks related to Petros Plan, see Item 3. Key Information Risk Factors Financial Risks The obligations relating to our pension plan (Petros) and health care benefits (AMS) are estimates, which are reviewed

annually, and may diverge from actual future contributions due to changes in market and economic conditions, as well as changes in actuarial assumptions. Also, see Notes 4.17, 5.4 and 23 to our audited consolidated financial statements for more information about our employee benefits.

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Item 7. Major Shareholders and Related Party Transactions

Major Shareholders

Our capital stock is composed of common shares and preferred shares, all without par value. On March 25, 2019, there were 1,386,904,282 outstanding common shares and 722,737,678 outstanding preferred shares represented by ADRs. The ratio of our common and preferred shares to ADRs is two shares to one ADR. Except for the increase of our share capital in the past three fiscal years, due to the absorption of a portion of our tax incentive reserves into our share capital, there has been no change in the past three fiscal years in the amount of our issued share capital, the number of our common and preferred shares or the voting rights of our common and preferred shares. See Exhibit 1.1 for a copy of our bylaws.

As of March 25, 2019, approximately 12.90% of our preferred shares and approximately 18.64% of our common shares were held of record in the United States directly or in the form of ADRs.

Under the Brazilian Corporate Law, as amended, the number of non-voting shares of our company may not exceed two-thirds of the total number of shares. The Brazilian federal government is required by law to own at least a majority of our voting stock and currently owns 50.26% of our common shares, which are our only voting shares. The Brazilian federal government does not have any different voting rights, but as long as it holds a majority of our voting stock, it will have the right to elect a majority of our directors, irrespective of the rights our minority shareholders may have to elect directors, set forth in our bylaws.

The following table, sets forth information concerning the ownership of our common shares and preferred shares as of February 28, 2019, by the Brazilian federal government, certain public sector entities and our officers and directors as a group. In addition, as of December 6, 2018, BlackRock, Inc. (BlackRock) notified us that BlackRock acquired preferred shares issued by us and owns 247,138,734 preferred shares and 16,694,503 ADRs, representing preferred shares. BlackRock owns an aggregate of 280,527,740 preferred shares, representing approximately 5.00% of our preferred shares.

Shareholder	Common Shares	%	Preferred Shares	%	Total Shares	%
Brazilian federal government	3,740,470,811	50.26			3,740,470,811	28.67
BNDES	734,202,699	9.87	161,596,958	2.88	895,799,657	6.87
BNDES Participações S.A. BNDESPar	11,700,392	0.16	905,692,996	16.17	917,393,388	7.03
Caixa Econômica Federal	241,340,371	3.24	55,489,100	0.99	296,829,471	2.28
All members of the board of directors (permanent and alternate), executive officers and members of our fiscal council (permanent and alternate) (22 people in total)	5,000	0.00	47,541	0.00	52,541	0.00
Others	2,714,734,869	36.47	4,479,216,193	79,96	7,193,951,062	55,15
Total	7,442,454,142	100.00	5,602,042,788	100.00	13,044,496,930	100.00

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Related Party Transactions

In order to comply with Law No. 13,303/16 and the guidelines of the State-Owned Enterprises Governance Program *Programa Destaque em Governança das Estatais*, the B3 s self-regulatory program in which we participate, our board of directors approved a review of our policy for related party transactions in December 2017, with the aim of transparency in our procedures and better corporate governance practices. This policy also pursues to guarantee the adequate and diligent decision-making process by our management, observing market conditions and appropriate compensation mechanics, in the event of potential conflicts of interest. The policy is reviewed annually by our board of directors, in compliance with Law No. 13,303/16.

Since the beginning of 2017, any related-party transaction we are involved in, that meet the criteria established in our policy, must be previously analyzed by our audit committee, which has to report its conclusions to our board of directors on a monthly basis.

Our policy provides for a strict governance procedure for proposed transactions directly or indirectly involving our controlling shareholder. In such cases, whenever there is a need to evaluate potential transactions with the Brazilian federal government, municipalities, foundations or federal state-owned enterprises, our Minority Committee must issue an opinion on the proposed transactions, provided that such transactions (i) are not in our ordinary course of business and (ii) fall within the purview of our board of directors for approval. Such transactions must be approved by two-thirds of the members present at the meeting of our board of directors.

For additional information regarding our principal outstanding related-party transactions, see Note 19 to our audited consolidated financial statements.

Board of Directors

Direct transactions with members of our board of directors or our executive officers must follow the conditions of an arms-length transaction and market practice guiding transactions with third parties.None of the members of our board of directors, our executive officers or close members of their families has had any direct interest in any transaction we effected that is or was unusual in its nature or conditions, or material to our business during the year, and which remains in any way outstanding or unperformed . In addition, we have not entered into any transaction with related parties which is or was unusual in its nature or conditions during the current or the three immediately preceding financial years, nor is any such transaction proposed, that is or would be material to our business. We have no outstanding loans or guarantees to the members of our board of directors, our executive officers, our key management personnel or any close member of their families. For a description of the shares beneficially held by the members of our board of directors and close members of their families, see Item 6. Directors, Senior Management and Employees Share Ownership.

Brazilian Federal Government

We have engaged, and expect to continue to engage, in the ordinary course of business in numerous transactions with our controlling shareholder, the Brazilian federal government, and with banks and other entities under its control, including financing and banking, asset management and other transactions. The above-mentioned transactions amounted to a net asset of US$3,653 million as of December 31, 2018. See Note 19.1 to our audited consolidated financial statements for further information about such transactions.

As of December 31, 2018, we had a receivable (the Petroleum and Alcohol Account) from the Brazilian federal government, our controlling shareholder, of US$307 million. For further information, see Note 19.1 to our audited

consolidated financial statements.

In addition, we are allowed to invest in securities issued by the Brazilian federal government in Brazil and also abroad, provided that the legal and regulatory requirements are met and taking into consideration market s best practices and the conservatism that should guide our investments.

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As of December 31, 2018, the value of securities issued by the Brazilian federal government that have been directly acquired and held by us amounted to US$1,958 million.

In 2018, after risk assessment, we joined the diesel price subsidy program (Program) established by the Brazilian federal government, starting on June 1 and expiring on December 31, 2018. This program granted reimbursements to diesel producers and importers to the extent that their selling prices to the domestic distributors were equal or lower than prices determined in the applicable regulation. Through December 31, 2018, we accounted for US$1,415 million as revenues with respect to sales of the Diesel Price Subsidy Program. As of December 31, 2018, the remaining balance of the Diesel Price Subsidy Program amounted to US$400 million, which was collected in the first two months of 2019. For more information on the Program, see Item 4. Information on the Company Regulation of the Oil and Gas Industry in Brazil Price Regulation and Note 19.1.1 to our audited consolidated financial statements.

Eletrobras Subsidiaries

In 2017, we recognized in our income statement an allowance for impairment, net of reversals, of US$250 million (as compared to US$307million in 2016), to cover certain trade receivables due Eletrobras subsidiaries that operate in the isolated electricity sector in the Northern region of Brazil. However, in 2018, we recognized reversals of credit losses provisions amounting to US$1.3 billion, reflecting agreements signed with Eletrobras group and the privatization of some of its distributors.

As of December 31, 2018, the receivables from the isolated electricity system amounted to US$3,658 million. For further information relating to trade receivables from the electricity sector, see Note 8.4 to our audited consolidated financial statements.

Item 8. Financial Information

Consolidated Statements and Other Financial Information

See Item 18. Financial Statements and Index to Financial Statements.

Legal Proceedings

We are currently party to numerous legal proceedings relating to civil, administrative, tax, labor, criminal, environmental and corporate issues arising in the normal course of our business. These proceedings involve claims for substantial amounts of money and other remedies. Several individual disputes account for a significant part of the total amount of claims against us. Our audited consolidated financial statements only include provisions for probable and reasonably estimable losses and expenses we may incur in connection with pending proceedings. For further information on our material legal proceedings, see Note 31 to our audited consolidated financial statements.

Class Action

At the end of 2017, we signed an agreement to settle the Consolidated Securities Class Action that had been filed against us and certain other defendants. As previously reported, between December 8, 2014 and January 7, 2015, five putative securities class action complaints were filed against us, Petrobras International Finance Company S.A. (PifCo), which has since merged into Petrobras Global Finance B.V. (PGF), PGF, and certain underwriters of debt securities, among other defendants, in the United States District Court for the Southern District of New York (SDNY or the District Court). These actions were consolidated on February 17, 2015 (the Consolidated Securities

Class Action or Class Action). The Court appointed a lead plaintiff, Universities Superannuation Scheme Limited (USS), on March 4, 2015.

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In sum and substance, the complaints in the Consolidated Securities Class Action asserted claims under the Securities Exchange Act of 1934, as amended, and the Securities Act of 1933, as amended, alleging that in our press releases, filings with the SEC and other communications, we made materially false and misleading statements and omissions regarding the value of our assets, the amounts of our expenses and net income, the effectiveness of our internal controls over financial reporting, and our anti-corruption policies.

On June 22, 2018, the District Court granted final approval of the agreement to settle the Consolidated Securities Class Action (Class Action Settlement), rejecting challenges that had been raised by objectors.

The Class Action Settlement is intended to resolve all pending and prospective claims by purchasers of Petrobras securities, including debt securities issued by PifCo and/or PGF, in the United States, and by purchasers of Petrobras securities that are listed for trading on the NYSE or pursuant to other covered transactions, or that clear or settle through the Depository Trust Company. Excluded from the definition of covered transaction are purchases of any Petrobras securities on the B3.

The Class Action Settlement was entered into to eliminate the risk of an adverse judgment which, as we have previously reported, could have a material adverse effect on Petrobras and its financial situation, and puts an end to the uncertainties, burdens and costs of protracted litigation.

Under the Class Action Settlement, we (together with our subsidiary PGF) have agreed to pay US$ 2,950 million to resolve the claims in two installments of US$ 983 million and a further installment of US$ 984 million. Accordingly, we charged US$ 3,449 million to our statement of income for the last quarter of 2017 as other income and expenses, taking into account the gross up of tax related to our portion of the settlement. On March 1, 2018, we, along with PGF disbursed the first installment into an escrow account designated by the lead plaintiff and accounted for it as other current assets. The second installment was deposited on July 2, 2018, 10 days after the final approval of the Class Action Settlement by the District Court. Foreign exchange losses on the provision amounted to US$452 million at December 31, 2018 and were accounted for as other income and expenses. The third installment was deposited on January 15, 2019.

Certain objectors have appealed the District Court s final decision to approve the Class Action Settlement, and one such appeal remains pending. In the event that a higher court annuls the agreement, or if the agreement does not become final for other reasons, we will return to our position prior to the Class Action Settlement and, depending on the outcome of the subsequent litigation, we might be required to pay substantial amounts, which could have a material adverse effect on our financial condition, our consolidated results of operations or our consolidated cash flows for an individual reporting period.

A petition for a writ of certiorari filed by Petrobras to the United States Supreme Court on August 30, 2017 remains under consideration by the United States Supreme Court pending final approval of the Class Action Settlement. If the Class Action Settlement becomes final, we will dismiss the petition for writ of certiorari.

Individuals are seeking measures against Petrobras in Brazil to annul and/or suspend the Class Action Settlement. No adverse measure has been granted to date against the settlement.

In addition to the Consolidated Securities Class Action, 33 lawsuits were filed by individual investors before the same judge in the SDNY, and one was filed in the United States District Court for the Eastern District of Pennsylvania (together, the Individual Actions), consisting of allegations similar to those in the Consolidated Securities Class Action. All of these Individual Actions have been resolved, either because the individual plaintiffs voluntarily joined the Class Action, or through settlements. The terms of such settlements are confidential and we deny all

allegations of wrongdoing. The settlements are aimed at eliminating the uncertainties, burdens and expense of ongoing litigation.

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In connection with consummated settlements of Individual Actions, we charged US$456 million to the statement of income as other income and expenses (US$8million in 2018, US$ 76 million in 2017 and US$ 372 million in 2016).

Collective action in the Netherlands

On January 23, 2017, the Stichting Petrobras Compensation Foundation (Foundation) filed a collective action before the district court in Rotterdam, in the Netherlands, against us and our subsidiaries PIBBV and PGF, joint venture PO&G, and some of our former managers.

The Foundation allegedly represents the interests of an unidentified group of investors and alleges that as a result of the facts uncovered by the Lava Jato investigation, the defendants acted unlawfully toward investors. Based on the allegations, the Foundation seeks a number of declaratory reliefs from the Dutch court.

We filed our first response to the claim on May 3, 2017 (first docket date) presenting the law firms that would defend us and requesting a hearing to discuss some aspects of the case. On August 23, 2017, a hearing was held at the District Court in Rotterdam to establish the timeframe for proceedings. We (and other defendants) presented preliminary defenses on November 29, 2017 and the Foundation presented its response on March 28, 2018. On June 28, 2018, a hearing was held for the parties to present oral arguments. On September 19, 2018, the District Court rendered its interim decision on the motion proceedings, in which it accepted jurisdiction over most of the Foundation s seven claims, without any assessment on the merits of the case.

On December 18, 2018, a hearing was held before the District Court and the schedule of the next phases of the collective action was defined. The District Court determined that the current phase is limited to two topics: the Foundation s standing and the applicable law. Petrobras filed its submission on those topics on 13 March 2019. The hearing on these topics will be held on April 16, 2019.

This collective action involves complex issues that are subject to substantial uncertainties and depend on a number of factors such as the standing of the Foundation as the alleged representative of the investors interests, the applicable rules to this complaint, the information produced in the evidentiary phase of the proceedings, analysis by experts, the timing of court decisions and rulings by the court on key issues, and the Foundation only seeks declaratory reliefs in this collective action. Currently, it is not possible to determine if we will be found responsible for the payment of compensation in subsequent individual complaints after this action as this assessment depends on the outcome of these complex issues. Moreover, it is uncertain which investors will be able to file subsequent individual complaints related to this matter against us.

In addition, the allegations asserted are broad, span a multi-year period and involve a wide range of activities, and, at the current stage, the impacts of such allegations are highly uncertain. The uncertainties inherent in all such matters affect the amount and timing of the ultimate resolution of these actions. As a result, we are unable to make a reliable estimate of eventual loss arising from this action. We are a victim of the corruption scheme uncovered by the Lava Jato investigation and aim to present and prove this before the Dutch Court.

The uncertainties inherent in all such matters do not enable the company to identify possible risks related to this action. Compensation for the alleged damages will only be determined by court rulings on complaints to be filed by individual investors. The Foundation is not able to demand compensation for damages.

We, along with our subsidiaries, deny the allegations presented by the Foundation and intend to defend ourselves vigorously.

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Other Related Investor Claims

Arbitration in Brazil

We are also currently a party to five arbitration proceedings brought by Brazilian and foreign investors that purchased our shares traded on the B3, alleging financial losses caused by facts uncovered in the Lava Jato investigation.

These claims involve complex issues that are subject to substantial uncertainties and depend on a number of factors such as the novelty of the legal theories, the timing of the decisions by the Chamber of Arbitration, the information produced in discovery and analysis by retained experts.

Moreover, the claims asserted are broad and span a multi-year period. The uncertainties inherent in all such matters affect the amount and timing of their ultimate resolution. As a result, we are unable to make a reliable estimate of eventual loss arising from the claims asserted in the arbitrations. We deny the allegations presented by these investors and intend to defend these claims vigorously. Moreover, half of the amount deposited in accordance with the Commitment Assumption Agreement executed with the Brazilian Federal Prosecutor s Office may be used in the event of any loss involving such arbitration proceedings.

Depending on the outcome of these claims, we may have to pay substantial amounts, which may have a significant effect on our financial condition, and would be reflected in our audited consolidated financial statements or consolidated cash flow for a given period.

We intend to defend these claims vigorously.

Arbitration in Argentina

On September 11, 2018, we were served with an arbitral claim filed by Consumidores Financieros Asociación Civil para su Defensa (Association) against us and other individuals and legal entities, before the Tribunal de Arbitraje General de la Bolsa de Comercio de Buenos Aires. Among other issues, the Association alleges our liability for a supposed loss of market value of our shares in Argentina, due to proceedings related to the Lava Jato investigation.

As a result of a preliminary analysis, we consider that the claim is without grounds. Considering: (i) that we have not yet replied to the complaint; (ii) that the proceeding is at an early stage and (iii) the uncertainties inherent to this kind of proceedings, it is not possible for us to identify possible risks related to this arbitration and to produce a reliable estimate of the potential loss in this arbitration, if any.

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Other Legal Proceedings

Arbitrations and Mediations

We are currently a party in arbitrations in Brazil and a lawsuit in the District Court of the District of Columbia in Washington D.C. filed by investors of Sete Brasil. In these proceedings, the investors allege that we induced investors to transfer money to Sete Brasil and that we were among the parties responsible for the financial crisis of Sete Brasil, which filed judicial recovery proceedings (*recuperação judicial*), in Brazil. The arbitrations filed in Brazil are confidential. As previously disclosed in a press release dated December 15, 2017, an arbitration award favorable to us rejected the claims filed by an investor of Sete Brasil in one of the arbitrations filed against us seeking damages in connection with investment made in Sete Brasil. The adjusted amount of this arbitration is approximately US$96 million (R$374 million). This defeated investor filed a lawsuit seeking vacatur of said arbitration award. On August 08, 2018, the *Tribunal de Justiça do Estado do Rio de Janeiro* denied an injunction requested by the investor seeking the suspension of the effects of the award. We have presented our answer or *contestação* and no other decision has been taken in the lawsuit. In the action in the District of Columbia, on March 30, 2017, the DC Court ruled that the two claims brought by EIG Funds against us could proceed to discovery. We appealed the decision to the U.S. Court of Appeals for the District of Columbia, which affirmed the trial court s opinion. On December 3, 2018, we presented a petition for writ of certiorari to the Supreme Court of the United States, and the Supreme Court has requested EIG s response by February 4, 2019. The case is proceeding with discovery in the trial court, pending the Supreme Court s decision whether or not to grant our petition.

In addition, as disclosed on September 21, 2017, we have initiated an extrajudicial mediation procedure with Sete Brasil. According to Law 13,140/2015, the mediation is performed by an impartial third party, without decision-making power, who assists and encourages the parties to identify or develop consensual solutions to a particular controversy. Pursuant to articles 30 and 31 of the aforementioned Law, any and all information relating to the mediation procedure is confidential in relation to third parties. Irrespective of the result of negotiations, any agreement reached in the mediation will be subject to our corporate governance and compliance standards, as well as approval by our bodies.

On March 1, 2018 our board of directors approved the key terms of a possible settlement, reached through the extrajudicial mediation procedure with Sete Brasil. The main terms are the following: (i) maintenance of charter and operation contracts referring to four drilling rigs, with rescission (termination) of signed contracts in relation to the other twenty-four drilling rigs; (ii) the contracts shall have effect of ten years, with daily rate of US$0.299 million, including the chartering and operation of the units; (iii) our removal and removal of our subsidiaries from the shareholding structure of the companies of Grupo Sete Brasil and FIP Sondas, so that we no longer hold any shares in this company, as well as the resulting dissolution of all other contracts that are not compatible with the terms of the agreement. Afterward, we, Sete Brasil and the mediator agreed to finalize the mediation and that we and Sete Brasil would continue to negotiate the terms of a possible settlement. The negotiations are ongoing and the signing of the agreement between us and Sete Brasil is conditional upon presentation, by Sete Brasil, of an international-class drilling rig operator with experience in deep waters, in accordance our approval criteria. That agreement is further conditioned to the success in the negotiation and approval, by the relevant bodies of both companies, of the final terms and conditions of the documents necessary to the implementation of the agreement.

We filed four arbitrations administered by the International Chamber of Commerce (ICC) against the ANP s decision to unify unconnected oil fields of Petrobras (i.e., Lula and Cernambi; Baúna and Piracaba; Tartaruga Verde and Tartaruga Mestiça; and Parque das Baleias complex). However, the ANP has been successful in suspendig, through judicial injunctions, two of these arbitrations. In relation to Parque das Baleias complex arbitration, the Brazilian Supreme Court decided in October 2017, that the arbitral tribunal is the competent authority to assess its own

jurisdiction and to evaluate the merits of the conflict, allowing this arbitration to proceed.

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In December 2018, the ANP held a hearing presenting a draft of the preliminary agreement developed by our technical departments and the ANP, including the calculation of updated amounts of participation due in the last quarter of 2018, totaling US$0.9 billion. Considering the amounts presented, we believe that it is probable that we settle the controversy with the ANP and, as a result, we recognized a provision for this proceeding as of December 31, 2018.

Regarding Tartaruga Mestiça and Tartaruga Verde arbitration, the federal court of Rio de Janeiro also upheld in favor of the arbitral tribunal s competence to determine its jurisdiction to hear the case. Through such judicial decision, we and the ANP voluntarily agreed to suspend the arbitration.

Furthermore, we are party to an arbitration with Vantage Deepwater Company and Vantage Deepwater Drilling, Inc. (collectively, Vantage) administered by the International Centre for Dispute Resolution and related to a drilling contract we entered into with Vantage. In July 2018, a tribunal of 3 members concluded by majority, with one dissenting opinion, Vantage was entitled to US$622.02 million, plus compound interest of 15.2% per annum compounded monthly, as compensation for the early termination of said contract and invoices related to the drilling of a well in the Gulf of Mexico. Vantage sought and obtained attachments from a Dutch court which were served in August 2018, blocking the shares of our Netherlands-based subsidiaries and any amounts and assets due to us, arising from obligations of our Netherlands-based subsidiaries to secure payment of the arbitral award. On August 31, 2018, we filed a motion to vacate the award before a Federal Court in Texas. On March 8, 2019, the Federal Court heard argument, but reserved decision on Vantage s petition to confirm and our motion to vacate the award. Therefore, we understand that the chance of loss is probable and made a provision for this proceeding in the last quarter of 2018. Although we continue to vigorously challenge the validity of the arbitral award and to pursue the annulment of the award in defense of our rights, we have made a provision for this proceeding in the last quarter of 2018.

Labor Proceedings

The minimum compensation by level and region, or RMNR, corresponds to a minimum amount of remuneration, that is established based on criteria such as the salary level of the employee, the work regime and conditions and the geographical area where the employee works. RMNR was created and implemented in 2007, after being negotiated with union representatives and approved by employees. Three years after the RMNR was implemented, various lawsuits were commenced regarding the inclusion of additional regimes and special working conditions for the calculation of the rate applicable to RMNR.

There are a number of lawsuits relating to whether certain amounts should be included as part of the calculation of RMNR. On June 21, 2018, the Brazilian Superior Labor Court (TST) ruled against us and, as a result, we filed an appeal (*recurso extraordinário*) against its decision before the TST. On July 26, 2018, the Brazilian Supreme Court (STF) suspended the effects of the decision issued by the TST and called for the national suspension of the ongoing proceedings relating to RMNR.

There are also discussions relating to the rate applicable to damages awarded by Brazilian labor courts, as well as its period of application. The STF has initially ruled that application of the official reference rate, or Taxa Referencial, is unconstitutional in relation to damages awarded against the Brazilian federal government. Following the STF decision, the TST ruled that the national consumer price index, or IPCA, should apply (as opposed to the Taxa Referencial) since March 2015 and acknowledged payments already made. An appeal was brought against that decision and judgment is pending. Also, judgment is still pending by the STF on the application of Taxa Referencial to labor damages, as opposed to IPCA.

Although we are not a party to any of the lawsuits before the TST and the STF involving these discussions, such lawsuits may have an adverse effect on our provisions. There is no expected date for judgment by the STF and it is

possible that the STF decides that its decision should apply only from a certain date onward. However, in the event that the STF decides that the applicable rate should change from Taxa Referencial to IPCA, this may have an adverse effect on our provisions, including RMNR.

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Civil Actions

The Public Prosecution Office of the state of Rio de Janeiro filed five public civil actions against us, the State Environmental Institute (INEA) and the State of Rio de Janeiro, (collectively, the Defendants), on June 26, 2018, requesting that the Defendants present proof of compliance with environmental licensing regulations related to COMPERJ, complement technical research, and compensate for collective damages to property and moral damages. The amount claimed is US$2.096 billion. The five actions are currently stayed.

The Public Prosecution Office of the state of Rio de Janeiro filed five public civil actions against us, the State Environmental Institute (INEA) and the State of Rio de Janeiro, (collectively, the Defendants), on June 26, 2018, requesting that the Defendants present proof of compliance with environmental licensing regulations related to COMPERJ, complement technical research, re-define certain conditions applicable to the environmental licensing process and compensate for collective damages to property, moral damages and damages to communities affected by any environmental impact related to COMPERJ. The amount claimed is US$2.096 billion. The five actions are currently stayed.

Investigations Carried out by Authorities

We are not a target of the Lava Jato investigation in Brazil and are formally recognized as a victim of the improper payments scheme by the Brazilian Authorities.

On November 21, 2014, we received a subpoena from the SEC requesting certain documents and information about us with respect to, among other things, the Lava Jato investigation and any allegations regarding a violation of the U.S. Foreign Corrupt Practices Act. The DoJ conducted a similar inquiry and we cooperated with both investigations working with independent Brazilian and U.S. law firms that were hired to conduct an independent internal investigation.

On September 27, 2018, we settled the open matters with the DoJ and the SEC investigation which encompassed our internal controls, books and records, and financial statements from 2003 to 2012.

These agreements fully resolve the inquiries carried out by these authorities. Following the agreements, we paid US$85 million to the DoJ and will pay the same amount to the SEC in 2019. Additionally, the agreements also credit a remittance of US$683 million to the Brazilian authorities which we deposited on January 30, 2019 into a court deposit account. We fully recognized the effects of these settlements as other income and expenses in the third quarter of 2018.

This resolution meets our best interest and those of our shareholders, and eliminates uncertainties, risks, burdens and costs of potential litigations in the United States.

Additionally, on December 15, 2015, the state of São Paulo Public Prosecutor s Office issued the order of Civil Inquiry 01/2015, establishing a civil proceeding to investigate the existence of potential damages caused by us to investors listed in the Brazilian stock market. The Brazilian Public Prosecutor s Office assessed this civil proceeding and determined that the São Paulo Public Prosecutor s Office has no authority over this matter, which must be presided over by the Brazilian Public Prosecutor s Office. We have provided all relevant information required by the authorities.

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Lava Jato Investigation

In 2009, the Brazilian federal police began an investigation aimed at criminal organizations engaged in money laundering in several Brazilian states. The Lava Jato investigation is extremely broad and comprises numerous investigations into several criminal practices, spanning crimes and conduct committed by individuals in different parts of the country and different sectors of the Brazilian economy. Beginning in 2014, the Brazilian Federal Prosecutor s Office focused part of its investigation on irregularities involving our contractors and suppliers, and uncovered a broad payment scheme that involved a wide range of participants, including former Petrobras personnel. It is 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.

We were recognized by the Brazilian authorities as a victim of the acts uncovered by the Lava Jato investigation and will continue to pursue legal measures against companies and individuals, including former employees and politicians, who have caused financial and image damage to us. We have been working together with the Brazilian Federal Prosecutor s Office, the Brazilian federal police, the Federal Revenue Services and other competent authorities since the beginning of the investigation. The total amount of restitution paid to us since the beginning of the Lava Jato investigation has reached US$912 million. For further information regarding the Lava Jato investigation and its impacts on us, see Note 3 to our audited consolidated financial statements.

Legal Proceedings and Preliminary Procedure on TCU Divestments.

There are some judicial proceedings (mainly civil suits), which allege a supposed lack of publicity and competitiveness in our proceedings for the sale of participation shares in controlled companies and assets, such as exploration and production rights in oil & gas fields (Divestment Bids). As a result, some Divestment Bids were suspended due to injunctions granted under preliminary analysis by judges and relate to the following: (i) the first attempt to assign the concession rights in Baúna and Tartaruga Verde; (ii) the sale of share participation of BR Distribuidora and other subsidiaries, such as PetroquímicaSuape and CITEPE, and NTS; (iii) the assignment of rights of a set of onshore and offshore oil fields located in the States of Sergipe, Ceará, Rio Grande do Norte, Bahia, Espírito Santo (iv) the sale of UFN III; (v) the assignment of rights of Carcará Field (vi) strategic alliances related to Termobahia and to Lapa field and Iara area; and (vii) the sale of 90% of our share participation in TAG. By December, 2018, all those injunctions were reversed or suspended after we presented our statement of defense and/or appeals. The aforementioned Court proceedings are still pending final awards, except for the court proceeding related to the first attempt to assign the concession rights in Baúna and Tartaruga Verde, terminated by the Judge after the revocation of the injunction, and now is under confirmation by the Court.

There are other civil suits in which plaintiffs have asked for injunctions, which are still pending or were substantially denied.

There is currently one injunction directly affecting the Divestment Bids related to a set of onshore oil fields located in the state of Bahia, in which, on October 2018, the federal judge granted an injunction in order to suspend it.

There are constitutional actions filed before the Brazilian Supreme Court challenging the constitutionality of the Decree 9188/2017, which sets forth rules for divestment of assets by federal mixed-capital companies, such as Petrobras. Due to the preliminary injunction granted on June 27, 2018 by the Supreme Court s Minister Ricardo Lewandowski (Direct Unconstitutionality Action ADI 5624 MC/DF), which presumably could affect our divestments, in July of 2018, we suspended certain Divestment Bids. Such Divestment Bids were resumed on January 17, 2019 under the legal grounds stated in a legal memorandum rendered by the Federal Attorney s Office. A challenge to our decision to resume the aforementioned sales (Reclamação n.º 33292) was filed before the Supreme Court, which was

not yet decided.

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On May 15, 2018, the Brazilian Labour Party proposed a Direct Unconstitutionality Action (ADI No 5,942) claiming the unconstitutionality of the Federal Decree No. 9.355/2018, which sets forth rules for divestment of exploration and production rights in oil and gas fields. On November 14, 2018, we were admitted as an interested third party (amicus curiae) to the ADI No. 5,942. On December 19, 2018, Supreme Court s Min. Marco Aurélio Mello granted a preliminary injunction to suspend the effects of Federal Decree No. 9.355/2018; however such preliminary injunction was revoked by Supreme Court s President on January 12, 2019, until its final judgment by the plenary of the Supreme Court, originally scheduled for February 27, 2019. On such date, the Supreme Court s President decided to adjourn the judgment which was scheduled for April 4, 2019.

At the end of March 2017, in order to comply with the TCU s decision and adopt the revised divestment methodology, we terminated all our ongoing divestment projects. All projects included in our divestment portfolio (excluding partnerships, subject to another set of rules also submitted to the TCU) follow a methodology determined by the TCU. Our divestment process methodology was updated on March 15, 2018 and the updated version was submitted to the TCU, which has not subsequently ordered the suspension of any Divestment Bid. Recently, our divestment process methodology was revised again in order to address some issues raised by our compliance area. The most updated methodology is effective as of January 1, 2019.

Internal Investigations

We periodically establish *ad hoc* internal investigations to evaluate our compliance with applicable law and regulations. The scope of each internal investigation is determined by our management. Upon the conclusion of each investigation, its material findings are used to improve our compliance efforts.

In April 2018, we changed the name of our internal procedure for investigating higher risk and complex situations to special investigations, in lieu of *ad hoc* internal commissions (*comissões internas de apuração*). In order for us to determine that a situation should be classified as a special investigation, we consider factors such as materiality (dimension of potential financial loss), reputational risk, seniority of the employees possibly involved in the alleged misconduct and origin of the investigation demand.

In 2018, we created a number of new *ad hoc* internal commissions (*comissões internas de apuração*) and special investigations to evaluate past transactions including issues related to the Lava Jato investigation. After analyzing documentation produced internally, the work of each of these commissions will be or has been completed. If the findings in some instances indicate that certain of our former and current employees did not comply with certain of our internal policies, such findings will be or have been sent to applicable Brazilian authorities, as the case may be (including the Federal Prosecutor s Office, Federal Police, CVM and CGU) for their assessment. The Brazilian authorities may take legal measures against the individuals involved, and we may take certain actions in accordance with applicable labor laws and our applicable employment and other policies.

Regardless of the findings of our internal investigations, and to mitigate potential risks of further non-compliance to our internal policies, we continued to develop and implement a number of measures aimed at improving corporate governance, our management of processes, risk management and controls, including those related to fraud and corruption.

Dividend Distribution

In 2016, a policy of distribution of dividends by our board of directors was approved, in accordance with Law No. 13,303/16, with the goal of establishing the rules and procedures related to the matter, in a way that is transparent and in accordance with the legal, statutory norms and other internal regulations. The policy was amended on May 7,

2018, and is now called Shareholder Remuneration Policy.

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Our distributions to shareholders for 2018 amounting to US$1,850, most of it proposed as interest on capital, will be voted upon at the 2019 Shareholder s General Meeting. These distributions are consistent with the minimum mandatory dividend of 25% of the adjusted income. For further information, see Note 24.6 to our audited consolidated financial statements.

Our board of directors proposed no distribution of dividends in 2018 and 2017 for profits accrued in the years ended December 31, 2017 and 2016 because we reported losses in such fiscal years.

For information about dividend distribution requirements under Brazilian Corporate Law and our bylaws, see Item 10. Additional Information Memorandum and Articles of Incorporation Payment of Dividends and Interest on Capital, and Item 10. Mandatory Distribution.

Item 9. The Offer and Listing

Trading Markets

Our shares and ADSs are listed or quoted on the following markets:

Common Shares	São Paulo Stock Exchange (B3) São Paulo (ticker symbol PETR3); Mercado de Valores Latinoamericanos en Euros (Latibex) Madrid, Spain (ticker symbol XPBR); Bolsa de Comercio de Buenos Aires (BCBA) Buenos Aires, Argentina (ticker symbol APBR)
Preferred Shares	São Paulo Stock Exchange (B3) São Paulo (ticker symbol PETR4); Mercado de Valores Latinoamericanos en Euros (Latibex) Madrid, Spain (ticker symbol XPBRA); Bolsa de Comercio de Buenos Aires (BCBA) Buenos Aires, Argentina (ticker symbol APBRA)
Common ADSs	New York Stock Exchange (NYSE) New York (ticker symbol PBR)
Preferred ADSs	New York Stock Exchange (NYSE) New York (ticker symbol PBRA)

Our common and preferred shares have been traded on the B3 since 1968. Our ADSs representing two common shares and our ADSs representing two preferred shares have been traded on the New York Stock Exchange since 2000 and 2001, respectively. The Bank of New York Mellon serves as depositary for both the common and preferred ADSs.

Our common and preferred shares have been traded on the LATIBEX since 2002. The LATIBEX is an electronic market created in 1999 by the Madrid Stock Exchange in order to enable trading of Latin American equity securities in euro denominations.

Our common and preferred shares have been traded on the *Bolsa de Comercio de Buenos Aires* (Buenos Aires Stock Exchange) since 2006.

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B3

As of December 31, 2018, our common and preferred shares represented approximately 8.89% of the total market capitalization of the B3 and Petrobras was the most actively traded company of the B3. At December 31, 2018, the aggregate market capitalization of the 400 companies listed on the B3 was approximately US$917 billion and the ten largest companies represented approximately 54.4% of the total market capitalization of all listed companies. All the outstanding shares of an exchange-listed company may trade on the B3, but in most cases, only a portion of the listed shares are actually available for trading by the public. The remainder is held by small groups of controlling persons, by governmental entities or by one principal shareholder.

Trading directly on the B3 by a holder not deemed to be a resident of Brazil for Brazilian tax and regulatory purposes (a non-Brazilian holder) is subject to certain limitations under Brazilian foreign investment legislation. Non-Brazilian holders may only trade on the B3 in accordance with the requirements of CMN Resolution No. 4,373 and ICVM No. 560/2015. CMN Resolution No. 4,373 requires that securities held by non-Brazilian holders be maintained in the custody of, or in deposit accounts with, financial institutions duly authorized by the CVM.

In addition, CVM Rule 560/2015 establishes limited situations where non-Brazilian holders are allowed to trade securities outside Brazilian stock exchanges or qualified over-the-counter markets, such as in transactions involving subscription, redemption, refund of shares and conversion of debentures into shares.

According to Brazilian regulations, the transfer of the ownership of investments from a non-Brazilian holder to another party through a private transaction is only allowed in limited situations, such as transfers resulting from transactions involving merger, split, amalgamation, corporate reorganizations, stock swaps, or a transfer resulting from bequest or inheritance. Such transfers are also permitted in situations where (i) the final beneficial owner of the transferred investment remains unchanged and (ii) the total amount of securities or financial assets owned, directly or indirectly, by all investors taking part in the transaction remains unchanged. CVM may authorize trades or transfers in other situations upon request by the interested investor. See Item 10. Additional Information Exchange Controls for further information.

The changes in our corporate governance and in our decision making processes turned us into a more robust and reliable company, which allowed us to join B3 s Programa Destaque em Governança de Estatais and to request authorization to have our securities traded on B3 s Corporate Governance Level 2 (Level 2).

In order to apply to Level 2 listing segment, changes in our bylaws were made in April, 2018 such as (a) expanding the activities of our committees that advise our board of directors, such as our audit committee and our Minority Committee, (b) including a provision for 100% tag along for preferred shares, under the same conditions granted to common shares; (c) providing for mandatory public offering of shares in the event of withdrawal from Level 2 or noncompliance with its rules; (d) providing for release of an annual calendar of corporate events; and (e) providing for an arbitration procedure for specific matters arising from the B3 s Level 2 regulation, except in the cases involving our public interest and non-disposable rights.

Additionally, our bylaws state clearly that we may have our activities guided by the Brazilian federal government in order to contribute to the public interest that justified our creation. However, if the Brazilian federal government s guidelines lead us to undertake obligations and responsibilities under conditions different from those of any other company in the private sector that operates in the same market, such obligations and responsibilities shall be defined in law or regulation and have their costs and revenues broken down and disclosed. In addition, the Brazilian federal government shall compensate us, at each fiscal year, for the difference between market conditions and the operational result or economic return from such obligation.

In May 2018, our application for the special listing segment Level 2 was approved by B3.

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Item 10. Additional Information
Memorandum and Articles of Incorporation

General

We are a publicly-traded company duly registered with the CVM under identification number 9512. Article 3 of our bylaws establishes our corporate purposes as research, prospecting, extraction, processing, trading and transportation of crude oil from wells, shale and other rocks, its products, natural gas and other fluid hydrocarbons. It also establishes as part of our corporate purposes the pursuit of, other energy-related activities that may promote the research, development, production, transportation, distribution, sale and trading of all forms of energy, as well as other related activities or similar purposes.

In addition, Law No. 13,303/16 requires our bylaws to define the public interest we pursue and which publicly-oriented actions we are allowed to take in the pursuit of such public interest. In order to comply with Law No. 13,303/16, we amended our bylaws to include the definition of public interest and to state that the Brazilian federal government may orient our activities to pursue the public interest under certain circumstances, which distinguishes us from any other private company operating in the oil and gas market. More specifically, the Brazilian federal government may guide us to take publicly-oriented obligations or responsibilities, including executing investment projects and undertaking certain operating costs, when two conditions are met. First, the undertaking of obligations or responsibilities must be defined by law or regulation and provided for in a contract or agreement entered into with any public entity with powers to negotiate such contract or agreement. Second, the investment projects must have their cost and revenues broken down and disclosed in a transparent manner.

Our Financial Committee and our Minority Committee, exercising their advisory role to our board of directors, are in charge of evaluating whether the obligations and responsibilities undertaken by us, in connection with the pursuit of the public interest, are different from those of any other private company operating in the oil and gas market. The evaluation by our Committees is based on certain technical and economic aspects of the planned investment projects and on the analysis of certain operating costs previously adopted by our management. Subject to the criteria adopted by our Committees and their evaluation, we may request the Brazilian federal government to compensate us for the difference between the amount that would be involved under market conditions and the operating result or economic return derived from the obligations undertaken by us for each fiscal year.

Qualification of Directors and Executive Officers

Members of our board of executive officers must be Brazilian nationals and reside in Brazil. Under our bylaws, shareholders establish the aggregate compensation, or allocate the compensation on an individual basis, payable to directors, executive officers, members of our fiscal council and of advisory committees to the board of directors. In the event shareholders do not allocate the compensation on an individual basis, our board of directors may do so.

In addition, Law No. 12,353/2010 requires that public and mixed-capital companies with 200 or more employees, and their subsidiaries, in which the Brazilian federal government holds a majority of the voting rights directly or indirectly, include as a member of the board of directors a representative elected by the company s employees by means of a separate voting procedure.

Law No. 13,303/16 and Decree No. 8,945/2016 define new requirements and limitations for the election of our executive officers, members of our management and our board of directors, including prohibiting the election of any person who acted, in the last thirty-six months, as a participant in the decision-making process of a political party or in any work connected to organizing, structuring and performing an electoral campaign.

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In addition, our bylaws were amended in April, 2018, to determine that our board of directors must be composed of at least 40% of independent members, in compliance with article 22, paragraph 1, of Law No. 13,303/2016 and to article 36, paragraph 1 of Decree No. 8,945, as well as the rules of the State-Owned Enterprise Governance Program *Programa Destaque em Governança de Estatais* from B3 and of B3 s Level 2 Regulation, with the more stringent criteria prevailing in case of divergence between the rules. See Item 9. The Offer and Listing B3 for further information on Level 2 listing segment.

Allocation of Net Income

At each annual general shareholders meeting, our board of directors and board of executive officers are required to recommend how net income for the preceding fiscal year is to be allocated. Under Brazilian Corporate Law, net income is obtained after deduction of statutory holdings of the employees, managers and beneficiary parties (articles 190 and 191 of the Brazilian Corporate Law). In addition, in accordance with Brazilian Corporate Law, the amounts available for dividend distribution or payment of interest on capital equals net income less any amounts allocated from such net income to the legal reserve.

We are required to maintain a legal reserve, to which we must allocate 5% of net income for each fiscal year until the amount for such reserve equals 20% of our paid-in capital. However, we are not required to make any allocations to our legal reserve in a fiscal year in which the legal reserve, when added to our other established capital reserves, exceeds 30% of our capital. The legal reserve can only be used to offset losses or to increase our capital. After the creation of the legal reserve, the fixed or minimum cumulative dividends to which holders of preferred shares have priority, including those that were not timely distributed, should be distributed.

After the distribution of preferred dividends, a percentage of net income may be allocated to a contingency reserve for anticipated losses that are deemed probable for future years. Any amount so allocated in a prior year must be either (i) reversed in the fiscal year in which the reasons justifying the reserve cease to exist, or (ii) written off in the event that the anticipated loss occurs.

A portion of the net income from donations or government grants for investments may also be allocated to the creation of a tax incentive reserve.

If the mandatory distributable amount, determined without deducting the amount of unrealized profits from its calculation basis, exceeds the sum of realized net income in a given year, this excess may be allocated to an unrealized revenue reserve. Brazilian Corporate Law defines realized net income as the amount of net income that exceeds the sum of the net positive result of equity adjustments and profits or revenues from operations whose financial results take place after the end of the next succeeding fiscal year. As long as we are able to make the minimum mandatory distribution described below, we must allocate an amount equivalent to 0.5% of subscribed and fully paid-in capital at year-end to a statutory reserve. The reserve is used to fund the costs of research and technological development programs. The accumulated balance of this reserve cannot exceed 5% of the subscribed and fully paid-in capital stock.

Brazilian Corporate Law also provides for the retention of profits, which cannot be approved in the event there is mandatory dividend distribution, and must be in accordance with the terms of our capital budget previously approved by the general meeting.

A portion of our net income that exceeds the minimum mandatory distribution may be allocated to fund working capital needs and investment projects, as long as such allocation is based on a capital budget previously approved by our shareholders. Capital budgets for more than one year must be reviewed at each annual shareholder meeting.

The creation of statutory reserves and the retention of profits cannot be approved to the detriment of the mandatory dividend.

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Mandatory Distribution

Under Brazilian Corporate Law, the bylaws of a Brazilian corporation such as ours may specify a minimum percentage of the amounts available for distribution by such corporation for each fiscal year that must be distributed to shareholders as dividends or interest on capital, also known as the mandatory distributable amount, which cannot be lower than 25% of the adjusted net income for the fiscal year. Under our bylaws, the mandatory distributable amount has been fixed at an amount equal to not less than 25% of our adjusted net income, after deducting allocations to the legal reserve and further allocations that eventually occur or provided for under Brazilian Corporate Law, which the holders of preferred shares have priority in.

As a Brazilian corporation with a class of non-voting shares and pursuant to our bylaws, holders of preferred shares will have priority in the event of the reimbursement of capital and are entitled to minimum annual non-cumulative preferential dividends, to the extent that we declare dividends, equal to the higher of (i) 5% of their pro rata share of our paid-in capital, or (ii) 3% of the book value of their preferred shares (the greater prevailing).

To the extent that we declare dividends on our common shares in any particular year in an amount that exceeds the minimum preferential dividends due to our preferred shares, holders of preferred shares would be entitled to an additional dividend amount per share, such that holders of preferred shares will receive the same additional dividend amount per share paid to holders of common shares. Holders of preferred shares participate equally with common shareholders in share capital increases obtained from the incorporation of reserves and profits.

The Brazilian Corporate Law, however, permits a publicly held company such as ours to suspend the mandatory distribution if the board of directors and the fiscal council report to the annual general shareholders meeting that the distribution would be inadvisable in view of the company s financial condition. In this case, the board of directors must file a justification for such suspension with the CVM. Profits not distributed by virtue of the suspension mentioned above shall be allocated to a special reserve and, if not absorbed by subsequent losses, shall be distributed as soon as the financial condition of the company permits such payments.

Payment of Dividends and Interest on Capital

We have a dividend distribution policy that defines the rules and the procedures related to the distribution of dividends, in a transparent manner. Our dividend distribution policy seeks to grant our short, medium and long-term financial sustainability, and is based on the assumption that we need financial flexibility and stability for the maintenance of our businesses.

The decision to distribute dividends and other earnings depends on a number of factors, including our financial results and condition, cash necessity, future prospects of current and potential markets in which we operate, existing investment opportunities, maintenance and expansion of our production capacity. We are required by the Brazilian Corporate Law and by our bylaws to hold an annual general shareholders meeting by the fourth month after the end of each fiscal year at which, among other things, the shareholders have to decide on the distribution of the net profit of the fiscal year and on the amount of dividends and/or interest on capital to be distributed to shareholders based on our management s proposal. The payment of annual dividends is based on the financial statements prepared for the relevant fiscal year.

Subject to certain legal provisions, we must prepare quarterly balance sheets, making interim dividend payments based on earnings or interest on equity verified in such balance sheets, by resolution of our board of directors.

Our board of directors may approve the payment of intermediate dividends to the profit reserve account existing in the last balance sheet approved at our shareholders general meeting. Pursuant to our bylaws, intermediate and interim dividends and interest on equity shall be allocated to the minimum mandatory dividend.

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Law No. 9,249/1995, as amended, provides for distribution of interest on capital to shareholders as an alternative form of distribution. Such interest is limited to the daily *pro rata* variation of the TJLP interest rate, the Brazilian federal government s long-term interest rate. The effective payment or credit of interest is dependent on the existence of profits, calculated before deducting interest, or accumulated profits and profit reserves, in an amount equal to or greater than twice the amount of the interest to be paid or credited.

We may treat these payments as a deductible expense for calculating real profit, but the deduction cannot exceed the greater of:

- 50% of net income before taking into account such distribution, in case these are considered expense, based on the calculated profit after taking into account any deductions for social contributions on net income and before deducting income tax for the period in respect of which the payment is made; or

- 50% of profit reserves.

Any payment of interest on capital to holders of ADSs or other shareholders, whether or not they are Brazilian residents, is subject to Brazilian withholding taxes at the rate of 15% or 25%. The 25% rate applies if the beneficiary is resident in a tax haven. See Taxation Relating to Our ADSs and Common and Preferred Shares Brazilian Tax Considerations. The amount paid to shareholders as interest on capital, net of any withholding tax, may be included as part of any mandatory distribution of dividends. Under the Brazilian Corporate Law, we are required to distribute to shareholders an amount sufficient to ensure that the net amount received, after payment by us of applicable Brazilian withholding taxes in respect of the distribution of interest on capital, is at least equal to the mandatory dividend.

Under the Brazilian Corporate Law and our bylaws, dividends generally are required to be paid within 60 days following the date the dividend was declared, unless a shareholders resolution sets forth another date of payment, which, in either case, must occur prior to the end of the fiscal year in which the dividend was declared. The amounts of dividends due to our shareholders are subject to financial charges at the SELIC rate from the end of each fiscal year through the date we actually pay such dividends. Shareholders have a three-year period from the dividend payment date to claim dividends or interest payments with respect to their shares, after which the amount of the unclaimed dividends reverts to us.

Our board of directors may distribute dividends or pay interest based on the profits reported in interim financial statements. The amount of interim dividends distributed cannot exceed the amount of our capital reserves.

Shareholders Meetings

Our shareholders have the power, through voting at a general shareholders meeting, to decide on any matters related to our corporate purposes and to pass any resolutions they deem necessary for our protection and development, except for certain powers exclusive to our other corporate governing bodies.

Since 2012, we have convened our shareholders meetings by publishing a notice in the *Diário Oficial do Estado do Rio de Janeiro* and *Jornal Valor Econômico*. The notice must be published no fewer than three times, beginning at least 30 calendar days prior to the scheduled meeting date. The notice must contain the meeting s agenda and, in the case of a proposed amendment to the bylaws, an indication of the subject matter. For ADS holders, we are required to provide notice to the ADS depositary at least 30 calendar days prior to a shareholders meeting. Upon receipt of our shareholders meeting notice, the depositary must mail a notice, in a form of its choice, to the ADS holders. This notice

must contain (i) the information from our notice of meeting sent to the ADS depositary; (ii) a statement that owners of record, as of a specific record date, can instruct the depositary as to the exercise of their voting rights, subject to Brazilian law as well as our bylaws; and (iii) a statement as to the manner in which these instructions can be given to the depositary.

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The board of directors or, in some specific situations set forth in the Brazilian Corporate Law, the shareholders or our fiscal council, call our general shareholders meetings. A shareholder may be represented at a general shareholders meeting by an attorney-in-fact, so long as the attorney-in-fact was appointed within a year of the meeting. The attorney-in-fact must be a shareholder, a member of our management or a lawyer. In the case of public companies, the shareholder may be also represented by a financial institution. The attorney-in-fact s power of attorney must comply with certain formalities set forth by Brazilian law and our bylaws.

Other than the exceptions provided by law, in order for a valid action to be taken at a shareholders meeting, shareholders representing at least one quarter of our issued and outstanding common shares must be present at the meeting. However, in the case of a general meeting to amend our bylaws, shareholders representing at least two-thirds of our issued and outstanding common shares must participate in person. If no such quorum is present, the board may call a second meeting giving at least eight calendar days notice prior to the scheduled meeting in accordance with the rules of publication described above. The quorum requirements will not apply to the second meeting, subject to the voting requirements for certain matters described below. Our shareholders may also register online to exercise their voting rights electronically in shareholders meetings. In addition, our shareholders may also vote electronically in proxy contests (*pedido público de procuração*). Electronic participation in shareholders meetings is not available to our ADS holders. ADS holders may instruct the depositary in advance to vote on their behalf at the shareholders meetings, pursuant to depositary s operational procedures and the deposit agreement.

In 2015, CVM issued Instruction No. 561/15 (ICVM 561/15), considering that the participation of shareholders in certain general meetings is a condition to voting. ICVM 561/15 creates a mechanism that allows for shareholders to exercise their right to vote remotely, prior to the date of the meeting. This rule starts applying to us and our shareholder in 2017.

Voting Rights

Pursuant to the Brazilian Corporate Law and our bylaws, each of our common shares carries the right to vote at a general meeting of shareholders. The Brazilian federal government is required by law to own at least a majority of our voting stock. Pursuant to Brazilian Corporate Law and our bylaws, except for (i) the right to appoint one member of our board of directors and one member of our fiscal council, and (ii) very few circumstances related to adversely affected preferred shares (as further discussed below), our preferred shares do not confer voting rights.

Holders of common shares, voting at a general shareholders meeting, have the exclusive power to:

- amend our bylaws;
- approve any capital change;
- elect or dismiss members of our board of directors and fiscal council (and its respective alternates), subject to the right of our preferred shareholders to elect or dismiss one member of our board of directors and to elect one member of our fiscal council (and its respective alternates) and to the right of our employees to elect or dismiss one member of our board of directors;

receive the yearly financial statements prepared by our management and accept or reject management s financial statements, including the allocation of net income for payment of the mandatory dividend and allocation to the various reserve accounts;

authorize the issuance of debentures, except for the issuance of non-convertible unsecured debentures or the sale of such debentures when in treasury, which may be approved by our board of directors;

accept or reject the valuation of assets contributed by a shareholder in consideration for increase of capital stock;

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approve corporate restructurings, such as mergers and spin-offs;

participate in a centralized group of companies, as defined under the Brazilian Corporate Law;

approve the disposal of the control of our wholly-owned subsidiaries;

approve the disposal of convertible debentures issued by our wholly-owned subsidiaries and held by us;

establish the compensation of the former members of our board of executive officers, our board of directors, our fiscal council, including the compensation due during the period of six months of forfeiture provided for in our bylaws, and of advisory committees to the board of directors;

approve the cancellation of our registration as a publicly-traded company;

decide on our dissolution;

waive the right to subscribe to shares or convertible debentures issued by our wholly-owned subsidiaries or associates; and

approve the requirements of our nomination policy, in addition to the requirements provided by laws applicable to boards of directors and fiscal councils.

Except as otherwise provided by law, resolutions of a general shareholders meeting are passed by the majority of the outstanding common shares. Abstentions are not taken into account.

The approval of holders of at least one-half of the issued and outstanding common shares is required for the following actions involving our company:

reduction of the mandatory dividend distribution;

merger into another company or consolidation with another company, subject to the conditions set forth in the Brazilian Corporate Law;

participation in a group of companies subject to the conditions set forth in the Brazilian Corporate Law;

change of our corporate purpose, which must be preceded by an amendment in our bylaws by federal law as we are controlled by the government and our corporate purpose is established by law;

spin-off of a portion of our company, subject to the conditions set forth in the Brazilian Corporate Law;

transfer of all our shares to another company or receipt of shares of another company in order to make the company whose shares are transferred a wholly-owned subsidiary of such company, known as *incorporação de ações*; and

selection of a specialized company to work out the appraisal of our shares by economic value, in cases of the cancellation of our registry as a publicly-traded company in order to comply with rules of Instrução CVM No. 381/02 and B3 Level´s Regulation. See Item 9. The Offer and Listing B3 for further information on the Level 2 listing segment.

Under Brazilian Corporate law, if a shareholder has a conflict of interest with the company in connection with any proposed transaction, the shareholder may not vote in any decision regarding such transaction. For example, an interested shareholder may not vote to approve the valuation of assets contributed by that shareholder in exchange for capital stock or, when the shareholder is a member of senior management, to approve the management s report on the company s financial statements. Any transaction approved with the vote of a shareholder having a conflict of interest may be annulled and such shareholder may be liable for any damages caused and be required to return to the company any gain it may have obtained as a result of the transaction.

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Under Brazilian Corporate Law, the following actions shall be submitted for approval or ratification by the outstanding adversely affected preferred shares before they are submitted for approval of at least half of the issued and outstanding common shares:

- creation of preferred shares or increase in the existing classes of preferred shares, without preserving the proportions to any other class of preferred shares, except as set forth in or authorized by the company s bylaws;

- change in the preferences, privileges or redemption or amortization conditions of any class of preferred shares; and

- creation of a new class of preferred shares entitled to more favorable conditions than the existing classes.

Decisions on our transformation into another type of company are not allowed by Law No. 13,303/16.

Under Brazilian Corporate Law, minority shareholders representing at least 10% of the company s voting capital have the right to demand that a cumulative voting procedure be adopted to entitle each common share to as many votes as there are board members and to give each common share the right to vote cumulatively for only one candidate of our board of directors or to distribute its votes among several candidates. Pursuant to regulations promulgated by the CVM, the 10% threshold requirement for the exercise of cumulative voting procedures may be reduced depending on the amount of capital stock of the company. For a company like Petrobras, the threshold is 5%. Thus, shareholders representing 5% of our voting capital may demand the adoption of a cumulative voting procedure.

Furthermore, minority common shareholders also have the right to appoint and/or dismiss one member to or from our board of directors and to appoint or dismiss one member to or from our fiscal council (and such members respective alternate). The shareholders must prove the uninterrupted ownership of the shares held during the period of at least 3 months, immediately prior to the general meeting.

Preferred shareholders holding, individually or as a group, 10% of our total capital also have the right to appoint and/or dismiss one member to or from our board of directors. Preferred shareholders have the right to separately appoint one member to our fiscal council (and such member s respective alternate). The shareholders must prove the uninterrupted ownership of the shares held during the period of at least three months, immediately prior to the general meeting.

If neither the holders of voting common shares nor the holders of preferred shares have, respectively, the quorum required above, they may aggregate their shares to elect jointly a member to our board of directors, attending to, in this event, the quorum of 10% (ten percent) of the total share capital.

In addition, pursuant to Law No. 12,353, our employees have the right to appoint or dismiss one member of our board of directors in accordance with a separate voting procedure.

Our bylaws and Brazilian Corporate Law provide that, independently from the exercise of the rights above granted to minority shareholders, through cumulative voting process, the Brazilian federal government always has the right to appoint the majority of our directors and members of our fiscal council.

Subject to the provisions of applicable law, the Ministry of the Economy will elect and remove one member to our board of directors.

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Preemptive Rights

Pursuant to the Brazilian Corporate Law, each of our shareholders has a general preemptive right to subscribe for shares or securities convertible into shares in any capital increase, in proportion to the number of shares held by them. In the event of a capital increase in the same proportion of the number of shares of all existing classes, each shareholder shall exercise the preemptive right over shares identical to those owned. If the issued shares are of existing classes but introduce a change in their proportions to the capital stock, the preference will be exercised over shares and classes identical to those owned by the shareholders. Such preference will only extend to the other shares if they are insufficient to assure, in the increased capital, the same proportion of the capital stock as before the increase. If there is an issuance of shares of a class different from the existing classes, each shareholder shall exercise a preference, in proportion to the number of shares held, over the shares of all classes of the increase. In the event of an increase through capitalization of credit or subscription in assets, shareholders will always be assured the preemptive right and, if applicable, the amounts paid by them will be delivered to the holder of the credit to be capitalized or the asset to be incorporated. The general assembly will fix a period of at least 30 days following the publication of notice of the issuance of new shares or securities convertible into shares for exercise of the right.

In the event of a capital increase by means of the issuance of new shares, holders of ADSs, of common or preferred shares, would have, except under circumstances described above, preemptive rights to subscribe for any class of our newly issued shares. However, holders of ADSs may not be able to exercise the preemptive rights relating to the common and preferred shares underlying their 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. See Item 3. Key Information Risk Factors Risks Relating to Our Equity and Debt Securities.

Redemption and Rights of Withdrawal

Brazilian law provides that, under limited circumstances, shareholders have the right to withdraw their equity interest from the company and to receive payment for the portion of shareholder s equity attributable to their equity interest.

This right of withdrawal may be exercised by the holders of the adversely affected common or preferred shares, provided that certain conditions set forth in the Brazilian Corporate Law are met, in the event that we decide:

- to increase the existing classes of preferred shares, without preserving the proportions to any other class of preferred shares; or
- to change the preferences, privileges, redemption or amortization conditions of any class of preferred shares or to create a new class of preferred shares entitled to more favorable conditions than the existing classes;
- to merge into another company or to consolidate with another company; or
- to participate in a centralized group of companies as defined under the Brazilian Corporate Law;
- to reduce the mandatory distribution of dividends;

to change our corporate purposes;

to spin-off a portion of our company;

to transfer all of our shares to another company or to receive shares of another company in order to make the company whose shares are transferred a wholly-owned subsidiary of our company, known as *incorporação de ações*; or

to acquire control of another company at a price that exceeds the limits set forth in the Brazilian Corporate Law.

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This right of withdrawal may also be exercised in the event that the entity resulting from a merger, consolidation or spin-off of a listed company and us does not negotiate new shares in the secondary market, within 120 days from the date of the shareholders meeting approving the transaction, in accordance with the applicable norms given by the SEC.

Considering that our bylaws do not provide for rules to determine any value for redemption, under Brazilian Corporate Law, any redemption of shares arising out of the exercise of such withdrawal rights would be made based on the book value per share, determined on the basis of the last balance sheet approved by our shareholders. However, if a shareholders meeting giving rise to redemption rights occurred more than 60 days after the date of the last approved balance sheet, a shareholder would be entitled to demand that his or her shares be valued on the basis of a new balance sheet dated within 60 days of such shareholders meeting. In this case, we would immediately pay 80% of the amount of reimbursement calculated based on the last balance sheet and, after the special balance sheet has been drawn up, we would pay the balance within 120 days from the date of the shareholders meeting resolution. The right of withdrawal lapses 30 days after publication of the minutes of the shareholders meeting that approved the corporate actions described above. We would be entitled to reconsider any action giving rise to withdrawal rights within ten days following the publication of the minutes of the meeting ratifying the decision if the payment of the price of reimbursement of the shares to the dissenting shareholders would jeopardize our financial stability.

Other Shareholders Rights

According to the Brazilian Corporate Law, neither a company s bylaws nor actions taken at a general meeting of shareholders may deprive a shareholder of some specific rights, such as:

- the right to participate in the distribution of profits;
- the right to participate in any remaining residual assets in the event of liquidation of the company;
- the right to supervise the management of the corporate business as specified in the Brazilian Corporate Law;
- the right to preemptive rights in the event of a subscription of shares, debentures convertible into shares or subscription bonuses (other than with respect to a public offering of such securities, as may be set out in the bylaws); and
- the right to withdraw from the company in the cases specified in the Brazilian Corporate Law.

Liquidation

Under Brazilian corporate law and our bylaws, in the event of a liquidation, holders of preferred shares are entitled to receive, prior to any distribution to shareholders.

Conversion Rights

According to our bylaws, our common shares are not convertible into preferred shares, nor are preferred shares convertible into common shares.

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Liability of Our Shareholders for Further Capital Calls

Neither Brazilian law nor our bylaws provide liability for our shareholders for further capital calls. Our shareholders liability for capital stock is limited to the payment of the issue price of the shares subscribed or acquired.

Form and Transfer

Our shares are registered in book-entry form and we have hired Banco Bradesco to perform all the services of safe-keeping and transfer of shares. To make the transfer, Banco Bradesco makes an entry in the register, debits the share account of the transferor and credits the share account of the transferee.

Our shareholders may choose, at their individual discretion, to hold their shares through the *Central Depositária*. Shares are added to the *Central Depositária* system through Brazilian institutions, which have clearing accounts with the *Central Depositária*. Our shareholder registry indicates which shares are listed on the *Central Depositária* system. Each participating shareholder is in turn registered in a registry of beneficial shareholders maintained by the *Central Depositária* and is treated in the same manner as our registered shareholders.

Dispute Resolution

In April 2018, the wording of the arbitration clause in our bylaws was amended to adjust to B3 s Level 2 Regulation. Our bylaws provide for mandatory dispute resolution through arbitration, before the *Câmara de Arbitragem do Mercado*, or the Market Arbitration Chamber, concerning any dispute or controversies that may arise among us, our shareholders, administrators and members of our fiscal council, related to or arising from the application, validity, effectiveness, interpretation, violation and effects of the provisions contained in the Brazilian Corporation Law, Law No. 13,303, in our bylaws, in the rules issued by the CMN, the Central Bank of Brazil and the CVM, as well as in other rules applicable to the operation of the general stock market, in addition to those contained in the Level 2 Regulation, Arbitration Regulation, Participation Agreement and Level 2 Sanctions Regulation.

In accordance with Law No. 9,307/1996, entities that are part of the direct and indirect public administration, as we and our controlling shareholder are, may use arbitration as a dispute resolution mechanism only for disputes involving negotiable economic rights. As a result, such entities cannot submit to arbitration any non-negotiable rights (*direitos indisponíveis*), such as those deemed to relate to public interest. Therefore, decisions of the Brazilian federal government exercised through voting in any general shareholders meeting, if based or related to public interest, will not be subject to an arbitration proceeding.

Self-Dealing Restrictions

In accordance with our Relevant Act or Fact Disclosure and Negotiation of Securities Policy, approved by our board of directors in October 2017, the trading by us or any related party of securities issued by us, our subsidiaries or our associates (that are public companies) is forbidden, in the following periods:

(i) 15 days before the disclosure of our quarterly information and annual information; and

(ii) in the period between the decision taken by the competent corporate body to increase or reduce the share capital, to distribute dividends, bonus shares or issue other securities by us, and the publication of the

respective notices or announcements.

Our directors, the members of our audit committee, their respective alternates and members with any technical or advisory functions created by statutory provisions, are obliged to inform us in the event of ownership and trading of securities issued by us or our subsidiaries (which are public companies). They should also indicate the securities issued by us and/or our subsidiaries (which are public companies) owned by related persons.

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Restrictions on Non-Brazilian Holders

Non-Brazilian holders face no legal restrictions on the ownership of our common or preferred shares or of ADSs based on our common or preferred shares, and are entitled to the rights and preferences of such common or preferred shares, as the case may be.

However, the ability to convert dividend payments and proceeds from the sale of common or preferred shares or preemptive rights into foreign currency and to remit such amounts outside Brazil is subject to restrictions under foreign investment legislation which generally requires, among other steps, the registration of the relevant investment with the Central Bank of Brazil. Nonetheless, any non-Brazilian holder who registers with the CVM in accordance with CMN Resolution No. 4,373 may buy and sell securities directly on the B3. Such non-Brazilian holders must appoint a local representative in Brazil who will be required, among other duties, to register and keep updated with the Central Bank of Brazil the record of all transactions of such investors on the B3.

In addition, Annex II to CMN Resolution No. 4,373 allows Brazilian companies to issue depositary receipts in foreign exchange markets. We currently have an ADR program for our common and preferred shares duly registered with the CVM and the Central Bank of Brazil. The proceeds from the sale of ADSs by holders outside Brazil are free of Brazilian foreign exchange controls.

Transfer of Control

According to Brazilian law, the Brazilian federal government is required to own at least the majority of our voting shares. Therefore, any change in our control would require a change in the applicable legislation. However, our bylaws include rules applicable to any eventual transfer of our control.

The sale of our shareholding control and the subsequent public offering shall comply with the rules set forth in our bylaws.

See Exhibit 1.1 for a copy of our bylaws.

Disclosure of Shareholder Ownership

Brazilian regulations require that (i) direct or indirect controlling shareholders, (ii) shareholders who have elected members of our board of directors or of our fiscal council, as well as (iii) any person or group of persons representing the same interest, in each case that has directly or indirectly acquired or sold an interest that exceeds (either upward or downward) the threshold of 5%, or any multiple thereof, of the total number of shares of any type or class must disclose its share ownership or divestment, immediately after the event, to the CVM and the B3.

Material Contracts

Assignment Agreement (Contrato de Cessão Onerosa)

On September 3, 2010, we entered into an agreement with the Brazilian federal government, under which it 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 Assignment Agreement was entered into pursuant to specific provisions of Law No. 12,276. The draft of the Assignment Agreement was approved by our board of directors on September 1, 2010 and by the CNPE on September 1, 2010, following a negotiation between us and the Brazilian federal government based on independent experts reports obtained by us and the ANP according to a

valuation procedure as required by Law No. 12,276. See Exhibit 2.11 for an English translation of the Assignment Agreement.

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Basic Terms

Purpose. Under the Assignment Agreement, we paid an initial contract price for the right to conduct activities of exploration and production of oil, natural gas and other fluid hydrocarbons in specified pre-salt areas, subject to a maximum production of five bnboe. Although the Assignment Agreement grants certain rights to us that are similar to those of a concession, the Assignment Agreement is a specific regime for exploration and production, not a concession under Brazilian law.

Area Covered. The Assignment Agreement covers six firm blocks plus one contingent block, located in the pre-salt areas and identified in the Assignment Agreement. These blocks are located in the Santos Basin and have expected geological characteristics similar to the discoveries made elsewhere in the pre-salt area. On February 7, 2014, we returned to the Brazilian federal government the contingent block related to the Assignment Agreement because we have confirmed that the maximum volume initially provided for in the Assignment Agreement can be reached in the six firm blocks.

Supervision and Inspection. The ANP has regulatory authority and inspection rights over our activities in the areas subject to the Assignment Agreement, as well as over our compliance with the Assignment Agreement.

Costs and Risks. All our exploration, development and production activities under the Assignment Agreement will be conducted at our expense and at our risk.

Price

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. As provided by Law No. 12,276, the contract price was determined by negotiation between us and the Brazilian federal government, based on the reports of independent experts obtained by us and by the ANP, which took into consideration a number of factors, including market conditions, oil prices at that time and industry costs.

We used part of the proceeds from our 2010 global equity offering for the payment of the initial contract price, including the use of LFTs we received from the Brazilian federal government in such global offering. The LFTs were valued at the same price at which they were valued for purposes of the global offering.

The Assignment Agreement sets forth the initial prices and volumes for each block, as follows:

		INITIAL EVALUATIONS		
		Volume (millions of boe)	**Price (US$/boe)**	**Value (US$)**
Florim (now Itapu)	**Block 1**	467	9.0094	4,207,389,800
Franco (now Búzios)	**Block 2**	3,058	9.0400	27,644,320,000
Guará South (now Sapinhoa South)	**Block 3**	319	7.9427	2,533,721,300
Surrounding Iara (now Atapu, Berbigão North, Berbigão South, Sururu North and Sururu South)	**Block 4**	600	5.8157	3,489,420,000
Tupi South(now Lula South)	**Block 5**	128	7.8531	1,005,196,800

Tupi Northeast (now Sepia)	**Block 6**	428	8.5357	3,653,279,600
Peroba	**Block 7** (contingent block)			
	Initial Contract Price of the Assignment Agreement			**42,533,327,500**

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Duration

The term of the Assignment Agreement is 40 years, which may be extended for an additional five years, upon our request, in cases of (i) force majeure, (ii) delay in obtaining applicable environmental licenses, provided that such delay is attributable only to the relevant environmental authority, (iii) suspension of the activities by determination of the ANP, or (iv) changes in the geological conditions forecast for each area. The extension will only apply to areas in which the ANP identifies the occurrence of one of the events specified above. The ANP will take into account the period of time of the delay occurred to determine the length of the extension, subject to the five-year limit indicated above. In addition, the duration of the Assignment Agreement is subject to the revision process.

Revision

The Assignment Agreement is subject to a revision process. We have notified the Brazilian federal government and the ANP ten months before the date for the declaration of commerciality of each area covered by the agreement, in order to initiate the arrangements for such revision process, which began immediately after the declaration of commerciality of each field in each of the blocks. The revision process, for all the areas subject to the Assignment Agreement, is currently ongoing and there is no formal or official date for its conclusion.

The conclusion of the revision process may result in the renegotiation of (i) the contract price, (ii) the maximum production volume of five bnbbl of oil equivalent, (iii) the contract duration, and (iv) the minimum levels of goods and services to be acquired from Brazilian providers.

If the revised contract price is higher than the initial contract price, we may agree with the Brazilian federal government on one or more of the following payment options: (i) a payment to be made by us, in cash or LFTs, to the Brazilian federal government in an amount equal to the difference between the revised contract price (resulting from the revision process) and the initial contract price; or (ii) a reduction in the maximum production volume of five bnbbl of oil equivalent. If the revised contract price is lower than the initial contract price, then the Brazilian federal government will pay us in cash, LFTs, securities issued by us or through other means agreed between us, the difference between the revised contract price and the initial contract price. In either case, the difference between the revised contract price and the initial contract price in U.S. dollars will be converted into *reais*, based on the average PTAX exchange rate for the purchase of U.S. dollars published by the Central Bank of Brazil for the 30 days preceding the revision of each area and will be updated by the interest rate of the Brazilian Special Clearance and Custody System (*Sistema Especial de Liquidação e Custódia*), or the SELIC rate, until the payment date. Payments must be made within three years of the completion of the revision process.

The amounts shall be agreed based on the reports by independent certifiers, hired by us and ANP, as established in the Assignment Agreement. The negotiations are ongoing and have taken into account appraisals by independent experts engaged by both parties and their respective reports. On September 14, 2018, the CNPE enacted Resolution 12/2018 recommending that the MME send a draft of an amendment to TCU in order to make an assessment of its terms. Accordingly, this draft was sent to TCU and to us and the negotiations toward the end of the review will progress as long as TCU concludes its assessment. There are no definitions on the outcome of the review, nor on the compensation method.

Phases

Our activities under the Assignment Agreement are divided into two phases:

Exploration phase. This phase comprises the appraisal for purposes of determining the commerciality of any discoveries of oil, natural gas and other fluid hydrocarbons. The exploration phase began upon the execution of the Assignment Agreement and ended with the declaration of commerciality of each respective reservoir discovered in each area covered by the Assignment Agreement.

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Production Phase. The production phase for a particular discovery begins as of the date of the declaration of commerciality by us to the ANP, and it lasts until the termination of the Assignment Agreement. It comprises a development period, during which we will carry out activities pursuant to a development plan approved by the ANP. Following the development period, we may start production upon notice to the ANP.

Minimum Work Program

During the exploration phase, which is now concluded, we were required to undertake a minimum work program, as specified in the Assignment Agreement as well as additional activities outside the scope of the minimum work program, that were approved by the ANP. We accomplished the minimum work program in all blocks and performed additional activities in some blocks.

Reallocation of Volumes

After the conclusion of the Assignment Agreement revision process, the Brazilian federal government and us may negotiate the reallocation of the volume of oil and natural gas originally assigned for each block, observing the revised price per barrel of oil equivalent applicable to each area, in the following scenarios: (i) the relevant environmental authority does not grant a permanent license for the performance of oil and natural gas exploration and production activities in a certain block or field, or (ii) the production of the volume allotted for any block is not feasible under petroleum industry best practices due to the geological features of the reservoirs, observing the economic parameters established in the revision process (as discussed above).

Once reallocations are completed, the number of barrels of oil equivalent to be produced in the new block will equal the product of (i) the number of barrels of oil equivalent that were reallocated from the original block to the new block and (ii) the value of the barrel of oil equivalent in the original block, to be divided by the value of the barrel of oil equivalent in the new block.

If it is not possible to reallocate all of the volumes of oil and natural gas not produced by us, the reallocation procedure will be performed in part, and the Brazilian federal government will pay us the amount resulting from the multiplication of the volume not subject to the reallocation by the value of the barrel in the block to which the reallocation has been made. This dollar amount will be converted to *reais* using the average PTAX exchange rate for the purchase of U.S. dollars for the 30 days preceding the date of the reallocation process of such block, and updated by the SELIC rate during the period between the date of the reallocation process of such block and the date of payment by the Brazilian federal government.

If it is determined that it is not possible to reallocate any volumes of oil, natural gas and other hydrocarbons fluids as described above, the Brazilian federal government will reimburse us for an amount equivalent to total volume of barrels of oil equivalent that was not produced multiplied by the dollar price of barrel of oil equivalent applicable to the relevant block, converted in *reais* using the average PTAX exchange rate for the purchase of U.S. dollars for the 30 days preceding the date of the reallocation process, and updated by the SELIC rate from the date of the reallocation process of such block to the date of payment by the Brazilian federal government.

The manner and terms of payment of the reimbursement in either case will be negotiated by us and the Brazilian federal government. Payments will be made no later than three years after the conclusion of the reallocation process.

Unitization

A reservoir covered by a block assigned to us under the Assignment Agreement may extend to adjacent areas outside such block. In such case, we must notify the ANP immediately after identifying the extension and we will be

prevented from performing the exploration and production activities within such block, until we have negotiated an unitization agreement with the third-party concessionaire or contractor under a different exploration and production regime who has rights over such adjacent areas, unless otherwise authorized by the ANP. The ANP will determine the deadline for the execution of an unitization agreement by the parties. If the adjacent area is not licensed (e.g., not granted for E&P activities to any other party), the Brazilian federal government, represented by PPSA or by ANP, shall negotiate with us.

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If the parties are unable to reach an agreement within a deadline established by the ANP, the agency will determine the terms and obligations related to such unitization, on the basis of an expert report, and will also notify us and the third-party or the Brazilian federal government representative, as applicable, of such determination. Until the unitization agreement is approved by the ANP, operations for the development and production of such reservoir must remain suspended, unless otherwise authorized by the ANP. The refusal of any party to execute the unitization agreement will result in the mandatory return to the Brazilian federal government of the area subject to the unitization process.

Extensions to adjacent areas were identified and notified to the ANP in three of the six blocks of the Assignment Agreement. The ANP authorized us to continue our exploratory activities and instructed us to start negotiating the necessary unitization agreements with third-party concessionaires. These negotiations are being conducted for all three blocks, with no impact on the development phase of these projects.

Environmental

We are required to preserve the environment and protect the ecosystem in the area subject to the Assignment Agreement and to avoid harming local fauna, flora and natural resources. We will be liable for damages to the environment resulting from our operations, including costs related to any remediation measures.

Brazilian Content

The Assignment Agreement requires us to purchase a minimum proportion of goods and services from Brazilian providers and to extend equal treatment to such providers to compete with foreign companies. The minimum Brazilian content requirement is included in the Assignment Agreement and specifies certain equipment, goods and services, as well as different levels of required content, in accordance with the different phases and periods of activities under the Assignment Agreement. The minimum Brazilian content requirement is 37% for the exploration phase. For the development period, it is (i) 55% for the development periods beginning production by 2016, (ii) 58% for the development periods beginning production between 2017 and 2019, and (iii) 65% for the development periods beginning production from 2020. Despite the minimum percentages set forth for each development period timeframes, the average global percentage of Brazilian content in the development period shall be at least 65%. If we fail to comply with the Brazilian content obligations, we may be subject to fines imposed by the ANP. The Assignment Agreement allows the ANP to grant waivers from the local content requirements, in cases where any of the Assignment Agreement area operational needs (in terms of technology, pricing and timing) cannot be met by local suppliers.

Royalties and Expenses with Research and Development

Once we begin commercial production in each field, we will be required to pay monthly royalties of 10% of the oil and natural gas production. We are also required to invest 0.5% of our yearly gross revenues from oil, natural gas and other fluid hydrocarbons production under the Assignment Agreement in research and development activities related to energy and environmental issues being conducted in universities and national research and technical development institutions, public or private, previously registered with the ANP for this purpose.

Miscellaneous Provisions

We shall not assign our rights under the Assignment Agreement.

The Assignment Agreement shall terminate upon (i) the production of the maximum volume of barrels of oil equivalent as specified in the Assignment Agreement, (ii) the expiration of the term, or (iii) upon the request of the ANP, if we fail to observe the cure period established by the ANP in connection with the breach of an obligation that proves relevant for the continuation of operations in each block. Such cure period may not be less than 90 days, except in cases of extreme emergency.

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We and the Brazilian federal government will only be excused from the performance of the activities set forth in the Assignment Agreement in cases of force majeure, which include, among others, delays in the obtaining an environmental license, provided that such delay is attributable only to the relevant environmental authority.

The Assignment Agreement is governed by Brazilian law.

We and the Brazilian federal government will use our best efforts to settle any disputes amicably. If we are unable to do so, we may submit such dispute for arbitral review by the Brazilian Federal Attorney s Office (*Advocacia-Geral da União Federal*), which may rely on independent experts to address technical matters, or initiate a legal proceeding at the Federal Court located in Brasília, Brazil.

Additional Production in the Assignment Agreement Areas

In June 2014, the CNPE enacted Resolution No. 1, which established that Petrobras could be directly engaged by the Brazilian federal government under a production sharing regime to produce the volume of oil, natural gas and fluid hydrocarbons from certain designated Assignment Agreement areas that exceeds the maximum production originally agreed for such designated areas under the Assignment Agreement. However, in November 2014, the TCU determined that the execution of these production sharing agreements can be negotiated only after all parameters for the negotiation of the revision process of the Assignment Agreement are agreed between the Brazilian federal government and us.

Production Sharing Agreements (Contrato de Partilha de Produção)

First Production Sharing Agreement st Production Sharing Bidding Round

On December 2, 2013, following a public auction held on October 21, 2013, a consortium formed by us (with a 40% interest), Shell (with a 20% interest), Total (with a 20% interest), CNODC (with a 10% interest) and CNOOC (with a 10% interest) (the Libra Consortium), entered into a production sharing agreement with the Brazilian federal government, which holds 41.65% of the Libra Consortium s profit oil, ANP, as regulator and supervisor, and PPSA, as manager of this agreement in accordance with Law No. 12,304/2010 (the First Production Sharing Agreement). Under the First Production Sharing Agreement, the Libra Consortium was awarded the rights and obligations to operate and explore a strategic pre-salt area known as Libra block, located in the ultra deepwaters of the Santos Basin. This was the first oil and gas production-sharing agreement signed under Law 12,351/2010, which implemented in Brazil a new regime for exploration and production of oil and gas in the pre-salt area and in strategic areas. This regime coexists with the concession regime (subject to Law No. 9,478/1997), applied for the non pre-salt areas, and the assignment agreements, regulated under Law No. 12,276/2010. For further information about Law 12,351/2010, see Item 4. Information on the Company Regulation of the Oil and Gas Industry in Brazil Production-Sharing Contract Regime for Unlicensed Pre-Salt and Potentially Strategic Areas . See also Exhibit 2.48 for an English translation of the Production Sharing Agreement.

Second and Third Production Sharing Agreements nd and 3rd Production Sharing Bidding Rounds

On October 27, 2017, we acquired, in partnership with other international oil companies, three offshore blocks in the 2nd and 3rd bidding rounds under the production sharing system, held by the ANP, and we will be the operator of all

blocks (Second and Third Production Sharing Agreements).

Under the production sharing system, the consortium submits to the government a percentage of the so-called surplus in oil profit for the Brazilian federal government, which is applied to revenue discounted of the production costs and royalties. The offer of oil profit to the Brazilian federal government is the only criterion the ANP adopted to define the winning bid, whereas the fixed value of the signing bonus, the minimum exploratory program, and the local content commitments have already been provided by the bidding rules.

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The following table summarizes the blocks we acquired, in partnership, in the 2nd and 3rd bidding rounds in the production sharing system:

Area	Consortium composition	Petrobras Bonus (R$ million)	Surplus in profit oil (%)
Entorno de Sapinhoá	Petrobras (45%) Shell (30%) Repsol Sinopec (25%)	90	80.00
Peroba	Petrobras (40%) BP (40%) CNODC (20%)	800	76.96
Alto de Cabo Frio Central	Petrobras (50%) BP (50%)	250	75.86

We, our partners, together with the ANP, PPSA and the Brazilian federal government signed the Second and Third Production Sharing Agreements with the ANP for exploration and production of oil and natural gas on January 31, 2018.

Fourth and Fifth Production Sharing Agreements 4th and 5th Production Sharing Bidding Rounds

On June 7, 2018, we acquired, together with other international companies, three offshore blocks, including the block of Dois Irmãos, under the production sharing agreement for the areas of Três Marias and Uirapuru (Fourth and Fifth Production Sharing Agreements and, together with the First, Second and Third Production Sharing Agreements, Productions Sharing Agreements).

We will be the operator of these three blocks under the production sharing regime. According to such regime, the consortium submits to the Brazilian federal government a percentage of the so-called surplus in oil profit for the Brazilian federal government, which is applied to the revenue discounted of the production costs and royalties. The offer of oil profit to the Brazilian federal government is the only criteria that the ANP adopted to define the bid winner, whereas the fixed value of the signing bonus, the minimum exploratory program, and the local content commitments have already been provided by the bidding rules.

On September 28, 2019, we acquired the area of Sudoeste de Tartaruga Verde under the production sharing regime and, as a result, we will be the operator of the corresponding agreement. As there are no other private partners, the consortium will be formed only by PPSA and us.

Basic Terms

Purpose. The purpose of the Production Sharing Agreements is to execute and manage the exploration and production rights over oil and gas reserves in the blocks. In accordance with Law No. 12,351/2010, recently modified by Law 13,365/2016, Petrobras have the option to exercise a preemptive right to be the operator of, or to hold a 30% interest in, the future areas to be offered for bidding under the sharing production regime. As such, it is no longer mandatory for us to be the exclusive operator of exploration and production activities under this regime.

Operating Committee. The PSA Consortia are managed by an Operating Committee in which Petrobras, its partners and PPSA all participate, where PPSA represents the interests of the Brazilian federal government. The PPSA will not invest in the blocks, but it holds 50% of the Operating Committee voting rights and also has a casting vote and veto powers, as defined in the Production Sharing Agreements.

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Risks, Costs and Compensation. All exploration, development and production activities under the Production Sharing Agreements will be conducted at the expense and risk of the members of the Consortium. For commercial discoveries of crude oil and/or natural gas in the blocks, the Consortium will be entitled to recover, on a monthly basis, (i) a portion of the production of oil and gas in the block corresponding to its royalty expenses and (ii) the cost oil corresponding to costs incurred (which is the amount associated with capital expenditures incurred and operating costs of the Consortiums exploration and production activities), subject to the conditions, proportions and terms set forth on the Production Sharing Agreements. In addition, for each commercial discovery, the consortiums are entitled to receive, on a monthly basis, its share of profit oil as defined under the Production Sharing Agreements.

Duration

The term of the Production Sharing Agreements is 35 years.

Phases

Our activities under the Production Sharing Agreements are divided into two phases:

Exploration phase. This phase comprises appraisal activities for purposes of determining the commerciality of any discoveries of crude oil and natural gas. The exploration phase began upon the execution of the Production Sharing Agreements and will end for each discovery upon the declaration of commerciality. We will have four years (which may be extended upon ANP s prior approval, according to the terms and conditions set forth in the Production Sharing Agreements) to comply with the minimum work program and other ANP-approved activities provided for in the Production Sharing Agreements.

Production Phase. The production phase for each particular discovery begins as of the date of the declaration of commerciality by the Consortiums to the ANP, and lasts until the termination of the Production Sharing Agreements. It comprises a development period, during which we will carry out activities pursuant to a development plan approved by the ANP. We will have a period of five years, counted from the date of the declaration of commerciality, to begin production from the Libra block.

Minimum Work Program

During the exploration phase, we are required to undertake a minimum work program, as specified in the Production Sharing Agreements. We may perform other activities outside the scope of the minimum work program, provided that such activities are approved by the ANP.

Unitization

A reservoir covered by a block assigned to us in the Production Sharing Agreements may extend to adjacent areas outside such block. In such case, we must notify the ANP immediately after identifying the extension and we will be prevented from performing development and production activities within such block, until we have negotiated an unitization agreement with the third-party concessionaire or contractor who has rights over such adjacent area, unless otherwise authorized by the ANP. The ANP will determine the deadline for the execution of an unitization agreement by the parties. If the adjacent area is not licensed (i.e., not granted for E&P activities to any other party), the Brazilian federal government, represented by PPSA or by the ANP, shall negotiate with us.

If the parties are unable to reach an agreement within a deadline established by the ANP, the agency will determine the terms and obligations related to such unitization, on the basis of an expert report, and will also notify us and the

third-party or the Brazilian federal government representative, as applicable, of such determination. Until the unitization agreement is approved by the ANP, operations for the development and production of such reservoir must remain suspended, unless otherwise authorized by the ANP. The refusal of any party to execute the unitization agreement will result in the termination of the Production Sharing Agreements and the return to the Brazilian federal government of the area subject to the unitization process.

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Environmental

We are required to preserve the environment and protect the ecosystem in the area subject to the Production Sharing Agreements and to avoid harming local fauna, flora and natural resources. We will be liable for damages to the environment resulting from our operations, including costs related to any remediation measures.

Brazilian Content

The Production Sharing Agreements require us to purchase a minimum proportion of goods and services from Brazilian providers and to extend equal treatment to such providers to compete with foreign companies. The minimum Brazilian content requirement is included in the Production Sharing Agreements and specifies certain equipment, goods and services, as well as different levels of required content, in accordance with the different phases and periods of activities under the Production Sharing Agreements. There is a minimum Brazilian content requirement for the exploration phase and for the development period. If we fail to comply with the Brazilian content obligations, we may be subject to fines imposed by the ANP. The Libra s Production Sharing Agreement allows the ANP to grant waivers from the local content requirements, in cases where any of the Libra Consortium s operational needs (in terms of technology, pricing and timing) cannot be met by local suppliers. In 2016, the Libra Consortium requested a waiver from the ANP of the local content commitment with respect to the stationary production unit, due to the lack of suppliers capability to meet local content requirements and accomplish the desired deadlines. In 2017, the ANP decided to exempt the Libra Consortium from complying with local content requirements for all items of the hull and certain items of the plants (with the exception of basic engineering and certain additional items), in addition to adjusting the minimum commitments for other items needed for plant construction, installation and integration of modules. According to Resolution No. 7, enacted by CNPE of April, 2017, the percentage of the local content requirement was reduced in the third bidding round under the production sharing regime and the possibility of waiver was excluded.

Royalties and Expenses with Research and Development

Once we begin production in each field, members of the Consortia (other than PPSA) will be required to pay monthly royalties of 15% of the oil and natural gas production, to be recovered from a portion of the production of oil and gas in the block. All members of the Consortia (other than PPSA) will also be required to invest 1.0% of their annual gross revenues from crude oil and natural gas production under the Production Sharing Agreement in research and development activities related to the oil, gas and biofuel sectors.

Miscellaneous Provisions

We can assign our rights and obligations under the Production Sharing Agreement.

All members of the Consortiums (other than PPSA) have a right of first refusal with respect to an eventual assignment of rights and obligations to be made by any other member of the Consortium (other than PPSA).

The Production Sharing Agreements shall be terminated in the following circumstances: (i) the expiration of their terms; (ii) if the minimum work program has not been completed by the end of the exploration phase; (iii) if there has not been any commercial discovery by the end of the exploration phase; (iv) if the

Consortium members (other than PPSA) exercise their withdrawal rights during the exploration phase; (v) if the Consortium refuses to execute a production individualization agreement after the ANP makes such determination (which termination may be complete or partial) and (vi) any other basis described in the Production Sharing Agreements.

Any breach of the Production Sharing Agreement or of any regulations issued by the ANP may result in sanctions and fines imposed by the ANP on the relevant party, in accordance with applicable legislation and the terms of the Production Sharing Agreements.

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If any breach of the Production Sharing Agreements are considered by the Brazilian federal government not to be significant, intentional, or a result of negligence, imprudence or recklessness, or it is proved that the consortium has worked diligently to cure such breach, the Brazilian federal government may, instead of terminating the Production Sharing Agreements, propose that ANP apply designated sanctions on the relevant parties.

Petrobras and other consortium members will use our best efforts to settle any disputes amicably. If we are unable to do so, any consortium member may submit such dispute or controversy to an *ad hoc* arbitration following the rules established by the United Nations Commission on International Trade Law (UNCITRAL), or by the consent of the parties in interest, to the ICC, or any other well-regarded arbitration chamber. If a dispute involves only public administration entities, it may be submitted to conciliation service of the *Câmara de Conciliação e Arbitragem da Administração Federal*, or CCAF, under the Brazilian Federal Attorney-General s Office administration (*Advocacia Geral da União*), or AGU. In event of a dispute involving non-negotiable rights, the parties shall submit the dispute to the Federal Courts in Brasília, Brazil.

The Production Sharing Agreements are governed by Brazilian law.

For information concerning our other material contracts, see Item 4. Information on the Company and Item 5. Operating and Financial Review and Prospects.

Exchange Controls

There are no restrictions on ownership of the common or preferred shares by individuals or legal entities domiciled outside Brazil.

The right to convert dividend payments and proceeds from the sale of shares into foreign currency and to remit such amounts outside Brazil may be subject to restrictions under foreign investment legislation, which generally requires, among other things, that the relevant investments be registered with the Central Bank of Brazil. If any restrictions are imposed on the remittance of foreign capital abroad, they could hinder or prevent the *Central Depositária*, as custodian for the common and preferred shares represented by the ADSs, or registered holders who have exchanged ADSs for common shares or preferred shares, from converting dividends, distributions or the proceeds from any sale of such common shares or preferred shares, as the case may be, into U.S. dollars and remitting the U.S. dollars abroad.

Foreign investors may generally register their investment under Law No. 4,131/1962 (foreign direct investment) or CMN Resolution No. 4,373 (portfolio investments in regulated market, such as stock exchanges). Registration under CMN Resolution No. 4,373 affords a more favorable tax treatment to foreign investors who are not residents of tax havens, as defined by Brazilian tax laws. See Taxation Relating to Our ADSs and Common and Preferred Shares Brazilian Tax Considerations.

Under CMN Resolution No. 4,373, foreign investors may invest in almost all financial assets and engage in almost all transactions available in the Brazilian financial and capital markets, provided that certain requirements are fulfilled. In accordance with CMN Resolution No. 4,373, the definition of foreign investor includes individuals, legal entities, mutual funds and other collective investment entities, domiciled or headquartered abroad.

Under CMN Resolution No. 4,373, a foreign investor must:

(i) appoint at least one representative in Brazil, with powers to perform actions relating to its investment;

(ii) register as a foreign investor with the CVM;

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(iii) appoint at least one authorized custodian in Brazil for its investments; and

(iv) register all of its portfolio investments in Brazil, through its representative, with the Central Bank of Brazil. Securities and other financial assets held by CMN Resolution No. 4,373 investors must be registered or maintained in deposit accounts or under the custody of an entity duly licensed by the Central Bank of Brazil or the CVM. In addition, any transfer of securities held under CMN Resolution No. 4,373 and ICVM No. 560/2015 must be carried out in the stock exchanges or through organized over-the-counter markets licensed by the CVM, except for transfers resulting from transactions involving merger, split, amalgamation, corporate reorganizations, stock swaps, or a transfer resulting from bequest or inheritance.

Annex II of CMN Resolution No. 4,373 provides for the issuance of depositary receipts in foreign markets with respect to shares of Brazilian issuers. The depositary of the ADSs has obtained from the Central Bank of Brazil an electronic certificate of registration with respect to our existing ADR program. Pursuant to the registration, the custodian and the depositary will be able to convert dividends and other distributions with respect to the relevant shares represented by ADSs into foreign currency and to remit the proceeds outside Brazil.

In the event that a holder of ADSs exchanges such ADSs for the underlying common or preferred shares, the holder will be required to obtain registration as a foreign investor in Brazil pursuant to CMN Resolution No. 4,373 (Annex I) by appointing a local representative and obtaining a certificate of registration from the Central Bank of Brazil. Failure to take these measures may subject the holder to the inability of converting the proceeds from the disposition of, or distributions with respect to, the relevant shares, into foreign currency and to remit proceeds outside of Brazil. Additionally, the holder may be subjected to a less favorable Brazilian tax treatment than a holder of ADSs. In addition, if the foreign investor resides in a tax haven jurisdiction, the investor will be also subject to less favorable tax treatment. See Item 3. Key Information Risk Factors Risks Relating to Our Equity and Debt Securities and Taxation Relating to Our ADSs and Common and Preferred Shares Brazilian Tax Considerations.

Taxation Relating to Our ADSs and Common and Preferred Shares

The following summary contains a description of material Brazilian and U.S. federal income tax considerations that may be relevant to the purchase, ownership and disposition of preferred or common shares or ADSs by a holder. This summary does not describe any tax consequences arising under the laws of any state, locality or taxing jurisdiction other than Brazil and the United States.

This summary is based upon the tax laws of Brazil and the United States as in effect on the date of this annual report, which are subject to change (possibly with retroactive effect). This summary is also based upon the representations of the depositary and on the assumption that the obligations in the deposit agreement and any related documents will be performed in accordance with their respective terms.

This description is not a comprehensive description of the tax considerations that may be relevant to any particular investor, including tax considerations that arise from rules that are generally applicable to all taxpayers or to certain classes of investors or rules that investors are generally assumed to know. Prospective purchasers of common or preferred shares or ADSs should consult their own tax advisors as to the tax consequences of the acquisition, ownership and disposition of common or preferred shares or ADSs.

There is no income tax treaty between the United States and Brazil. In recent years, the tax authorities of Brazil and the United States have held discussions that may culminate in such a treaty. We cannot predict, however, whether or when a treaty will enter into force or how it will affect the U.S. Holders of common or preferred shares or ADSs.

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Brazilian Tax Considerations

General

The following discussion summarizes the material Brazilian tax consequences of the acquisition, ownership and disposition of preferred or common shares or ADSs, as the case may be, by a holder that is not deemed to be domiciled in Brazil for purposes of Brazilian taxation, also called a non-Brazilian holder.

Under Brazilian law, investors (non-Brazilian holders) may invest in the preferred or common shares under CMN Resolution No. 4,373 or under Law No. 4,131/1962. The rules of CMN Resolution No. 4,373 allow foreign investors to invest in almost all instruments and to engage in almost all transactions available in the Brazilian financial and capital markets, provided that certain requirements are met. In accordance with CMN Resolution No. 4,373, the definition of foreign investor includes individuals, legal entities, mutual funds and other collective investment entities, domiciled or headquartered abroad.

Pursuant to this rule, foreign investors must: (i) appoint at least one representative in Brazil with powers to perform actions relating to their foreign investment (such as registration and keeping updated records of all transactions with the Central Bank of Brazil); (ii) complete the appropriate foreign investor registration form; (iii) register as a foreign investor with the CVM; and (iv) register the foreign investment with the Central Bank of Brazil.

Securities and other financial assets held by foreign investors pursuant to CMN Resolution No. 4,373 must be registered or maintained in deposit accounts or under the custody of an entity duly licensed by the CVM. In addition, securities trading is restricted to transactions carried out in the stock exchanges or organized over-the-counter markets authorized by the CVM.

Taxation of Dividends

Generally speaking, dividends paid by us, including stock dividends and other dividends paid in property to the depositary in respect of the ADSs, or to a non-Brazilian holder in respect of the preferred or common shares, are not subject to withholding income tax in Brazil, to the extent that such amounts are related to profits generated after January 1, 1996.

We must pay to our shareholders (including non-Brazilian holders of common or preferred shares or ADSs) interest on the amount of dividends payable to them, updated by the SELIC rate, from the end of each fiscal year through the date of effective payment of those dividends. These interest payments are considered fixed-yield income and are subject to withholding income tax at varying rates depending on the length of period of interest accrual. The tax rate for payments made to beneficiaries residents or domiciled in Brazil varies from 15%, in case of interest accrued for a period greater than 720 days, 17.5% in case of interest accrued for a period between 361 and 720 days, 20% in case of interest accrued for a period between 181 and 360 days, and to 22.5%, in case of interest accrued for a period up to 180 days. However, when the beneficiary is a non-Brazilian holder the general applicable withholding income tax rate over interest is 15% except in case the beneficiary is resident or domiciled in a country or other jurisdiction that does not impose income tax or imposes it at a maximum income tax rate lower than 17% (a Low or Nil Tax Jurisdiction) or, based on the position of the Brazilian tax authorities, a country or other jurisdiction where the local legislation does not allow access to information related to the shareholding composition of legal entities, to their ownership or to the identity of the effective beneficiary of the income attributed to shareholders (the Non-Transparency Rule), when the applicable withholding income tax rate will be 25%. See Clarifications on Non-Brazilian Holders Resident or Domiciled in a Low or Nil Tax Jurisdiction.

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Taxation on Interest on Capital

Any payment of interest on capital to holders of ADSs or preferred or common shares, whether or not they are Brazilian residents, is subject to Brazilian withholding income tax at the rate of 15% at the time we record such liability, whether or not the effective payment is made at that time. See Memorandum and Articles of Incorporation Payment of Dividends and Interest on Capital. In the case of non-Brazilian residents that are resident in a Low or Nil Tax Jurisdiction (including in the view of Brazilian authorities the jurisdictions to which the Non-Transparency Rule applies), the applicable withholding income tax rate is 25%. See Clarifications on Non-Brazilian Holders Resident or Domiciled in a Low or Nil Tax Jurisdiction. The payment of interest with respect to updating recorded distributions by the SELIC rate that is applicable to payments of dividends applies equally to payments of interest on capital. The determination of whether or not we will make distributions in the form of interest on capital or in the form of dividends is made by our board of directors at the time distributions are to be made. We cannot determine how our board of directors will make these determinations in connection with future distributions.

Taxation of Gains

For purposes of Brazilian taxation on capital gains, two types of non-Brazilian holders have to be considered: (i) non-Brazilian holders of ADSs, preferred shares or common shares that are not resident or domiciled in a Low or Nil Tax Jurisdiction, and that, in the case of preferred or common shares, have registered before the Central Bank of Brazil and the CVM in accordance with CMN Resolution No. 4,373; and (ii) any other non-Brazilian holder, including non-Brazilian holders who invest in Brazil not in accordance with CMN Resolution No. 4,373 (including registration under Law No. 4,131/1962) and who are resident or domiciled in a Low or Nil Tax Jurisdiction. See Clarifications on Non-Brazilian Holders Resident or Domiciled in a Low or Nil Tax Jurisdiction.

According to Law No. 10,833/2003, capital gains realized on the disposition of assets located in Brazil by non-Brazilian holders, whether or not to other non-residents and whether made outside or within Brazil, may be subject to taxation in Brazil. With respect to the disposition of common or preferred shares, as they are assets located in Brazil, the non-Brazilian holder may be subject to income tax on any gains realized, following the rules described below, regardless of whether the transactions are conducted in Brazil or with a Brazilian resident. We understand the ADSs do not fall within the definition of assets located in Brazil for the purposes of this law, but there is still neither pronunciation from tax authorities nor judicial court rulings in this respect. Therefore, we are unable to predict whether such understanding will prevail in the courts of Brazil.

Although there are grounds to sustain otherwise, the deposit of preferred or common shares in exchange for ADSs may be subject to Brazilian taxation on capital gains if the acquisition cost of the preferred or common shares is lower than the average price per preferred or common share.

The difference between the acquisition cost and the market price of the preferred or common shares will be considered realized capital gain that is subject to taxation as described below. There are grounds to sustain that such taxation is not applicable with respect to non-Brazilian holders registered under the rules of CMN Resolution No. 4,373 and not resident or domiciled in a Low or Nil Tax Jurisdiction.

The withdrawal of ADSs in exchange for preferred or common shares should not be considered as giving rise to a capital gain subject to Brazilian income tax, provided that on receipt of the underlying preferred or common shares, the non-Brazilian holder complies with the registration procedure with the Central Bank of Brazil as described below in Registered Capital.

Capital gains realized by a non-Brazilian holder on a sale or disposition of preferred or common shares carried out on a Brazilian stock exchange (which includes transactions carried out on the organized over-the-counter market) are:

exempt from income tax when the non-Brazilian holder (i) has registered its investment in accordance with CMN Resolution No. 4,373 and (ii) is not resident or domiciled in a Low or Nil Tax Jurisdiction;

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subject to an income tax at a 25% rate, in cases of gains realized by a non-Brazilian holder resident or domiciled in a Low or Nil Tax Jurisdiction or a jurisdiction to which the Non-Transparency Rule applies. In this case, a withholding income tax at a rate of 0.005% of the sale value is levied on the transaction which can be offset against the eventual income tax due on the capital gain; or

in all other cases, including a case of capital gains realized by a non-Brazilian holder that is not registered in accordance with CMN Resolution No. 4,373, subject to income tax at the following progressive rates: 15% that do not exceed R$5,000,000.00 (five million reais), 17.5% on the gains between R$5,000,000.00 (five million reais) and R$10,000,000.00 (ten million reais), 20% on the gains between R$10,000,000.00 (ten million reais) and R$30,000,000.00 (thirty million reais) and 22.5% on the gains that exceed R$30,000,000.00 (thirty million reais. In these cases, a withholding income tax at a rate of 0.005% of the sale value is levied on the transaction which can be offset against the eventual income tax due on the capital gain.

Any capital gains realized on a disposition of preferred or common shares that is carried out outside the Brazilian stock exchange are subject to income tax above rates in case of gains realized by a non-Brazilian holder that is domiciled or resident in a Low or Nil Tax Jurisdiction or a jurisdiction to which the Non-Transparency Rule applies. In this last case, for the capital gains related to transactions conducted on the Brazilian non-organized over-the-counter market with intermediation, the withholding income tax of 0.005% will also apply and can be offset against the eventual income tax due on the capital gain.

In the case of a redemption of preferred or common shares or ADSs or a capital reduction made by us, the positive difference between the amount received by the non-Brazilian holder and the acquisition cost of the preferred or common shares or ADSs redeemed or reduced is treated as capital gain derived from the sale or exchange of shares not carried out on a Brazilian stock exchange market and is therefore generally subject to above rates. See Clarifications on Non-Brazilian Holders Resident or Domiciled in a Low or Nil Tax Jurisdiction.

Any exercise of preemptive rights relating to the preferred or common shares will not be subject to Brazilian taxation. Any gain on the sale or assignment of preemptive rights will be subject to Brazilian income taxation according to the same rules applicable to the sale or disposition of preferred or common shares.

No assurance can be made that the current preferential treatment of non-Brazilian holders of the ADSs and some non-Brazilian holders of the preferred or common shares under CMN Resolution No. 4,373 will continue to apply in the future.

Additional Recent Rules Regarding Taxation of Gains

On March 16, 2016, the Brazilian federal government converted the Provisional Measure No. 692 into Law No. 13,259, which established progressive income tax rates applicable to capital gains derived from the disposition of assets by Brazilian individuals. Law No. 13,259 provides for new rates that range from 15% to 22.5% depending on the amount of the gain recognized by the Brazilian individual, as follows: (i) 15% on gains not exceeding R$5,000,000.00; (ii) 17.5% on gains that exceed R$5,000,000.00 and do not exceed R$10,000,000.00; (iii) 20% on gains that exceed R$10,000,000.00 and do not exceed R$30,000,000.00; and (iv) 22.5% on gains exceeding R$30,000,000.00. Pursuant to Section 18 of Law No. 9,249/95, the tax treatment applicable to capital gains earned by Brazilian individuals also applies to capital gains earned by non-Brazilian residents (except in cases that remain subject to the application of specific rules, as explained in Section 149 of the law).

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Clarifications on Non-Brazilian Holders Resident or Domiciled in a Low or Nil Tax Jurisdiction

Law No. 9,779/1999 states that, except for limited prescribed circumstances, income derived from transactions by a person resident or domiciled in a Low or Nil Tax Jurisdiction will be subject to withholding income tax at the rate of 25%. A Low or Nil Tax Jurisdiction is generally considered to be a country or other jurisdiction which does not impose any income tax or which imposes such tax at a maximum rate lower than 17%. Under certain circumstances, the Non-Transparency Rule is also taken into account for determining whether a country or other jurisdiction is a Low or Nil Tax Jurisdiction. In addition, Law No. 11,727/2008 introduced the concept of a privileged tax regime , which is defined as a tax regime which (i) does not tax income or taxes it at a maximum rate lower than 17%; (ii) grants tax benefits to non-resident entities or individuals (a) without the requirement to carry out a substantial economic activity in the country or other jurisdiction or (b) contingent on the non-exercise of a substantial economic activity in the country or other jurisdiction; (iii) does not tax or that taxes foreign source income at a maximum rate lower than 17%; or (iv) does not provide access to information related to shareholding composition, ownership of assets and rights or economic transactions carried out. We believe that the best interpretation of Law No. 11,727/2008 is that the concept of a privileged tax regime will apply solely for purposes of the transfer pricing rules in export and import transactions, deductibility for Brazilian corporate income taxes and the thin capitalization rules and, would therefore generally not have an impact on the taxation of a non-Brazilian holder of preferred or common shares or ADSs, as discussed herein. However, we are unable to ascertain whether the privileged tax regime concept will also apply in the context of the rules applicable to Low or Nil Tax Jurisdictions, although the Brazilian tax authorities appear to agree with our position, in view of the provisions of the Withholding Income Tax Manual (MAFON 2016), issued by the Brazilian Revenue Service.

Taxation of Foreign Exchange Transactions (IOF/Exchange)

Brazilian law imposes the IOF/Exchange on the conversion of *reais* into foreign currency and on the conversion of foreign currency into *reais*. Currently, for most foreign currency exchange transactions, the rate of IOF/Exchange is 0.38%. However, foreign exchange transactions related to inflows of funds to Brazil for investments made by foreign investors in the Brazilian financial and capital markets are generally subject to IOF/Exchange at a zero percent rate. Foreign exchange transactions related to outflows of proceeds from Brazil in connection with investments made by foreign investors in the Brazilian financial and capital markets are also subject to the IOF/Exchange tax at a zero percent rate. This zero percent rate applies to payments of dividends and interest on capital received by foreign investors with respect to investments in the Brazilian financial and capital markets, such as investments made by a non-Brazilian holder as provided for in CMN Resolution No. 4,373. The Brazilian Executive Branch may increase such rates at any time, up to 25% of the amount of the foreign exchange transaction, but not with retroactive effect.

Taxation on Bonds and Securities Transactions (IOF/Bonds)

Brazilian law imposes IOF/Bonds on transactions involving equity securities, bonds and other securities, including those carried out on a Brazilian stock exchange. The rate of IOF/Bonds applicable to transactions involving preferred or common shares is currently zero. However, the Brazilian federal government may increase such rate at any time up to 1.5% of the transaction amount per day, but the tax cannot be applied retroactively.

The IOF on transfer of shares, which are admitted to trading on a stock exchange located in Brazil, with the specific purpose of backing the issuance of depositary receipts traded abroad have been reduced from 1.5% to zero, as of December 24, 2013.

Other Brazilian Taxes

There are no Brazilian inheritance, gift or succession taxes applicable to the ownership, transfer or disposition of preferred or common shares or ADSs by a non-Brazilian holder, except for gift and inheritance taxes which are levied by certain states of Brazil on gifts made or inheritances bestowed by a non-Brazilian holder to individuals or entities resident or domiciled within such states in Brazil. There are no Brazilian stamp, issue, registration, or similar taxes or duties payable by holders of preferred or common shares or ADSs.

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Registered Capital

The amount of an investment in preferred or common shares held by a non-Brazilian holder who obtains registration under CMN Resolution No. 4,373, or by the depositary representing such holder, is eligible for registration with the Central Bank of Brazil; and such registration allows the remittance outside Brazil of foreign currency, converted at the commercial market rate, acquired with the proceeds of distributions on, and amounts realized with respect to dispositions of, such preferred or common shares. The amount registered (registered capital) for each preferred or common share purchased as part of the international offering or purchased in Brazil after the date hereof, and deposited with the depositary, will be equal to its purchase price (in U.S. dollars). The registered capital for a preferred or common share that is withdrawn upon surrender of an ADS will be the U.S. dollar equivalent of:

a) the average price of a preferred or common share on the Brazilian stock exchange on which the highest volume of such shares were traded on the day of withdrawal; or

b) if no preferred or common shares were traded on that day, the average price on the Brazilian stock exchange on which the highest volume of preferred or common shares were traded in the 15 trading sessions immediately preceding the date of such withdrawal.

The U.S. dollar value of the average price of preferred or common shares is determined on the basis of the average of the U.S. dollar/*real* commercial market rates quoted by the Central Bank of Brazil information system on that date (or, if the average price of preferred or common shares is determined under the second option above, price will be determined by the average quoted rates verified on the same 15 preceding trading sessions as described above).

A non-Brazilian holder of preferred or common shares may be subject to delays in effecting such registration, which in turn may delay remittances abroad. Such a delay may adversely affect the amount, in U.S. dollars, received by the non-Brazilian holder. See Item 3. Key Information Risk Factors Risks Relating to Our Equity and Debt Securities.

U.S. Federal Income Tax Considerations

This summary describes the material U.S. federal income tax consequences of the ownership and disposition of common or preferred shares or ADSs, based on the U.S. Internal Revenue Code of 1986, as amended, the Code , its legislative history, existing and proposed U.S. Treasury regulations promulgated thereunder, published rulings by the U.S. Internal Revenue Service (IRS), and court decisions, all as in effect as of the date hereof, and all of which are subject to change or differing interpretations, possibly with retroactive effect. This summary does not purport to be a comprehensive description of all of the tax consequences that may be relevant to a decision to hold or dispose of common or preferred shares or ADSs. This summary applies only to purchasers of common or preferred shares or ADSs who hold the common or preferred shares or ADSs as capital assets (generally, property held for investment), and does not apply to special classes of holders such as dealers or traders in securities or currencies, holders whose functional currency is not the U.S. dollar, holders of 10% or more of our shares, measured by voting power or value (taking into account shares held directly or through depositary arrangements), tax-exempt organizations, partnerships or partners therein, financial institutions, life insurance companies, holders liable for the alternative minimum tax, securities traders who elect to account for their investment in common or preferred shares or ADSs on a mark-to-market basis, persons that enter into a constructive sale transaction with respect to common or preferred shares or ADSs, and persons holding common or preferred shares or ADSs in a hedging transaction or as part of a straddle or conversion transaction. Moreover, this summary does not address state, local or foreign taxes or the U.S. federal estate and gift taxes.

EACH HOLDER SHOULD CONSULT ITS OWN TAX ADVISOR CONCERNING THE OVERALL TAX CONSEQUENCES IN ITS PARTICULAR CIRCUMSTANCES, INCLUDING THE CONSEQUENCES UNDER LAWS OTHER THAN U.S. FEDERAL INCOME TAX LAWS, OF AN INVESTMENT IN COMMON OR PREFERRED SHARES OR ADSs.

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Shares of our preferred stock will be treated as equity for U.S. federal income tax purposes. In general, a holder of an ADS will be treated as the holder of the shares of common or preferred stock represented by those ADSs for U.S. federal income tax purposes, and no gain or loss will be recognized if you exchange ADSs for the shares of common or preferred stock represented by that ADS.

In this discussion, references to ADSs refer to ADSs with respect to both common and preferred shares, and references to a U.S. Holder are to a holder of a common or preferred share or ADS that is:

an individual who is a citizen or resident of the United States;

a corporation organized under the laws of the United States, any state thereof, or the District of Columbia; or

otherwise subject to U.S. federal income taxation on a net basis with respect to the shares or the ADS.

Taxation of Distributions

A U.S. Holder will recognize ordinary dividend income for U.S. federal income tax purposes in an amount equal to the amount of any cash and the value of any property we distribute as a dividend to the extent that such distribution is paid out of our current or accumulated earnings and profits, as determined for U.S. federal income tax purposes, when such distribution is received by the depositary, in of case of ADSs, or by the U.S. Holder in the case of a holder of common or preferred shares. The amount of any distribution will include distributions characterized as interest on capital and the amount of Brazilian tax withheld on the amount distributed, and the amount of a distribution paid in *reais* will be measured by reference to the exchange rate for converting *reais* into U.S. dollars in effect on the date the distribution is received by the depositary, in the case of ADSs, or by a U.S. Holder in the case of a holder of common or preferred shares. If the depositary, in the case of ADSs, or U.S. Holder in the case of a holder of common or preferred shares, does not convert such *reais* into U.S. dollars on the date it receives them, it is possible that the U.S. Holder will recognize foreign currency loss or gain, which would be U.S. source ordinary loss or gain, when the *reais* are converted into U.S. dollars. Dividends paid by us will not be eligible for the dividends received deduction allowed to corporations under the Code.

Subject to certain exceptions for short-term and hedged positions, the U.S. dollar amount of dividends received by a non-corporate U.S. Holder with respect to the ADSs will generally be subject to taxation at preferential rates if the dividends are qualified dividends. Dividends paid on the ADSs will be treated as qualified dividends if (i) the ADSs are readily tradable on an established securities market in the United States and (ii) Petrobras was not, in the year prior to the year in which the dividend was paid, and is not, in the year in which the dividend is paid, a passive foreign investment company as defined for U.S. federal income tax purposes (a PFIC). The ADSs are listed on the NYSE, and will qualify as readily tradable on an established securities market in the United States so long as they are so listed. Based on our audited consolidated financial statements and relevant market and shareholder data, we believe that we should not be treated as a PFIC for U.S. federal income tax purposes with respect to the 2018 or 2017 taxable year. In addition, based on our audited consolidated financial statements and our current expectations regarding the value and nature of our assets, the sources and nature of our income, and relevant market and shareholder data, we do not anticipate becoming a PFIC for our 2019 taxable year. Based on existing guidance, it is not clear whether dividends received with respect to the shares will be treated as qualified dividends, because the shares are not themselves listed on a U.S. exchange. U.S. Holders of our ADSs should consult their own tax advisors regarding the availability of the reduced dividend tax rate in the light of their particular circumstances.

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Distributions out of earnings and profits with respect to the shares or ADSs generally will be treated as dividend income from sources outside of the United States and generally will be treated as passive category income for U.S. foreign tax credit purposes. Subject to certain limitations, Brazilian income tax withheld in connection with any distribution with respect to the shares or ADSs may be claimed as a credit against the U.S. federal income tax liability of a U.S. Holder, or, at the U.S. Holder s election, such Brazilian withholding tax may be taken as a deduction against taxable income (provided that the U.S. Holder elects to deduct, rather than credit, all foreign income taxes paid or accrued for the relevant taxable year). A U.S. foreign tax credit may not be allowed for Brazilian withholding tax imposed in respect of certain short-term or hedged positions in securities or in respect of arrangements in which a U.S. Holder s expected economic profit is insubstantial. U.S. Holders should consult their own tax advisors regarding the availability of the U.S. foreign tax credit, including the translation of *reais* into U.S. dollar for these purposes, in light of their particular circumstances.

Holders of ADSs that are foreign corporations or nonresident alien individuals (non-U.S. Holders) generally will not be subject to U.S. federal income tax, including withholding tax, on distributions with respect to shares or ADSs that are treated as dividend income for U.S. federal income tax purposes unless such dividends are effectively connected with the conduct by the holder of a trade or business in the United States.

Taxation of Capital Gains

Upon the sale or other disposition of a share or an ADS, a U.S. Holder will generally recognize U.S. source capital gain or loss for U.S. federal income tax purposes, equal to the difference between the amount realized on the disposition and the U.S. Holder s tax basis in such share or ADS. Any gain or loss will be long-term capital gain or loss if the shares or ADSs have been held for more than one year. Non-corporate U.S. Holders of shares or ADSs may be eligible for a preferential rate of U.S. federal income tax in respect of long-term capital gains. Capital losses may be deducted from taxable income, subject to certain limitations. For U.S. federal income tax purposes, such disposition would not result in foreign source-income to a U.S. Holder. As a result, a U.S. Holder may not be able to use the foreign tax credit associated with any Brazilian income taxes imposed on such gains, unless such holder can use the credit against U.S. tax due on other foreign-source income. U.S. Holders should consult their own tax advisors regarding the availability of the U.S. foreign tax credit.

A non-U.S. Holder will not be subject to U.S. federal income tax or withholding tax on gain realized on the sale or other disposition of a share or an ADS, unless:

- such gain is effectively connected with the conduct by the holder of a trade or business in the United States; or
- such holder is an individual who is present in the United States for 183 days or more in the taxable year of the sale and certain other conditions are met.

Information Reporting and Backup Withholding

The payment of dividends on, and proceeds from the sale or other disposition of, the ADSs or common or preferred shares to a U.S. Holder within the United States (or through certain U.S. related financial intermediaries) will generally be subject to information reporting, and may be subject to backup withholding unless the U.S. Holder (i) is an exempt recipient, and demonstrates this fact when so required, or (ii) timely provides a taxpayer identification number and certifies that no loss of exemption from backup withholding has occurred and otherwise complies with

applicable requirements of the backup withholding rules. Backup withholding is not an additional tax. The amount of any backup withholding collected from a payment to a U.S. Holder will be allowed as a credit against the U.S. Holder s U.S. federal income tax liability and may entitle the U.S. Holder to a refund, so long as the required information is furnished to the IRS in a timely manner.

U.S. Holders should consult their own tax advisors about any additional reporting requirements that may arise as a result of their purchasing, holding or disposing of our ADSs, or common or preferred shares.

A non-U.S. Holder generally will be exempt from these information reporting requirements and backup withholding tax, but may be required to comply with certain certification and identification procedures in order to establish its eligibility for such exemption.

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Specified Foreign Financial Assets

Certain U.S. Holders that own specified foreign financial assets with an aggregate value in excess of US$50,000 are generally required to file an information statement along with their tax returns, currently on Form 8938, with respect to such assets. Specified foreign financial assets include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer (which would include our common and preferred shares and ADSs) that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in specified foreign financial assets based on certain objective criteria. U.S. Holders who fail to report the required information could be subject to substantial penalties. Prospective investors should consult their own tax advisors concerning the application of these rules to their investment, including the application of the rules to their particular circumstances.

Taxation Relating to PGF s Notes

The following summary contains a description of material Brazilian, Dutch, European Union and U.S. federal income tax considerations that may be relevant to the purchase, ownership, and disposition of PGF s debt securities. This summary does not describe any tax consequences arising under the laws of any state, locality or taxing jurisdiction other than the Netherlands, Brazil and the United States.

This summary is based on the tax laws of the Netherlands, Brazil and the United States as in effect on the date of this annual report, which are subject to change (possibly with retroactive effect). This description is not a comprehensive description of all tax considerations that may be relevant to any particular investor, including tax considerations that arise from rules generally applicable to all taxpayers or to certain classes of investors or that investors are generally assumed to know. Prospective purchasers of notes should consult their own tax advisors regarding the tax consequences of the acquisition, ownership and disposition of the notes.

There is no tax treaty to avoid double taxation between Brazil and the United States. In recent years, the tax authorities of Brazil and the United States have held discussions that may culminate in such a treaty. We cannot predict, however, whether or when a treaty will enter into force or how it will affect the U.S. Holders of notes.

Dutch Taxation

The following generally outlines certain material Dutch tax consequences to holders of the notes in connection with the acquisition, ownership and disposal of notes in a Dutch company. This section does not purport to describe all possible Dutch tax consequences that may be relevant to a holder and does not purport to deal with the tax consequences applicable to all categories of investors, some of which may be subject to special rules. In view of its general nature, this general summary should therefore be treated with appropriate caution.

This section is based on the tax laws of the Netherlands, published regulations thereunder and published authoritative case law, all as in effect on the date hereof, and all of which are subject to change or to different interpretation, possibly with retroactive effect. Where the text refers to the Netherlands, it refers only to the part of the Kingdom of the Netherlands located in Europe.

For Dutch tax purposes, a holder of notes may include, without limitation:

an owner of one or more notes who, in addition to the title to such notes, has an economic interest in such notes;

a person who or an entity that holds the entire economic interest in one or more notes;

a person who or an entity that holds an interest in an entity, such as a partnership or a mutual fund, that is transparent for Dutch tax purposes, the assets of which comprise one or more notes; and

an individual who or an entity that does not have the legal title to the notes, but to whom the notes are attributed based either on such individual or entity holding a beneficial interest in the notes or based on specific statutory provisions, including statutory provisions pursuant to which the notes are attributed to an individual who is, or who has directly or indirectly inherited the notes from a person who was, the settlor, grantor or similar originator of a trust, foundation or similar entity that holds the notes.

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Holders of notes should consult their own tax advisers as to the consequences of purchasing, including, without limitation, the consequences of the receipt of interest and the sale or other disposition of notes or coupons, in light of their particular circumstances. The discussion below is included for general information purposes only.

Withholding Tax

All payments of interest and principal made by PGF under the notes can be made free of withholding or deduction for any taxes of any nature imposed, levied, withheld or assessed by the Netherlands or any political subdivision or taxing authority thereof or therein, unless the notes qualify as equity of PGF for Dutch tax purposes.

Taxes on Income and Capital Gains

Please note that this section does not describe the Dutch tax considerations for:

- holders of the notes if such holders, and in the case of an individual, his or her partner or certain of his or her relatives by blood or marriage in the direct line (including foster children), have a substantial interest (*aanmerkelijk belang*) or deemed substantial interest (*fictief aanmerkelijk belang*) in PGF under the Dutch Income Tax Act 2001 (*Wet inkomstenbelasting 2001*). Generally speaking, a holder of notes has a substantial interest in PGF if it has, directly or indirectly (and, in the case of an individual, alone or together with certain relatives) (I) the ownership of, a right to acquire the ownership of, or certain rights over, shares representing 5 per cent. or more of either the total issued and outstanding capital of PGF or the issued and outstanding capital of any class of shares of PGF, or (II) the ownership of, or certain rights over, profit participating certificates (*winstbewijzen*) that relate to 5 per cent. or more of either the annual profit or the liquidation proceeds of PGF. A deemed substantial interest may arise if a substantial interest (or part thereof) has been disposed of, or is deemed to have been disposed of, on a non-recognition basis;

- pension funds, investment institutions (*fiscale beleggingsinstellingen*), exempt investment institutions (*vrijgestelde beleggingsinstellingen*) (as defined in the Dutch Corporate Income Tax Act 1969 (*Wet op de vennootschapsbelasting 1969*)) and other entities that are, in whole or in part, not subject to or exempt from Dutch corporate income tax; and

- holders of notes who are individuals and for whom the notes or any benefit derived from the notes are a remuneration or deemed to be a remuneration for activities performed by such holders or certain individuals related to such holders (as defined in the Dutch Income Tax Act 2001).

A holder of notes will not be subject to any Dutch taxes on income or capital gains in respect of the notes, including such tax on any payment under the notes or in respect of any gain realized on the disposal, deemed disposal, redemption or exchange of the notes, provided that:

- such holder is neither a resident nor deemed to be a resident of the Netherlands;

such holder does not have, and is not deemed to have, an enterprise or an interest in an enterprise that, in whole or in part, is either effectively managed in the Netherlands or carried on through a (deemed) permanent establishment (*vaste inrichting*) or a permanent representative (*vaste vertegenwoordiger*) in the Netherlands and to which enterprise or part of an enterprise the notes are attributable;

if such holder is an individual, such income or capital gains do not form benefits from miscellaneous activities in the Netherlands (*resultaat uit overige werkzaamheden* in Nederland), including without limitation activities in the Netherlands with respect to the notes that exceed normal asset management (normal, *actief vermogensbeheer*);

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if such holder is an entity, the holder is not entitled to a share in the profits of an enterprise nor a co-entitlement to the net worth of an enterprise, which is effectively managed in the Netherlands, other than by way of securities, and to which enterprise the notes are attributable; and

if such holder is an individual, the holder is not entitled to a share in the profits of an enterprise that is effectively managed in the Netherlands, other than by way of securities, and to which enterprise the notes are attributable.

A holder of notes will not be treated as a resident of the Netherlands by reason only of the execution, delivery or enforcement of its rights and obligations connected to the notes, the issue of the notes or the performance by PGF of its obligations under the notes.

Gift and Inheritance Taxes

No gift or inheritance taxes will arise in the Netherlands with respect to an acquisition or deemed acquisition of notes by way of a gift by, or on the death of, a holder of notes who is neither resident, deemed to be resident for Dutch inheritance and gift tax purposes, unless:

in case of a gift of the notes under a suspensive condition by an individual who at the date of the gift was neither resident nor deemed to be resident in the Netherlands, such individual is resident or deemed to be resident in the Netherlands at the date of (i) the fulfillment of the condition or (ii) his/her death and the condition of the gift is fulfilled after the date of his/her death; or

in case of a gift of notes by an individual who at the date of the gift or, in case of a gift under a suspensive condition, at the date of the fulfillment of the condition was neither resident nor deemed to be resident in the Netherlands, such individual dies within 180 days after the date of the gift or fulfillment of the condition, while being resident or deemed to be resident in the Netherlands.

For purposes of Dutch gift and inheritance taxes, among others, a person who holds Dutch nationality will be deemed to be resident in the Netherlands if such person has been resident in the Netherlands at any time during the ten years preceding the date of the gift or his/her death. Additionally, for purposes of Dutch gift tax, among others, a person not holding Dutch nationality will be deemed to be resident in the Netherlands if such person has been resident in the Netherlands at any time during the twelve months preceding the date of the gift.

Value added tax (VAT)

No Dutch VAT will arise in respect of any payment in consideration for the issue of the notes or with respect to any payment by PGF of principal, interest or premium (if any) on the notes.

Other Taxes and Duties

No other Dutch registration taxes, or any other similar taxes of a documentary nature, such as capital tax or stamp duty, are payable in the Netherlands by or on behalf of a holder of the notes by reason only of the purchase, ownership and disposal of the notes.

FATCA

Pursuant to certain provisions of the U.S. Internal Revenue Code of 1986 and the U.S. Treasury regulations promulgated thereunder, commonly known as FATCA, a foreign financial institution may be required to withhold on certain payments it makes (foreign passthru payments) to persons that fail to meet certain certification, reporting, or related requirements.

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Pursuant to FATCA, holders and beneficial owners of the notes may be required to provide to a financial institution in the chain of payments on the notes information and tax documentation regarding their identities, and in the case of a holder that is an entity, the identities of their direct and indirect owners, and this information may be reported to relevant tax authorities, including the IRS. Moreover, financial institutions through which payments are made, may be required to withhold U.S. tax at a 30% rate on foreign passthru payments (a term not yet defined) paid to an investor who does not provide information sufficient for the institution to determine whether the investor is a U.S. person or should otherwise be treated as holding a United States account of the institution, or to an investor that is, or holds the notes directly or indirectly through, a non-U.S. financial institution that is not in compliance with FATCA. Regulations implementing the rules on withholding taxes imposed on foreign passthru payments have not yet been adopted or proposed and the IRS has indicated that any such regulations would not be effective for payments made two years after the date on which final regulations on this issue are published). Holders of our common or preferred shares or ADSs should consult their own tax advisors to obtain a more detailed explanation of FATCA and to learn how FATCA might affect each holder in its particular circumstances.

Under a grandfathering rule, this withholding tax will not apply unless the notes are issued or materially modified after the date that is six months after the date on which final United States Treasury Regulations defining the term foreign passthru payment are filed with the United States Federal Register.

A number of jurisdictions, including the Netherlands, have entered into, or have agreed in substance to, intergovernmental agreements with the United States to implement FATCA (IGAs), which modify the way in which FATCA applies in their jurisdictions. Certain holders of the notes therefore may be required to provide information and tax documentation regarding their identities, as well as that of their direct and indirect owners, and this information may be reported to the Dutch tax authorities and ultimately to the IRS.

Holders should consult their own tax advisors regarding how these rules may apply to their investment in the notes.

The Proposed Financial Transactions Tax (FTT)

On February 14, 2013, the European Commission has published a proposal (Commission s Proposal) for a Directive for a common financial transaction tax, or FTT, in Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Slovenia, Slovakia and Spain, or the participating Member States. However, Estonia has since stated that it will not participate.

Under the Commission s Proposal, the FTT could apply in certain circumstances to persons both within and outside of the participating Member States. Generally, it would apply to certain dealings in the notes where at least one party is a financial institution, and at least one party is established in a participating Member State. A financial institution may be, or be deemed to be, established in a participating Member State in a broad range of circumstances, including (1) by transacting with a person established in a participating Member State or (2) where the financial instrument which is subject to the dealings is issued in a participating Member State.

However, the FTT remains subject to negotiation between the participating Member States and the legality of the proposal is uncertain. The FTT may therefore be altered prior to any implementation, the timing of which remains unclear. Additional European Union Member States may decide to participate and/or certain of the participating Member States may decide to withdraw.

The Commission s Proposal has a very broad scope and could, if introduced in its current form, apply to certain dealings in notes in certain circumstances. This could, accordingly, affect the market value of notes and/or limit the ability to resell notes but given the lack of certainty at this stage, it is not possible to predict in full the effects of the

proposed FTT. Prospective holders of notes are advised to seek their own professional advice in relation to the FTT.

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Brazilian Taxation

The following discussion is a summary of the Brazilian tax considerations relating to an investment in the notes by a non-resident of Brazil. The discussion is based on the tax laws of Brazil as in effect on the date hereof and is subject to any change in Brazilian law that may come into effect after such date. The information set forth below is intended to be a general discussion only and does not address all possible consequences relating to an investment in the notes.

INVESTORS SHOULD CONSULT THEIR OWN TAX ADVISERS AS TO THE CONSEQUENCES OF PURCHASING THE NOTES, INCLUDING, WITHOUT LIMITATION, THE CONSEQUENCES OF THE RECEIPT OF INTEREST AND THE SALE, REDEMPTION OR REPAYMENT OF THE NOTES OR COUPONS.

Generally, an individual, entity, trust or organization domiciled for tax purposes outside Brazil, or a Non-resident, is taxed in Brazil only when income is derived from Brazilian sources or when the transaction giving rise to such earnings involves assets in Brazil. Therefore, any gains or interest (including original issue discount), fees, commissions, expenses and any other income paid by PGF in respect of the notes issued by them in favor of non-resident holders are not subject to Brazilian taxes.

Interest, fees, commissions, expenses and any other income payable by Petrobras as guarantor resident in Brazil to a Non-resident are generally subject to income tax withheld at source. The rate of withholding income tax in respect of interest payments is generally (in case of fixed yields See Taxation of Dividends) 15%, unless (i) the holder of the notes is resident or domiciled in a tax haven jurisdiction (that is deemed to be a country or jurisdiction which does not impose any tax on income or which imposes such tax at a maximum effective rate lower than 17% or where the local legislation imposes restrictions on disclosing the identities of shareholders, the ownership of investments, or the ultimate beneficiary of earnings distributed to the Non-resident tax haven jurisdiction), in which case the applicable rate is 25% or (ii) such other lower rate as provided for in an applicable tax treaty between Brazil and another country where the beneficiary is domiciled. In case the guarantor is required to assume the obligation to pay the principal amount of the notes, Brazilian tax authorities could attempt to impose withholding income tax at the rate of up to 25% as described above. Although Brazilian legislation does not provide a specific tax rule for such cases and there is no official position from tax authorities or precedents from the Brazilian court regarding the matter, we believe that the remittance of funds by Petrobras as a guarantor for the payment of the principal amount of the notes will not be subject to income tax in Brazil, because the mere fact that the guarantor is making the payment does not convert the nature of the principal due under the notes into income of the beneficiary.

If the payments with respect to the notes are made by Petrobras, as provided for in the guaranties, the Non-resident holders will be indemnified so that, after payment of all applicable Brazilian taxes collectable by withholding, deduction or otherwise, with respect to principal, interest and additional amounts payable with respect to the notes (plus any interest and penalties thereon), a Non-resident holder will receive an amount equal to the amount that such Non-resident holder would have received as if no such Brazilian taxes (plus interest and penalties thereon) were withheld. The Brazilian obligor will, subject to certain exceptions, pay additional amounts in respect of such withholding or deduction so that the Non-resident holder receives the net amount due.

Gains on the sale or other disposition of the notes made outside of Brazil by a Non-resident, other than a branch or a subsidiary of Brazilian resident, to another Non-resident are not subject to Brazilian income tax.

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In addition, payments made from Brazil are subject to the tax on foreign exchange transactions (*IOF/Câmbio*), which is levied on the conversion of Brazilian currency into foreign currency and on the conversion of foreign currency into Brazilian currency at a general rate of 0.38%. Other IOF/Câmbio rates may apply to specific transactions. In any case, the Brazilian federal government may increase, at any time, such rate up to 25% but only with respect to future transactions.

Generally, there are no inheritance, gift, succession, stamp, or other similar taxes in Brazil with respect to the ownership, transfer, assignment or any other disposition of the notes by a Non-resident, except for gift and inheritance taxes imposed by some Brazilian states on gifts or bequests by individuals or entities not domiciled or residing in Brazil to individuals or entities domiciled or residing within such states.

U.S. Federal Income Taxation

The following summary sets forth material United States federal income tax considerations that may be relevant to a holder of a note that is, for U.S. federal income purposes, a citizen or resident of the United States or a domestic corporation or that otherwise is subject to U.S. federal income taxation on a net income basis in respect of the notes (a U.S. Holder). This summary is based upon the Code, its legislative history, existing and proposed U.S. Treasury regulations promulgated thereunder, published rulings by the IRS, and court decisions, all as in effect as of the date hereof, all of which are subject to change or differing interpretations, possibly with retroactive effect. This summary does not purport to discuss all aspects of the U.S. federal income taxation which may be relevant to special classes of investors, such as financial institutions, insurance companies, dealers or traders in securities or currencies, securities traders who elect to account for their investment in notes on a mark-to-market basis, regulated investment companies, tax-exempt organizations, partnerships or partners therein, holders that are subject to the alternative minimum tax, certain short-term holders of notes, persons that hedge their exposure in the notes or hold notes as part of a position in a straddle or as part of a hedging transaction or conversion transaction for U.S. federal tax purposes, persons that enter into a constructive sale transaction with respect to the notes or U.S. Holder whose functional currency is not the U.S. dollar. U.S. Holders should be aware that the U.S. federal income tax consequences of holding the notes may be materially different for investors described in the prior sentence.

In addition, this summary does not discuss any foreign, state or local tax considerations. This summary only applies to original purchasers of notes who have purchased notes at the original issue price and hold the notes as capital assets (generally, property held for investment). U.S. Holders of notes denominated in a currency other than USD should consult their tax advisors regarding the application of foreign currency gain or loss rules to the notes and the treatment of any foreign currency received in respect of the notes.

EACH INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR CONCERNING THE OVERALL TAX CONSEQUENCES IN ITS PARTICULAR CIRCUMSTANCES, INCLUDING THE CONSEQUENCES UNDER LAWS OTHER THAN U.S. FEDERAL INCOME TAX LAWS, OF AN INVESTMENT IN THE NOTES.

Book/Tax Conformity

U.S. Holders that use an accrual method of accounting for tax purposes (accrual method holders) generally are required to include certain amounts in income no later than the time such amounts are reflected on certain financial statements (the book/tax conformity rule). The application of the book/tax conformity rule thus may require the accrual of income earlier than would be the case under the general tax rules described below. It is not clear to what types of income the book/tax conformity rule applies, or, in some cases, how the rule is to be applied if it is applicable. Accrual method holders should consult with their tax advisors regarding the potential applicability of the

book/tax conformity rule to their particular situation.

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Payments of Interest

Payment of qualified stated interest, as defined below, on a note (including additional amounts, if any) generally will be taxable to a U.S. Holder as ordinary interest income when such interest is accrued or is actually or constructively received, in accordance with the U.S. Holder s applicable method of accounting for U.S. federal tax purposes. In general, if the issue price of a note is less than the stated redemption price at maturity by more than a *de minimis* amount, such note will be considered to have original issue discount, or OID. The issue price of a note is the first price at which a substantial amount of such notes are sold to investors. The stated redemption price at maturity of a note generally includes all payments other than payments of qualified stated interest.

In general, each U.S. Holder of a note, whether such holder uses the cash or the accrual method of tax accounting, will be required to include in gross income as ordinary interest income the sum of the daily portions of OID on the note, if any, for all days during the taxable year that the U.S. Holder owns the note. The daily portions of OID on a note are determined by allocating to each day in any accrual period a ratable portion of the OID allocable to that accrual period. In general, in the case of an initial holder, the amount of OID on a note allocable to each accrual period is determined by (i) multiplying the adjusted issue price, as defined below, of the note at the beginning of the accrual period by the yield to maturity of the note, and (ii) subtracting from that product the amount of qualified stated interest allocable to that accrual period. U.S. Holders should be aware that they generally must include OID in gross income as ordinary interest income for U.S. federal income tax purposes as it accrues, in advance of the receipt of cash attributable to that income. The adjusted issue price of a note at the beginning of any accrual period will generally be the sum of its issue price (generally including accrued interest, if any) and the amount of OID allocable to all prior accrual periods, reduced by the amount of all payments other than payments of qualified stated interest (if any) made with respect to such note in all prior accrual periods. The term qualified stated interest generally means stated interest that is unconditionally payable in cash or property (other than debt instruments of the issuer) at least annually during the entire term of a note at a single fixed rate of interest, or subject to certain conditions, based on one or more interest indices.

Interest income, including OID, in respect of the notes will constitute foreign source income for U.S. federal income tax purposes and, with certain exceptions, will be treated separately, together with other items of passive category income, for purposes of computing the foreign tax credit allowable under the U.S. federal income tax laws. The calculation of foreign tax credits involves the application of complex rules that depend on a U.S. Holder s particular circumstances. U.S. Holders should consult their own tax advisors regarding the availability of foreign tax credits and the treatment of additional amounts.

Sale or Disposition of Notes

A U.S. Holder generally will recognize capital gain or loss upon the sale, exchange, retirement or other disposition of a note in an amount equal to the difference between the amount realized upon such sale, exchange, retirement or other disposition (other than amounts attributable to accrued qualified stated interest, which will be taxed as such) and such U.S. Holder s adjusted tax basis in the note. A U.S. Holder s adjusted tax basis in the note generally will equal the U.S. Holder s cost for the note increased by any amounts included in gross income by such U.S. Holder as OID, if any, and reduced by any payments other than payments of qualified stated interest on that note. Gain or loss realized by a U.S. Holder on the sale, exchange, retirement or other disposition of a note generally will be U.S. source gain or loss for U.S. federal income tax purposes unless it is attributable to an office or other fixed place of business outside the United States and certain other conditions are met. The gain or loss realized by a U.S. Holder will be capital gain or loss, and will be long-term capital gain or loss if the notes were held for more than one year. The net amount of long-term capital gain recognized by an individual holder generally is subject to taxation at preferential rates. Capital losses may be deducted from taxable income, subject to certain limitations.

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Backup Withholding and Information Reporting

A U.S. Holder may, under certain circumstances, be subject to backup withholding with respect to certain payments to that U.S. Holder, unless the holder (i) is an exempt recipient, and demonstrates this fact when so required, or (ii) provides a correct taxpayer identification number, certifies that it is not subject to backup withholding and otherwise complies with applicable requirements of the backup withholding rules. Any amount withheld under these rules generally will be creditable against the U.S. Holder s U.S. federal income tax liability. While non-U.S. Holders generally are exempt from backup withholding, a non-U.S. Holder may, in certain circumstances, be required to comply with certain information and identification procedures in order to prove entitlement to this exemption.

U.S. Holders should consult their own tax advisors about any additional reporting requirements that may arise as a result of their purchasing, holding or disposing of the notes.

Specified Foreign Financial Assets

Certain U.S. Holders that own specified foreign financial assets with an aggregate value in excess of US$50,000 are generally required to file an information statement along with their tax returns, currently on Form 8938, with respect to such assets. Specified foreign financial assets include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer (which would include the notes) that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in specified foreign financial assets based on certain objective criteria. U.S. Holders who fail to report the required information could be subject to substantial penalties. Prospective investors should consult their own tax advisors concerning the application of these rules to their investment in the notes, including the application of the rules to their particular circumstances.

Non-U.S. Holder

A holder or beneficial owner of a note that is not a U.S. Holder (a non-U.S. Holder) generally will not be subject to U.S. federal income or withholding tax on interest received on the notes. In addition, a non-U.S. Holder will not be subject to U.S. federal income or withholding tax on gain realized on the sale of notes unless such gain is effectively connected with the conduct by such holder of a trade or business in the United States or, in the case of gain realized by an individual non-U.S. Holder, the non-U.S. Holder is present in the United States for 183 days or more in the taxable year of the sale and certain other conditions are met.

Documents on Display

We are subject to the information requirements of the Securities Exchange Act of 1934, as amended, and accordingly file reports and other information with the SEC. Reports and other information filed by us with the SEC may be inspected and copied at the public reference facilities maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549. You can obtain further information about the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. You may also inspect our reports and other information at the offices of the NYSE, 11 Wall Street, New York, New York 10005, on which our ADSs are listed. Our SEC filings are also available to the public from the SEC s Web site at http://www.sec.gov. For further information about obtaining copies of our public filings at the New York Stock Exchange, call (212) 656-5060.

We also file financial statements and other periodic reports with the CVM.

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Item 11. Qualitative and Quantitative Disclosures about Market Risk

Risk Management

We are exposed to a number of risks arising from our operations. Such risks include the possibility that changes in prices of oil and oil products, foreign currency exchange rates or interest rates will adversely affect the value of our financial assets, liabilities, future cash flows and earnings.

We practice integrated risk management. Risks are considered in every decision making process and we manage them in an integrated manner. Thus, we do not focus on the individual risks of operations or business units, but, rather, we take a broader view of our consolidated activities, capturing possible natural hedges where available. For the management of financial risks, including market risks, we tend to apply more structural actions through the management of our equity and indebtedness levels, instead of the use of financial derivative instruments.

Acceptable limits for market risks depend on the conditions of the business environment (prices level, rates and volatility of risk factors, political, macroeconomic and other uncertainties that significantly influence our economic and financial performance) and should be defined for each new business plan, considering our strategic objectives, goals, expected value and the liquidity of financial resources required for the implementation of our 2019-2023 Business Plan. The use of derivative financial instruments may be necessary to meet these needs.

In order to further improve our risk management governance practices, our board of directors has established an organizational structure for risk management composed of (i) an Executive Manager for Corporate Risks, who is under the supervision of our Chief Strategy, Organization and Management System Officer. Our Executive Manager for Corporate Risks is responsible for:

- identifying, monitoring and reporting periodically to our board of executive officers and board of directors on the effects of major risks on our integrated results;
- encouraging integration and synergy of risk management actions taken in the organizational units, as well as in other business processes, support and management;
- establishing a corporate methodology for risk management guided by an integrated and systemic view, which allows for a continuous monitoring environment of risks in various hierarchical levels;
- disseminating knowledge in risk management; and
- encouraging managers to develop and implement the necessary measures to align our exposure to acceptable risk levels.

In November 2017, our board of directors approved a revised Business Risk Management Policy, which specifies authorities, responsibilities, the five principles and ten guidelines that should guide our initiatives related to risk management. Our current Business Risk Management Policy is fully adherent to worldwide recognized methodological references such as COSO-ERM (Committee of Sponsoring Organizations of the Treadway Commission Enterprise Risk Management Integrated Framework) and ISO 31000. In addition, it meets the guidelines

provided by the Guide for Corporate Risks Management issued by the Brazilian Institute of Corporate Governance IBGC.

This policy has a comprehensive approach to corporate risk management, which combines the traditional economic and financial risk management approach with other relevant areas of interest, such as protection of life, health and environment, assets and business information protection (property security) and combating fraud and corruption (legal compliance), among other corporate risks. Aimed at integrating these risk management actions, this policy allows any employee to have access to the terms and concepts common to the subject as well as to the measures taken and parties responsible for the management of each of the risks we are exposed to. For further information regarding our revised Business Risk Management Policy, please visit our website at http://www.investidorpetrobras.com.br/en/corporate-governance/governance-instruments/petrobras-business-risk-management-policy. The information on this website, which might be accessible through a hyperlink resulting from this URL, is not and shall not be deemed to be incorporated into this report.

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Commodity Price Risk

We operate in an integrated manner throughout the various stages of the oil industry. A great part of our results relate directly to oil exploration and production, refining and the sale of natural gas, biofuels and electricity in Brazil. As our purchases and sales of crude oil and oil products are related to international commodity prices, we are exposed to their price fluctuations, which may influence our profitability, our cash flow from operations and our financial situation.

We rather maintain exposure to the price cycle than using financial derivatives to systematically protect purchases and sale transactions that focus on fulfilling our operation needs. However, based on crude oil market conditions and prospects of realization of our business plan, we may decide to implement protection strategies using financial instruments to fix or floor prices to portion of our production. During February and March 2018, we deployed a hedging strategy for part of our expected oil production in 2018, in a volume equivalent to 128 million barrels. Put options have been purchased with exercise price referenced to the average price of Brent oil from February and March through the end of 2018, with an average cost of US$3.48 per barrel and average exercise price of around $65 per barrel. The options mature at the end of the year. In September 2018, our board of executive officers approved a complementary derivative mechanism applicable to gasoline and interest rate prices, aiming to give additional flexibility to the management of gasoline price policy, allowing the frequency of daily domestic gasoline price readjustments to be changed, and even possibly keeping it stable for short periods of up to 15 days, reconciling its business interests with the demands of its customers and market agents in general. In December 2018, a similar mechanism was approved for diesel. However, the period was limited for up to 7 days.

The derivative mechanism can be applied in times of high market volatility, in order to give a result equivalent to what would be obtained with the current practice of daily readjustments, which also remains our option.

In addition, operations with derivatives were also carried out aiming at protecting our expected results for short-term commercial transactions carried out abroad. Our derivatives contracts provide economic hedges for anticipated crude oil and oil product purchases and sales in the international markets, generally expected to occur within a 30- to 360-day period . See Note 34 to our audited consolidated financial statements for more information about our commodity derivatives transactions, including a sensitivity analysis demonstrating the net change in fair value of a 25% (or 50%) adverse change in the price of the underlying commodity for options and futures.

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Interest Rate and Exchange Rate Risk

The table below provides summary information regarding our exposure to interest rate and exchange rate risk in our total debt portfolio for 2018 and 2017, including short-term and long-term debt.

	Total Debt Portfolio(1)	
	2018 (%)	2017 (%)
***Real* denominated**:		
Fixed rate	3.2	3.3
Floating rate	15.8	16.4
Sub-total	19.0	19.7
U.S.dollar-denominated:		
Fixed rate	40.4	40.7
Floating rate	33.8	32.4
Sub-total	74.2	73.1
Other currencies:		
Fixed rate	6.6	6.9
Floating rate	0.2	0.3
Sub-total	6.8	7.2
Total	**100.0**	**100.0**
Floating rate debt:		
Real-denominated	15.8	16.4
Foreign currency-denominated	34.0	32.6
Fixed rate debt:		
Real-denominated	3.2	3.3
Foreign currency denominated	47.0	47.7
Total	**100.0**	**100.0**
U.S. dollars	74.2	73.1
Euro	4.2	4.9
GBP	2.6	2.2
Japanese Yen	0.0	0.1
Brazilian *reais*	19.0	19.7
Total	**100.0**	**100.0**

(1) Short term and long term.

In general, our foreign currency floating rate debt is principally subject to fluctuations in LIBOR. Our floating rate debt denominated in *reais* is principally subject to fluctuations in the *Depósito Interbancário* (Brazilian interbank offering rate, or DI), and *Taxa de Juros de Longo Prazo* (Brazilian long-term interest rate, or TJLP), as fixed by the CMN.

We generally do not utilize derivative instruments to manage our exposure to interest rate fluctuation. However, we continuously consider various forms of derivatives to reduce our exposure to interest rate fluctuations and may utilize these financial instruments in the future.

The exchange rate risk to which we are exposed has greater impact on the balance sheet and derives principally from the incidence of non-*real* denominated obligations in our debt portfolio. With respect to the management of foreign exchange risks, we take a broader view of our consolidated activities, capturing possible natural hedges whenever they are available, benefiting from the correlation between our income and expenses. For the short term, the management of our foreign exchange risk involves allocating our cash investments between the *real* and other foreign currencies. Our strategy, reevaluated annually in the revision of the 2019-2023 Business Plan, may also involve the use of derivative financial instruments to hedge certain liabilities, minimizing foreign exchange rate risk exposure, especially when we are exposed to a foreign currency in which no cash inflows are expected, for example, Pound Sterling.

In 2017, we entered into derivative operations, through our indirect subsidiary Petrobras Global Trading BV (PGT), denominated cross currency swap to hedge against exposure in sterling pounds versus dollars, arising from past issues of bonds in that currency. In 2018, we also entered into, through PGT, derivative operations denominated non-deliverable forwards to hedge against exposure in euros and sterling pounds versus dollars, arising from past issues of bonds in that currency.

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We have designated cash flow hedging relationships to reflect the economic essence of the structural hedge mechanism between dollar-denominated debt and future sales revenues. See Item 5. Operating and Financial Review and Prospects Inflation and Exchange Rate Variation and Notes 4.3.3 and 34.2(a) to our audited consolidated financial statements for further information about our cash flow hedge.

See Note 34.2 (d) to our audited consolidated financial statements for more information about our interest rate and exchange rate risks, including a sensitivity analysis demonstrating the potential impact of a 25% (or 50%) adverse change in the underlying variables as of December 31, 2018.

For further information regarding expected maturity schedule and currency, the principal and interest cash flows, related average interest rates of our debt obligations, credit risk and liquidity risk, see Notes 17, 34.5 and 34.6 to our audited consolidated financial statements.

Item 12. Description of Securities other than Equity Securities

American Depositary Shares

The Bank of New York Mellon is the depositary for both of our common and preferred ADSs (Depositary). In its capacity as Depositary, The Bank of New York Mellon will register and deliver the ADSs, each of which represents (i) two shares (or a right to receive two shares) deposited with the principal São Paulo office of Itaú Unibanco S.A., as custodian for the Depositary, and (ii) any other securities, cash or other property which may be held by the Depositary. The Depositary s corporate trust office at which the ADSs will be administered is located at 240 Greenwich Street, New York, New York 10286, United States.

Fees Payable by holders of our ADSs

ADS holders are required to pay various fees to the Depositary, and the Depositary may refuse to provide any service for which a fee is assessed until the applicable fee has been paid.

ADS holders are required to pay the Depositary: (i) an annual fee of US$0.02 (or less) per ADS for administering the ADR program, and (ii) amounts in respect of expenses incurred by the Depositary or its agents on behalf of ADS holders, including expenses arising from compliance with applicable law, taxes or other governmental charges, facsimile transmission, or conversion of foreign currency into U.S. dollars. In both cases, the depositary may decide in its sole discretion to seek payment by directly billing investors, by deducting the applicable amount from cash distributions or by charging the book-entry system accounts of ADS holders or their representatives. ADS holders may also be required to pay additional fees for certain services provided by the depositary, as set forth in the table below.

Depositary service	**Fee payable by ADS holders**
Issuance and delivery of ADSs, including issuances resulting from a distribution of shares or rights or other property	US$5.00 per 100 ADSs (or portion thereof)
Distribution of dividends	US$0.02 (or less) per ADS per year
Cancellation of ADSs for the purpose of withdrawal	US$5.00 per 100 ADSs (or portion thereof)

Fees Payable by the Depositary to Petrobras

The Depositary reimburses us for certain expenses we incur in connection with the administration and maintenance of the ADR program. These reimbursable expenses comprise investor relations expenses, listing fees, legal fees and other expenses related to the administration and maintenance of the ADR program. In addition, the Depositary has agreed to provide us with an additional reimbursement per annum equal to 80% of the dividend fee collected by the Depositary. For the year ended December 31, 2018, the gross aggregate amount of such reimbursements was approximately US$15 million.

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PART II

Item 13. Defaults, Dividend Arrearages and Delinquencies

None.

Item 14. Material Modifications to the Rights of Security Holders and Use of Proceeds

None.

Item 15. Controls and Procedures

Disclosure Controls and Procedures

We have evaluated, with the participation of our Chief Executive Officer and Chief Financial Officer, the effectiveness of our disclosure controls and procedures as of December 31, 2018. Based on our evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective to provide reasonable assurance that the information required to be disclosed by us in the reports that we file or submit under the Exchange Act was being recorded, processed, summarized and reported within the time periods specified in the applicable rules and forms, and that it was accumulated for and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow for timely decisions regarding the required disclosure.

Management Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting and for assessing the effectiveness of internal control over financial reporting.

Our internal control over financial reporting is a process designed by, or under the supervision of, our Chief Executive Officer and our Chief Financial Officer, and effected by our board of directors, management and other employees, and is designed to provide reasonable assurances regarding the reliability of financial reporting and of the preparation of our consolidated financial statements for external purposes, in accordance with IFRS, as issued by the IASB.

Due to its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness of internal control over financial reporting to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with our policies or procedures may deteriorate.

Our management has assessed the effectiveness of our internal control over financial reporting as of December 31, 2018, based upon the criteria established in *Internal Controls Integrated Framework* (2013), issued by the Committee of Sponsoring Organizations of Treadway Commission (COSO). Based on this assessment and criteria, our management has concluded that our internal control over financial reporting was effective as of December 31, 2018.

Audit of the Effectiveness of Internal Control over Financial Reporting

Our independent registered public accounting firm, KPMG Auditores Independentes, has audited the effectiveness of our internal control over financial reporting, as stated in their report as of December 31, 2018, which is included herein.

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Changes in Internal Control over Financial Reporting

We enhanced our controls related to Diesel Price Subvention Program investment projects management (assets under construction) and impairment of financial assets. There were no other changes in our internal control over financial reporting during the fiscal year 2018, which have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 16A. Audit Committee Financial Expert

We have an Audit Committee that complies with the requirements of the Sarbanes-Oxley Act of 2002. Mr. Jerônimo Antunes is our Audit Committee financial expert and is independent, as defined in 17 CFR 240.10A-3.

Item 16B. Code of Ethics

Our business and our relations with third parties are guided by ethical principles. In 1998, our board of executive officers approved our code of ethics, which was extended to all of our subsidiaries and, in 2002, was renamed to Code of Ethics for the Petrobras Group.

In 2006, after undergoing a revision process with wide participation from our business segments, employees and subsidiaries, our board of executive officers and the board of directors approved a new version of our code of ethics (Code of Ethics). The Code of Ethics is applicable to our workforce, executive officers and board of directors. It is available on our website at http://www.investidorpetrobras.com.br/en/corporate-governance/governance-instruments/code-ethics. The information on this website, which might be accessible through a hyperlink resulting from this URL, is not and shall not be deemed to be incorporated into this report.

Our executive officers further developed our ethics management through the creation of the Petrobras ethics commission in 2008 (Ethics Commission), which has since become responsible for promoting corporate compliance with ethical principles, as well as acting as a forum for discussion of subjects related to ethics.

Our Ethics Commission is composed of employees appointed after an internal selective process of interviews and résumé review. Each appointment is approved by our board of directors and our board of executive officers, which our Ethics Commission is responsible for orienting, instructing and ensuring compliance with our ethical principles and codes of conduct. Our Ethics Commission also serves in a consulting capacity for our management and workforce, providing recommendations with respect to topics related to ethics management, proposing the creation of new rules for the incorporation of new concepts, and adopting measures to comply with legislation and follow best practices that reinforce the zero tolerance policy applicable to misconducts.

In July 2013, our board of executive officers approved our Corruption Prevention Program (*Programa Petrobras de Prevenção da Corrupção* PPPC), which is focused on the prevention, detection and penalization of acts of fraud and corruption committed against us. The program is managed by our Governance and Compliance Department, in alignment with other areas of our governance structure, and is designed to improve our governance structure and operational accountability and to foster our commitment to good governance. A copy of our Corruption Prevention Program is available on our website at http://www.investidorpetrobras.com.br/en/corporate-governance/governance-instruments/petrobras-corruption-prevention-program. The information on this website, which might be accessible through a hyperlink resulting from this URL, is not and

shall not be deemed to be incorporated into this report.

In November 2014, our board of executive officers also approved the first version of our Conduct Guide, which contains the guidelines to implement the Code of Ethics for the Petrobras Group and other internal regulations. Our Conduct Guide establishes the basic rules for ethical behavior and professional conduct to be adopted within our company. A copy of our Conduct Guide is available on our website at http://www.investidorpetrobras.com.br/en/corporate-governance/governance-instruments/guide-ethical-conduct. The information on this website, which might be accessible through a hyperlink resulting from this URL, is not and shall not be deemed to be incorporated into this report.

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In February 2015, our procurement guidelines were amended to subject all of our suppliers and service providers to our Conduct Guide.

In December 2016, after undergoing a revision process, it was renamed as the Conduct Guide for the Petrobras Group. In order to update the documents, in 2018 our Ethics Commission conducted the revision of our Conduct Guide and Code of Ethics based on the history of our Ethics Commission s experience; benchmark in related documents; compliance with relevant legislation and internal regulations; compliance with recommendations of control bodies; and consultations with our workforce, management and subsidiaries.

In 2018, as in 2016 and 2017, members of our workforce, including our senior management, had the opportunity to conduct e-learning, with situations based on real examples, addressing ethical principles and standards of conduct, focused on behaviors that reflect everyday situations at work and the most appropriate way of dealing with them.

The initiative was implemented to strengthen our culture for ethical principles and guide each employee to identify ethical and compliance risks. The training was conducted on an ongoing basis, addressing issues of common interest, such as anti-corruption legislation, compliance policy and program, disciplinary regime, conflict of interest, among others.

In addition, ethics management training was conducted for the members of our board of directors, with the participation of members of our board of executive officers.

Item 16C. Principal Accountant Fees and Services

Audit and Non-Audit Fees

The following table sets forth the fees billed to us by our principal accountant KPMG during the fiscal year ended December 31, 2018 and 2017:

	2018	2017
	(US$ million)	
Audit fees	10.0	7.2
Audit-related fees	0.7	0.4
Tax fees	0.3	0.3
Total fees	11.3	**7.9**

Audit fees comprise fees billed in connection with the audit of our annual financial statements (IFRS and Brazilian GAAP), interim reviews (IFRS and Brazilian GAAP), audits of our subsidiaries (IFRS and Brazilian GAAP, among others), comfort letters, consents and review of periodic documents filed with the SEC. In 2018, audit fees billed by KPMG include US$1.5 million related to the audit of internal controls.

Audit-related fees refer to assurance and related services that are reasonably related to the performance of the audit or reviews of our audited consolidated financial statements and are not reported under audit fees.

Tax fees are fees billed for services related to tax compliance reviews conducted in connection with the audit procedures on the financial statements.

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Audit Committee Approval Policies and Procedures

As provided in our bylaws, our board of directors is responsible for deciding, among other matters, the appointment and dismissal of independent auditors and prohibiting our independent auditor from providing consulting services to us during the term of an audit s contract. Our Audit Committee has the authority to recommend pre-approval policies and procedures for the engagement of our independent auditor s services. Our management is required to obtain the Audit Committee s pre-approval before engaging independent auditors to provide any audit or permitted non-audit services to us or any of our consolidated subsidiaries. Our Audit Committee has pre-approved a detailed list of audit services, up to specified monetary limits. The list of pre-approved services is updated from time to time. The audit services that are not included in this list, or that exceed the specified limits, must be directly approved by our Audit Committee. Our Audit Committee monitors the performance of the services provided by the auditor and reviews and monitors our external auditor s independence and objectivity.

Item 16D. Exemptions from the Listing Standards for Audit Committees

Under the listed company audit committee rules of the NYSE and the SEC, we must comply with Exchange Act Rule 10A-3 which requires that we establish an audit committee, composed of members of the board of directors, that meets specified requirements. In reliance on the exemption in Rule 10A-3(b)(iv)(E), we have designated two members to our Audit Committee, Clarissa de Araújo Lins and Jerônimo Antunes, who are designees of the Brazilian federal government, which is our controlling shareholder and therefore one of our associates. In our assessment, Ms. Lins and Mr. Antunes act independently in performing the responsibilities of an audit committee member under the Sarbanes-Oxley Act and satisfy the other requirements of Exchange Act Rule 10A-3.

Item 16E. Purchases of Equity Securities by the Issuer and Affiliated Purchasers

During the fiscal year ended December 31, 2018, neither any affiliated purchaser, as defined in Rule 10b-18(a)(3) under the Securities Exchange Act, nor we have purchased any of our equity securities.

Item 16F. Change in Registrant s Certifying Accountant

Not applicable.

Item 16G. Corporate Governance

Comparison of Petrobras Corporate Governance Practices with NYSE Corporate Governance Requirements Applicable to U.S. Companies

Under the rules of the NYSE, foreign private issuers are subject to a more limited set of corporate governance requirements than U.S. domestic issuers. As a foreign private issuer, we must comply with four principal NYSE corporate governance rules: (i) we must satisfy the requirements of Exchange Act Rule 10A-3; (ii) our Chief Executive Officer must promptly notify the NYSE in writing after any executive officer becomes aware of any material non-compliance with the applicable NYSE corporate governance rules; (iii) we must provide the NYSE with annual and interim written affirmations as required under the NYSE corporate governance rules; and (iv) we must provide a brief description of any significant differences between our corporate governance practices and those

followed by U.S. companies under NYSE listing standards.

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The table below briefly describes the significant differences between our corporate governance practices and the NYSE corporate governance rules.

Section	New York Stock Exchange Corporate Governance Rules for U.S. Domestic Issuers	Petrobras Practices
	Director Independence	
303A.01	Listed companies must have a majority of independent directors. Controlled companies are not required to comply with this requirement.	Petrobras is a controlled company because more than a majority of its voting power is controlled by the Brazilian federal government. As a controlled company, Petrobras would not be required to comply with the majority of independent directors requirement if it were a U.S. domestic issuer. According to our bylaws, we are required to have at least 40% of independent directors.
303A.03	The non-management directors of each listed company must meet at regularly scheduled executive sessions without management.	With the exception of the CEO of the company (who is also a director), all of Petrobras directors are non-management directors. The regulation of Petrobras board of directors provides that if a particular matter may represent a conflict of interests, the CEO must recuse himself from the meeting, which will continue without his presence. Additionally, the board s regulation also establishes a regular executive session for Petrobras s board of directors matters without management.
	Nominating/Corporate Governance Committee	
303A.04	Listed companies must have a nominating/corporate governance committee composed entirely of independent directors, with a written charter that covers certain minimum specified duties. Controlled companies are not required to comply with this requirement.	Petrobras has a statutory committee that verifies the compliance of the appointment of members of the Fiscal Council, the Executive Board, and the Board of Directors of Petrobras and the external members of the committees that advise our board of directors. The nominating committee has a written charter that requires the majority of its members to be independent. Petrobras board of directors develops, evaluates and approves corporate governance principles. As a controlled company, Petrobras would not be required to comply with the nominating/corporate governance committee requirement if it were a U.S.

		domestic issuer.
	Compensation Committee	
303A.05	Listed companies must have a compensation committee composed entirely of independent directors, with a written charter that covers certain minimum specified duties. Controlled companies are not required to comply with this requirement.	Petrobras has a committee that advises the board of directors with respect to compensation and management succession. The compensation committee has a written charter that requires the majority of its members to be independent. As a controlled company, Petrobras would not be required to comply with the compensation committee requirement if it were a U.S. domestic issuer.
	Audit Committee	
303A.06 303A.07	Listed companies must have an audit committee with a minimum of three independent directors that satisfy the independence requirements of Rule 10A-3 under the Exchange Act, with a written charter that covers certain minimum specified duties.	Petrobras Audit Committee is a statutory advisory committee to the board of directors and is composed of members that satisfy the independence requirements set forth in Rule 10A-3 under the Exchange Act. The Audit Committee has a written charter that sets forth its responsibilities that include, among other things: (i) strengthening ties with the external auditors, permitting closer supervision of their work and of issues regarding their competency and independence, (ii) assuring legal and regulatory compliance, including with respect to internal controls, compliance procedures and ethics, and (iii) monitoring the financial position of the company, especially as to risks, internal auditing work and financial disclosure; (iv) carry out prior analysis of transactions with related parties that meet the criteria established in the Related Party Transactions Policy, approved by the board of directors.

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Section	New York Stock Exchange Corporate Governance Rules for U.S. Domestic Issuers	Petrobras Practices
	Equity Compensation Plans	
303A.08	Shareholders must have the opportunity to vote for compensation plans through shares and material reviews, with limited exceptions as set forth by the NYSE s rules.	Under the Brazilian Corporate Law, shareholder approval is required for the adoption and revision of any equity compensation plans. Petrobras does not currently have any equity compensation plans.
	Corporate Governance Guidelines	
303A.09	Listed companies must adopt and disclose corporate governance guidelines.	Petrobras has a set of Corporate Governance Guidelines (*Diretrizes de Governança Corporativa*) that address director qualification standards, responsibilities, compensation, appraisals and access to information by the management. The guidelines do not reflect the independence requirements set forth in Sections 303A.01 and 303A.02 of the NYSE rules. Certain portions of the guidelines, including the responsibilities and compensation sections, are not discussed with the same level of detail set forth in the commentaries to the NYSE rules. The guidelines are available on Petrobras website.
	Code of Ethics for Directors, Officers and Employees	
303A.10	Listed companies must adopt and disclose a code of business conduct and ethics for directors, officers and employees, and promptly disclose any waivers of the code for directors or executive officers.	Petrobras has a Code of Ethics (*Código de Ética*) and a Conduct Guide (*Guia de Conduta*), applicable to its directors, executive officers, senior management, employees, interns and service providers within the Petrobras Group, and a Code of Good Practices (*Código de Boas Práticas*) applicable to its directors, executive officers, senior management, employees and collaborators. No waivers of the provisions of the Code of Ethics, Conduct Guide or Code of Good Practices are permitted. These documents are available on Petrobras website.
	Certification Requirements	
303A.12	Each listed company CEO must certify to the NYSE each year that he or she is not aware of any violation by the company of NYSE corporate governance listing standards.	Our CEO will promptly notify the NYSE in writing if any executive officer becomes aware of any material noncompliance with any applicable provisions of the NYSE corporate governance rules.

Item 16H. Mine Safety Disclosure

Not applicable.

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PART III

Item 17. Financial Statements

Not applicable.

Item 18. Financial Statements

See pages F-2 through F-154, incorporated herein by reference.

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Item 19. Exhibits

No.	Description
1.1	Amended Bylaws of Petróleo Brasileiro S.A.-Petrobras, dated as of December 11, 2018
2.1	Indenture, dated as of December 15, 2006, between Petrobras International Finance Company and The Bank of New York, as Trustee (incorporated by reference to Exhibit 4.9 to the Registration Statement of Petrobras and Petrobras International Finance Company on Form F-3, filed with the Securities and Exchange Commission on December 18, 2006 (File Nos. 333-139459 and 333-139459-01))
2.2	Fourth Supplemental Indenture, dated as of October 30, 2009, among Petrobras International Finance Company, Petrobras and The Bank of New York Mellon, as Trustee, relating to the 6.875% Global Notes due 2040 (incorporated by reference to Exhibit 2.36 to the Annual Report on Form 20-F of Petrobras and Petrobras International Finance Company, filed with the Securities and Exchange Commission on May 20, 2010 (File Nos. 001-15106 and 001-33121))
2.3	Guaranty for the 6.875% Global Notes due 2040, dated as of October 30, 2009, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 2.38 to the Annual Report on Form 20-F of Petrobras and Petrobras International Finance Company, filed with the Securities and Exchange Commission on May 20, 2010 (File Nos. 001-15106 and 001-33121))
2.4	Assignment Agreement, dated as of September 3, 2010, among Petrobras, the Brazilian federal government and the National Petroleum, Natural Gas and Biofuels Agency (incorporated by reference to Exhibit 2.47 to the Annual Report on Form 20-F of Petrobras and Petrobras International Finance Company, filed with the Securities and Exchange Commission on May 26, 2011 (File Nos. 001-15106 and 001-33121))
2.5	Ninth Supplemental Indenture, dated as of December 9, 2011, among Petrobras International Finance Company, Petrobras, The Bank of New York Mellon, as Trustee, The Bank of New York Mellon, London Branch, as Principal Paying Agent and The Bank of New York Mellon (Luxembourg) S.A., as Luxembourg Paying Agent, relating to the 5.875% Global Notes due 2022 (incorporated by reference to Exhibit 4.5 to Form 6-K of Petrobras and Petrobras International Finance Company, furnished to the Securities and Exchange Commission on December 9, 2011 (File Nos. 001-15106 and 001-33121))
2.6	Guaranty for the 5.875% Global Notes due 2022, dated as of December 9, 2011, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.4 to Form 6-K of Petrobras and Petrobras International Finance Company, furnished to the Securities and Exchange Commission on December 9, 2011 (File Nos. 001-15106 and 001-33121))
2.7	Tenth Supplemental Indenture, dated as of December 12, 2011, among Petrobras International Finance Company, Petrobras, The Bank of New York Mellon, as Trustee, The Bank of New York Mellon, London Branch, as Principal Paying Agent and The Bank of New York Mellon (Luxembourg) S.A., as Luxembourg Paying Agent, relating to the 6.250% Global Notes due 2026 (incorporated by reference to Exhibit 4.2 to Form 6-K of Petrobras and Petrobras International Finance Company, furnished to the Securities and Exchange Commission on December 12, 2011 (File Nos. 001-15106 and 001-33121))
2.8	Guaranty for the 6.250% Global Notes due 2026, dated as of December 12, 2011, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to Form 6-K of Petrobras and Petrobras International Finance Company, furnished to the Securities and Exchange Commission on December 12, 2011 (File Nos. 001-15106 and 001-33121))
2.9	Amended and Restated Deposit Agreement, dated as of January 3, 2012, among Petrobras, The Bank of New York Mellon, as depositary, and registered holders and beneficial owners from time to time of the ADSs, representing the common shares of Petrobras, and Form of ADR evidencing ADSs representing the common shares of Petrobras (incorporated by reference to Exhibit 2.1 to the Annual Report on Form 20-F of Petrobras and Petrobras International Finance Company, filed with the Securities and Exchange Commission on April 2, 2012 (File Nos. 001-15106 and 001-33121))

2.10 Amended and Restated Deposit Agreement, dated as of January 3, 2012, among Petrobras, The Bank of New York Mellon, as depositary, and registered holders and beneficial owners from time to time of the ADSs, representing the preferred shares of Petrobras, and Form of ADR evidencing ADSs representing the preferred shares of Petrobras (incorporated by reference to Exhibit 2.2 to the Annual Report on Form 20-F of Petrobras and Petrobras International Finance Company, filed with the Securities and Exchange Commission on April 2, 2012 (File Nos. 001-15106 and 001-33121))

2.11 Amended and Restated Sixth Supplemental Indenture, dated as of February 6, 2012, among Petrobras International Finance Company, Petrobras and The Bank of New York Mellon, as Trustee, relating to the 5.375% Global Notes due 2021 (incorporated by reference to Exhibit 4.2 to Form 6-K of Petrobras and Petrobras International Finance Company, furnished to the Securities and Exchange Commission on February 6, 2012 (File Nos. 001-15106 and 001-33121))

2.12 Amended and Restated Seventh Supplemental Indenture, dated as of February 6, 2012, among Petrobras International Finance Company, Petrobras and The Bank of New York Mellon, as Trustee, relating to the 6.750% Global Notes due 2041 (incorporated by reference to Exhibit 4.5 to Form 6-K of Petrobras and Petrobras International Finance Company, furnished to the Securities and Exchange Commission on February 6, 2012 (File Nos. 001-15106 and 001-33121))

2.13 Amended and Restated Guaranty for the 5.375% Global Notes due 2021, dated as of February 6, 2012, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to Form 6-K of Petrobras and Petrobras International Finance Company, furnished to the Securities and Exchange Commission on February 6, 2012 (File Nos. 001-15106 and 001-33121))

2.14 Amended and Restated Guaranty for the 6.750% Global Notes due 2041, dated as of February 6, 2012, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.4 to Form 6-K of Petrobras and Petrobras International Finance Company, furnished to the Securities and Exchange Commission on February 6, 2012 (File Nos. 001-15106 and 001-33121))

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No.	Description
2.15	Sixth Supplemental Indenture, dated as of February 10, 2012, among Petrobras International Finance Company, Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 2.11 to the Annual Report on Form 20-F of Petrobras and Petrobras International Finance Company, filed with the Securities and Exchange Commission on April 2, 2012 (File Nos. 001-15106 and 001-33121))
2.16	Thirteenth Supplemental Indenture, dated as of February 10, 2012, among Petrobras International Finance Company, Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 2.60 to the Annual Report on Form 20-F of Petrobras and Petrobras International Finance Company, filed with the Securities and Exchange Commission on April 2, 2012 (File Nos. 001-15106 and 001-33121))
2.17	Indenture, dated as of August 29, 2012, between Petrobras Global Finance B.V. and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.5 to the Registration Statement on Form F-3 of Petrobras, Petrobras International Finance Company and Petrobras Global Finance B.V., filed with the Securities and Exchange Commission on August 29, 2012 (File Nos. 333-183618, 333-183618-01 and 333-183618-02))
2.18	Indenture, dated as of August 29, 2012, between Petrobras Global Finance B.V. and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.5 to the Registration Statement on Form F-3 of Petrobras, Petrobras International Finance Company and Petrobras Global Finance B.V., filed with the Securities and Exchange Commission on August 29, 2012 (File Nos. 333-183618, 333-183618-01 and 333-183618-02))
2.19	Second Supplemental Indenture, dated as of October 1, 2012, among Petrobras Global Finance B.V., Petrobras, The Bank of New York Mellon, as Trustee, The Bank of New York Mellon, London Branch, as principal paying agent, and The Bank of New York Mellon (Luxembourg) S.A., as Luxembourg paying agent, relating to the 4.25% Global Notes due 2023 (incorporated by reference to Exhibit 4.5 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on October 1, 2012 (File No. 001-15106))
2.20	Third Supplemental Indenture, dated as of October 1, 2012, among Petrobras Global Finance B.V., Petrobras, The Bank of New York Mellon, as Trustee, The Bank of New York Mellon, London Branch, as principal paying agent, and The Bank of New York Mellon (Luxembourg) S.A., as Luxembourg paying agent, relating to the 5.375% Global Notes due 2029 (incorporated by reference to Exhibit 4.8 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on October 1, 2012 (File No. 001-15106))
2.21	Guaranty for the 4.25% Global Notes due 2023, dated as of October 1, 2012, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.4 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on October 1, 2012 (File No. 001-15106))
2.22	Guaranty for the 5.375% Global Notes due 2029, dated as of October 1, 2012, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.7 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on October 1, 2012 (File No. 001-15106))
2.23	Sixth Supplemental Indenture, dated as of May 20, 2013, between Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as Trustee, relating to the 4.375% Global Notes due 2023 (incorporated by reference to Exhibit 4.8 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on May 20, 2013 (File No. 001-15106))
2.24	Seventh Supplemental Indenture, dated as of May 20, 2013, between Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as Trustee, relating to the 5.625% Global Notes due 2043 (incorporated by reference to Exhibit 4.11 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on May 20, 2013 (File No. 001-15106))
2.25	Guaranty for the 4.375% Global Notes due 2023, dated as of May 20, 2013, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.7 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on May 20, 2013 (File No. 001-15106))
2.26	Guaranty for the 5.625% Global Notes due 2043, dated as of May 20, 2013, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.10 to Form 6-K of Petrobras,

furnished to the Securities and Exchange Commission on May 20, 2013 (File No. 001-15106))

2.27 **Production Sharing Agreement**, dated as of December 2, 2013, among Petrobras, Shell Brasil Petróleo Ltda., Total E&P do Brasil Ltda., CNODC Brasil Petróleo e Gás Ltda. and CNOOC Petroleum Brasil Ltda., the Brazilian federal government, Pré-Sal Petróleo S.A. - PPSA and the National Petroleum, Natural Gas and Biofuels Agency (incorporated by reference to the Annual Report on Form 20-F of Petrobras, filed with the Securities and Exchange Commission on April 30, 2014 (File No. 001-15106))

2.28 Eleventh Supplemental Indenture, dated as of January 14, 2014, among Petrobras Global Finance B.V., Petrobras, The Bank of New York Mellon, as Trustee, The Bank of New York Mellon, London Branch, as principal paying agent, and The Bank of New York Mellon (Luxembourg) S.A., as Luxembourg paying agent, relating to the 3.750% Global Notes due 2021 (incorporated by reference to Exhibit 4.5 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 14, 2014 (File No. 001-15106))

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No.	Description
2.29	Twelfth Supplemental Indenture, dated as of January 14, 2014, among Petrobras Global Finance B.V., Petrobras, The Bank of New York Mellon, as Trustee, The Bank of New York Mellon, London Branch, as principal paying agent, and The Bank of New York Mellon (Luxembourg) S.A., as Luxembourg paying agent, relating to the 4.750% Global Notes due 2025 (incorporated by reference to Exhibit 4.8 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 14, 2014 (File No. 001-15106))
2.30	Thirteenth Supplemental Indenture, dated as of January 14, 2014, among Petrobras Global Finance B.V., Petrobras, The Bank of New York Mellon, as Trustee, The Bank of New York Mellon, London Branch, as principal paying agent, and The Bank of New York Mellon (Luxembourg) S.A., as Luxembourg paying agent, relating to the 6.625% Global Notes due 2034 (incorporated by reference to Exhibit 4.11 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 14, 2014 (File No. 001-15106))
2.31	Guaranty for the 3.750% Global Notes due 2021, dated as of January 14, 2014, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.4 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 14, 2014 (File No. 001-15106))
2.32	Guaranty for the 4.750% Global Notes due 2025, dated as of January 14, 2014, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.7 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 14, 2014 (File No. 001-15106))
2.33	Guaranty for the 6.625% Global Notes due 2034, dated as of January 14, 2014, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.10 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 14, 2014 (File No. 001-15106))
2.34	Sixteenth Supplemental Indenture, dated as of March 17, 2014, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as Trustee, relating to the 6.250% Global Notes due 2024 (incorporated by reference to Exhibit 4.8 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on March 17, 2014 (File No. 001-15106))
2.35	Seventeenth Supplemental Indenture, dated as of March 17, 2014, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as Trustee, relating to the 7.250% Global Notes due 2044 (incorporated by reference to Exhibit 4.11 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on March 17, 2014 (File No. 001-15106))
2.36	Nineteenth Supplemental Indenture, dated as of March 17, 2014, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as Trustee, relating to the Floating Rate Global Notes due 2020 (incorporated by reference to Exhibit 4.17 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on March 17, 2014 (File No. 001-15106))
2.37	Guaranty for the 6.250% Global Notes due 2024, dated as of March 17, 2014, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.7 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on March 17, 2014 (File No. 001-15106))
2.38	Guaranty for the 7.250% Global Notes due 2044, dated as of March 17, 2014, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.10 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on March 17, 2014 (File No. 001-15106))
2.39	Guaranty for the Floating Rate Global Notes due 2020, dated as of March 17, 2014, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.16 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on March 17, 2014 (File No. 001-15106))
2.40	Seventh Supplemental Indenture, dated as of December 28, 2014, among Petrobras International Finance Company S.A., Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 15, 2015 (File No. 001-15106))
2.41	Fourteenth Supplemental Indenture, dated as of December 28, 2014, among Petrobras International Finance Company S.A., Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.2 to Form 6-K of Petrobras, furnished to the Securities and Exchange

Commission on January 15, 2015 (File No. 001-15106))

2.42 First Amendment to the Guaranties, dated as of December 28, 2014, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.3 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 15, 2015 (File No. 001-15106))

2.43 Twentieth Supplemental Indenture, dated as of June 5, 2015, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as Trustee, relating to the 6.850% Global Notes due 2115 (incorporated by reference to Exhibit 4.2 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on June 5, 2015 (File No. 001-15106))

2.44 Guaranty for the 6.850% Global Notes due 2115, dated as of June 5, 2015, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on June 5, 2015 (File No. 001-15106))

2.45 Twenty-First Supplemental Indenture, dated as of May 23, 2016, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, relating to the 8.375% Global Notes due 2021 (incorporated by reference to Exhibit 4.2 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on May 23, 2016 (File No. 01-15106))

2.46 Amended and Restated Twenty-First Supplemental Indenture, dated as of July 13, 2016, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, relating to the 8.375% Global Notes due 2021 (incorporated by reference to Exhibit 4.2 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on July 13, 2016 (File No. 01-15106))

2.47 Twenty-Second Supplemental Indenture, dated as of May 23, 2016, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, relating to the 8.750% Global Notes due 2027 (incorporated by reference to Exhibit 4.5 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on May 23, 2016 (File No. 01-15106))

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No.	Description
2.48	Amended and Restated Twenty-Second Supplemental Indenture, dated as of July 13, 2016, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, relating to the 8.750% Global Notes due 2027 (incorporated by reference to Exhibit 4.5 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on July 13, 2016 (File No. 01-15106))
2.49	Twenty-Third Supplemental Indenture, dated as of January 17, 2017, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, relating to the 6.125% Global Notes due 2022 (incorporated by reference to Exhibit 4.2 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 17, 2017 (File No. 01-15106))
2.50	Twenty-Fourth Supplemental Indenture, dated as of January 17, 2017, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, relating to the 7.375% Global Notes due 2027 (incorporated by reference to Exhibit 4.5 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 17, 2017 (File No. 01-15106))
2.51	Guaranty for the 8.375% Global Notes due 2021, dated as of May 23, 2016, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on May 23, 2016 (File No. 01-15106))
2.52	Amended and Restated Guaranty for the 8.375% Global Notes due 2021, dated as of July 13, 2016, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on July 13, 2016 (File No. 01-15106))
2.53	Guaranty for the 8.750% Global Notes due 2026, dated as of May 23, 2016, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.4 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on May 23, 2016 (File No. 01-15106))
2.54	Amended and Restated Guaranty for the 8.750% Global Notes due 2026, dated as of July 13, 2016, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.4 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on July 13, 2016 (File No. 01-15106))
2.55	Guaranty for the 6.125% Global Notes due 2022, dated as of January 17, 2017, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 17, 2017 (File No. 01-15106))
2.56	Guaranty for the 7.375% Global Notes due 2027, dated as of January 17, 2017, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.4 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on January 17, 2017 (File No. 01-15106))
2.57	Amended and Restated Twenty-Third Supplemental Indenture, dated as of January 17, 2017, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, relating to the 6.125% Global Notes due 2022 (incorporated by reference to Exhibit 4.2 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on May 22, 2017 (File No. 01-15106))
2.58	Amended and Restated Twenty-Fourth Supplemental Indenture, dated as of May 22, 2017, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, relating to the 7.375% Global Notes due 2027 (incorporated by reference to Exhibit 4.5 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on May 22, 2017 (File No. 01-15106))
2.59	Amended and Restated Seventeenth Supplemental Indenture, dated as of May 22, 2017, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as Trustee, relating to the 7.250% Global Notes due 2044 (incorporated by reference to Exhibit 4.8 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on May 22, 2017 (File No. 01-15106))
2.60	Indenture, dated as of September 27, 2017, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as trustee, relating to the 5.299% Global Notes due 2025.
2.61	

	Indenture, dated as of September 27, 2017, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, as trustee, relating to the 5.999% Global Notes due 2028.
2.62	Guaranty for the 5.299% Global Notes due 2025, dated as of September 27, 2017, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.96 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on July 27, 2018 (File No. 333-226375))
2.63	Guaranty for the 5.999% Global Notes due 2028, dated as of September 27, 2017, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.97 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on July 27, 2018 (File No. 333-226375))
2.64	Twenty-Fifth Supplemental Indenture, dated as of February 1, 2018, among Petrobras Global Finance B.V., Petrobras and The Bank of New York Mellon, relating to the 5.750% Global Notes due 2029 (incorporated by reference to Exhibit 4.2 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on February 1, 2018 (File No. 001-15106))
2.65	Guaranty for the 5.750% Global Notes due 2029, dated as of February 1, 2018, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on February 1, 2018 (File No. 001-15106))
2.66	Indenture, dated as of August 28, 2018 between Petrobras and The Bank of New York, as Trustee (incorporated by reference to Exhibit 4.3 to the Registration Statement of Petrobras and Petrobras Global Finance on Form F-3, filed with the Securities and Exchange Commission on August 28, 2018 (File Nos. 333-227087 and 333-227087-01))

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No.	Description
2.67	Indenture, dated as of August 28, 2018 between Petrobras Global Finance B.V. and The Bank of New York, as Trustee (incorporated by reference to Exhibit 4.4 to the Registration Statement of Petrobras and Petrobras Global Finance B.V. on Form F-3, filed with the Securities and Exchange Commission on August 28, 2018 (File Nos. 333-227087 and 333-227087-01))
2.68	Amended And Restated Guaranty for the 5.750% Global Notes due 2029, dated as of March 19, 2019, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.1 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on March 19, 2019 (File No. 001-15106)
2.69	Amended And Restated Twenty-Fifth Supplemental Indenture for the 5.750% Global Notes due 2029, dated as of March 19, 2019, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.2 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on March 19, 2019 (File No. 001-15106)
2.70	Guaranty for the 6.90% Global Notes due 2049, dated as of March 19, 2019, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.5 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on March 19, 2019 (File No. 001-15106)
2.71	First Supplemental Indenture for the 6.90% Global Notes due 2049, dated as of March 19, 2019, between Petrobras and The Bank of New York Mellon, as Trustee (incorporated by reference to Exhibit 4.6 to Form 6-K of Petrobras, furnished to the Securities and Exchange Commission on March 19, 2019 (File No. 001-15106)
4.1	Form of Concession Agreement for Exploration, Development and Production of crude oil and natural gas executed between Petrobras and the ANP (incorporated by reference to Exhibit 10.1 of Petrobras s Registration Statement on Form F-1 filed with the Securities and Exchange Commission on July 14, 2000 (File No. 333-12298)). This was a paper filing, and is not available on the SEC website.
4.2	Purchase and Sale Agreement of natural gas, executed between Petrobras and Yacimientos Petroliferos Fiscales Bolivianos-YPFB (together with and English version) (incorporated by reference to Exhibit 10.2 to Petrobras s Registration Statement on Form F-1 filed with the Securities and Exchange Commission on July 14, 2000 (File No. 333-12298)). This was a paper filing, and is not available on the SEC website.
8.1	List of subsidiaries.
12.1	Certifications Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
13.1	Certifications Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
15.1	Consent letter of KPMG.
15.2	Consent Letter of PwC.
15.3	Consent letter of DeGolyer and MacNaughton.
99.1	Third Party Reports of DeGolyer and MacNaughton.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

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SIGNATURES

The registrant hereby certifies that it meets all the requirements for filing on Form 20-F and has duly caused this annual report to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Rio de Janeiro, on March 29, 2019.

Petróleo Brasileiro S.A. PETROBRAS

By: /s/ Roberto da Cunha Castello Branco
Name: Roberto da Cunha Castello Branco
Title: Chief Executive Officer

By: /s/ Rafael Salvador Grisolia
Name: Rafael Salvador Grisolia
Title: Chief Financial Officer and Chief Investor Relations Officer

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FINANCIAL

STATEMENTS

December 31, 2018, 2017 and 2016

with report of independent registered

public accounting firm

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KPMG Auditores Independentes

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Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors

Petróleo Brasileiro S.A. - Petrobras

Rio de Janeiro RJ

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated statement of financial position of Petróleo Brasileiro S.A. Petrobras and subsidiaries (the Company) as of December 31, 2018 and 2017, the related consolidated statements of income, comprehensive income, changes in equity and cash flows for each of the years in the two-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements). We also have audited the Company s internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 2018, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

KPMG Auditores Independentes, uma sociedade simples brasileira e firma-membro da rede KPMG de firmas-membro independentes e afiliadas à KPMG International Cooperative (KPMG International), uma entidade suíça.	*KPMG Auditores Independentes, a Brazilian entity and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (KPMG International), a Swiss entity.*

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Basis for Opinion

The Company s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management s Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company s consolidated financial statements and an opinion on the Company s internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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Definition and Limitations of Internal Control Over Financial Reporting

A company s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG Auditores Independentes

We have served as the Company s auditor since 2017.

KPMG Auditores Independentes

Rio de Janeiro, February 27, 2019

KPMG Auditores Independentes, uma sociedade simples brasileira e firma-membro da rede KPMG de firmas-membro independentes e afiliadas à KPMG International Cooperative (KPMG International), uma entidade suíça.	*KPMG Auditores Independentes, a Brazilian entity and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative (KPMG International), a Swiss entity.*

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Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors of

Petróleo Brasileiro S.A. - Petrobras

In our opinion, the accompanying consolidated statements of income, comprehensive income, shareholders equity and cash flows for the year ended December 31, 2016 present fairly, in all material respects, the results of operations and cash flows of Petróleo Brasileiro S.A. Petrobras and its subsidiaries (the Company) for the year ended December 31, 2016, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. These financial statements are the responsibility of the Company s management. Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit of these financial statements in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

As discussed in Note 3 to the financial statements, in 2014, the Company wrote off US$ 2,527 million of overpayments on the acquisition of property plant and equipment incorrectly capitalized according to testimony obtained from Brazilian criminal investigations.

/s/ PricewaterhouseCoopers
Auditores Independentes

Rio de Janeiro, Brazil
April 26, 2017

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Petróleo Brasileiro S.A. Petrobras

Management Report on Internal Control over Financial Reporting

Management Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting and for assessing the effectiveness of internal control over financial reporting.

Our internal control over financial reporting is a process designed by, or under the supervision of, our Chief Executive Officer and our Chief Financial Officer, and effected by our board of directors, management and other employees, and is designed to provide reasonable assurance regarding the reliability of financial reporting and of the preparation of our consolidated financial statements for external purposes, in accordance with IFRS, as issued by the IASB.

Due to its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness of internal control over financial reporting to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with our policies or procedures may deteriorate.

Our management has assessed the effectiveness of our internal control over financial reporting as of December 31, 2018, based upon the criteria established in Internal Controls - Integrated Framework (2013), issued by the Committee of Sponsoring Organizations of Treadway Commission (COSO). Based on this assessment and criteria, our management has concluded that our internal control over financial reporting was effective as of December 31, 2018.

Audit of the Effectiveness of Internal Control over Financial Reporting

Our independent registered public accounting firm, KPMG Auditores Independentes, has audited the effectiveness of our internal control over financial reporting, as stated in their report as of December 31, 2018, which is included herein.

Roberto Castello Branco

Chief Executive Officer

Rafael Salvador Grisolia

Chief Financial Officer

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Petróleo Brasileiro S.A. Petrobras

Consolidated Statement of Financial Position

December 31, 2018 and 2017

(Expressed in millions of US Dollars, unless otherwise indicated)

	Note	12.31.2018	12.31.2017
Assets			
Current assets			
Cash and cash equivalents	7.1	13,899	22,519
Marketable securities	7.2	1,083	1,885
Trade and other receivables	8.1	5,746	4,972
Inventories	9	8,987	8,489
Recoverable income taxes	21.1	739	479
Other recoverable taxes	21.1	1,296	1,958
Escrow account - Class action agreement	31.4	1,881	
Others		1,485	1,511
		35,116	41,813
Assets classified as held for sale	10.2	1,946	5,318
		37,062	47,131
Non-current assets			
Long-term receivables			
Trade and other receivables	8.1	5,492	5,175
Marketable securities	7.2	53	64
Judicial deposits	31.2	6,711	5,582
Deferred income taxes	21.6	2,680	3,438
Other tax assets	21.1	3,540	3,075
Advances to suppliers		666	1,032
Others		2,917	3,084
		22,059	21,450
Investments	11	2,759	3,795
Property, plant and equipment	12	157,383	176,650
Intangible assets	13	2,805	2,340
		185,006	204,235
Total assets		222,068	251,366

Liabilities			
Current liabilities			
Trade payables	16	6,327	5,767
Finance debt	17.1	3,667	7,001
Finance lease obligations	18.1	23	25
Income taxes payable	21.1	211	299
Other taxes payable	21.1	3,556	4,548
	Note	**12.31.2018**	**12.31.2017**
Dividends payable	24.6	1,109	
Short-term benefits	22	1,658	1,309
Pension and medical benefits	23	810	844
Provisions for legal proceedings	31.1	3,482	2,256
Agreement with US Authorities	3.3	783	
Others		2,442	2,508
		24,068	24,557
Liabilities related to assets classified as held for sale	10.2	983	391
		25,051	24,948
Non-current liabilities			
Finance debt	17.1	80,508	102,045
Finance lease obligations	18.1	162	204
Income taxes payable	21.1	552	671
Deferred income taxes	21.6	654	1,196
Pension and medical benefits	23	21,940	20,986
Provisions for legal proceedings	31.1	3,923	4,770
Provision for decommissioning costs	20	15,133	14,143
Others		970	901
		123,842	144,916
Total liabilities		148,893	169,864
Equity			
Share capital (net of share issuance costs)	24.1	107,101	107,101
Capital reserve and transactions		1,067	1,067
Profit reserves		58,161	53,056
Accumulated other comprehensive (deficit)	24.5	(94,785)	(81,422)
Attributable to the shareholders of Petrobras		71,544	79,802
Non-controlling interests		1,631	1,700
		73,175	81,502
Total liabilities and equity		222,068	251,366

The notes form an integral part of these financial statements.

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Petróleo Brasileiro S.A. Petrobras

Consolidated Statement of Income

December 31, 2018, 2017 and 2016

(Expressed in millions of US Dollars, unless otherwise indicated)

	Note	2018	2017	2016
Sales revenues	25	95,584	88,827	81,405
Cost of sales		(61,517)	(60,147)	(55,417)
Gross profit		34,067	28,680	25,988
Income (expenses)				
Selling expenses		(4,631)	(4,538)	(3,963)
General and administrative expenses		(2,455)	(2,918)	(3,319)
Exploration costs	15	(524)	(800)	(1,761)
Research and development expenses		(642)	(572)	(523)
Other taxes		(752)	(1,843)	(714)
Impairment of assets		(2,005)	(1,191)	(6,193)
Other income and expenses	26	(5,626)	(5,599)	(5,207)
		(16,635)	(17,461)	(21,680)
Income before finance income (expense), results in equity-accounted investments and income taxes		17,432	11,219	4,308
Finance income		3,155	1,047	1,053
Finance expenses		(5,790)	(7,395)	(6,958)
Foreign exchange gains (losses) and inflation indexation charges		(3,222)	(3,547)	(1,850)
Net finance income (expense)	28	(5,857)	(9,895)	(7,755)
Results in equity-accounted investments	11	523	673	(218)
Net income before income taxes		12,098	1,997	(3,665)
Income taxes	21.10	(4,684)	(1,828)	(684)
Net income for the year		7,414	169	(4,349)
Non-controlling interests		241	260	489

Net income attributable to shareholders of Petrobras		7,173	(91)	(4,838)
Basic and diluted earnings per weighted-average of common and preferred share - in U.S. dollars	24.7	0.55	(0.01)	(0.37)

The notes form an integral part of these financial statements.

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Petróleo Brasileiro S.A. Petrobras

Consolidated Statement of Comprehensive Income

December 31, 2018, 2017 and 2016

(Expressed in millions of US Dollars, unless otherwise indicated)

	2018	2017	2016
Net income (loss) for the year	7,414	169	(4,349)
Items that will not be reclassified to the statement of income:			
Actuarial gains (losses) on post-employment defined benefit plans	(3,130)	1,908	(5,296)
Deferred income tax	(119)	(273)	1,058
	(3,249)	1,635	(4,238)
Share of other comprehensive income (losses) in equity-accounted investments		(1)	(3)
Unrealized gains (losses) on equity instruments measured at fair value through other comprehensive income (IFRS 9)			
Recognized in equity	(5)		
Deferred income tax	2		
	(3)		
Items that may be reclassified subsequently to the statement of income:			
Unrealized gains (losses) on equity instruments measured at fair value through other comprehensive income (IAS 39)			
Recognized in equity		15	
Deferred income tax		(4)	
		11	
Unrealized gains (losses) on cash flow hedge - highly probable future exports			
Recognized in equity	(8,950)	(543)	10,779
Reclassified to the statement of income	3,315	3,154	2,841
Deferred income tax	1,916	(887)	(4,629)
	(3,719)	1,724	8,991
Unrealized gains (losses) on cash flow hedge - others			
Recognized in equity		(5)	8
Cumulative translation adjustments (*)			
Recognized in equity	(6,409)	(851)	9,529

Reclassified to the statement of income		37	1,457
	(6,409)	(814)	10,986
Share of other comprehensive income in equity-accounted investments			
Recognized in equity	(135)	134	344
Reclassified to the statement of income		22	
	(135)	156	344
Total other comprehensive income:	(13,515)	2,706	16,088
Total comprehensive income (loss)	(6,101)	2,875	11,739
Non-controlling interests	65	291	503
Comprehensive income attributable to shareholders of Petrobras	(6,166)	2,584	11,236

(*) It includes a US$ 236 loss (a US$ 49 loss in 2017 and a US$ 413 gain in 2016), of cumulative translation adjustments in associates and joint ventures.

The notes form an integral part of these financial statements.

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Petróleo Brasileiro S.A. Petrobras

Consolidated Statement of Cash Flows

December 31, 2018, 2017 and 2016

(Expressed in millions of US Dollars, unless otherwise indicated)

	2018	2017	2016
Cash flows from Operating activities			
Net income for the year	7,414	169	(4,349)
Adjustments for:			
Pension and medical benefits (actuarial expense)	2,140	2,726	2,304
Results in equity-accounted investments	(523)	(673)	218
Depreciation, depletion and amortization	12,028	13,307	13,965
Impairment of assets (reversal)	2,005	1,191	6,193
Allowance (reversals) for credit loss on trade and others receivables	102	708	1,131
Exploratory expenditures write-offs	87	279	1,281
(Gains)/losses on disposals/write-offs of assets	(419)	(1,498)	(293)
Foreign exchange, indexation and finance charges	7,306	9,602	7,962
Deferred income taxes, net	764	467	(913)
Revision and unwinding of discount on the provision for decommissioning costs	31	425	(836)
Reclassification of cumulative translation adjustment and other comprehensive income		59	1,457
Inventory write-down to net realizable value	420	66	343
Gain on remeasurement of investment retained with loss of control		(217)	
Provision for the class action agreement		3,449	
Decrease (Increase) in assets			
Trade and other receivables, net	(1,191)	(978)	(39)
Inventories	(1,994)	(336)	(518)
Judicial deposits	(2,044)	(1,671)	(986)
Escrow account - Class action agreement	(2,019)		
Other assets	453	(223)	(319)
Increase (Decrease) in liabilities			
Trade payables	804	(62)	(1,060)
Other taxes payable	2,261	2,952	1,047
Pension and medical benefits	(1,056)	(919)	(766)
Provisions for legal proceedings	1,419	316	691
Short-term benefits	569	(896)	668
Other liabilities	369	(332)	(695)
Income taxes paid	(2,573)	(799)	(372)
Net cash provided by operating activities	26,353	27,112	26,114

Cash flows from Investing activities			
Acquisition of PP&E and intangibles assets	(12,021)	(13,639)	(14,085)
Investments in investees	(44)	(75)	(125)
Proceeds from disposal of assets - Divestment	5,791	3,091	2,205
Divestment (Investment) in marketable securities	704	(861)	229
Dividends received	808	452	473
Net cash used in investing activities	(4,762)	(11,032)	(11,303)
Cash flows from Financing activities			
Investments by non-controlling interest	115	19	29
Proceeds from financing	10,950	27,075	18,897
Repayment of principal	(34,063)	(36,095)	(30,660)
Repayment of interest	(5,791)	(6,981)	(7,308)
Dividends paid to Shareholders of Petrobras	(625)		
Dividends paid to non-controlling interests	(179)	(167)	(72)
Proceeds from sale of interest without loss of control		1,511	
Net cash used in financing activities	(29,593)	(14,638)	(19,114)
Effect of exchange rate changes on cash and cash equivalents	(618)	(128)	450
Net increase (decrease) in cash and cash equivalents	(8,620)	1,314	(3,853)
Cash and cash equivalents at the beginning of the year	22,519	21,205	25,058
Cash and cash equivalents at the end of the year	13,899	22,519	21,205

The notes form an integral part of these financial statements.

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Petróleo Brasileiro S.A. Petrobras

Consolidated Statement of Changes in Shareholders Equity

December 31, 2018, 2017 and 2016

(Expressed in millions of US Dollars, unless otherwise indicated)

hare capital (net of hare issuance costs)				Accumulated other comprehensive income (deficit) and deemed cost			Profit Reserves					
Share Capital	Share issuance costs	Capital reserve, Capital Transactions and Treasury shares	Cumulative translation adjustment	Cash flow hedge - highly probable future exports	Actuarial gains (losses) on defined benefit pension plans	Other comprehensive income (loss) and deemed cost	Legal	Statutory	Tax incentives	Profit retention	Retained earnings	Equity attributabl to shareholders of Petrobras	N cont inte
107,380	(279)	321	(71,220)	(20,288)	(7,362)	(1,293)	7,919	2,182	720	47,156		65,236	
	107,101	321				(100,163)				57,977		65,236	
						(4)					4		
		307										307	
											(4,838)	(4,838)	
			10,972	8,991	(4,238)	349						16,074	
										(4,834)	4,834		
107,380	(279)	628	(60,248)	(11,297)	(11,600)	(948)	7,919	2,182	720	42,322		76,779	
	107,101	628				(84,093)				53,143		76,779	

						(4)					4		
		439										439	
											(91)	(91)	
			(795)	1,724	1,585	161						2,675	
										(87)	87		
107,380	(279)	1,067	(61,043)	(9,573)	(10,015)	(791)	7,919	2,182	720	42,235		79,802	1
	107,101	1,067				(81,422)				53,056		79,802	1
107,380	(279)	1,067	(61,043)	(9,573)	(10,015)	(791)	7,919	2,182	720	42,235	0	79,802	1
	107,101	1,067				(81,422)				53,056	0	79,802	1
						(20)					(222)	(242)	
107,380	(279)	1,067	(61,043)	(9,573)	(10,015)	(811)	7,919	2,182	720	42,235	(222)	79,560	1
						(4)					4		
		(2)										(2)	
		2										2	
											7,173	7,173	
			(6,273)	(3,719)	(3,209)	(138)						(13,339)	
							338	270	203	4,294	(5,105)		
											(1,850)	(1,850)	
107,380	(279)	1,067	(67,316)	(13,292)	(13,224)	(953)	8,257	2,452	923	46,529		71,544	1
	107,101	1,067				(94,785)				58,161		71,544	1

The notes form an integral part of these financial statements.

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Petróleo Brasileiro S.A. Petrobras

Notes to the financial statements - unaudited

(Expressed in millions of US Dollars, unless otherwise indicated)

1. The Company and its operations

Petróleo Brasileiro S.A. (Petrobras), hereinafter referred to as Petrobras or Company, is a partially state-owned enterprise, controlled by the Brazilian Federal Government, of indefinite duration, governed by the terms and conditions under the Brazilian Corporate Law (Law 6,404 of December 15, 1976), Law 13,303 of June 30, 2016 and its Bylaws.

Petrobras shares are listed on the Brazilian stock exchange (B3) in the Level 2 Corporate Governance special listing segment and, therefore, the Company, its shareholders, its managers and fiscal council members are subject to provisions under its regulation (Level 2 Regulation - *Regulamento de Listagem do Nível 2 de Governança Corporativa da Brasil Bolsa Balcão* B3). The provisions of the Level 2 Regulation, which are based on high standards of corporate governance, shall prevail over statutory provisions in the event of harm to the rights of public offers investors provided for in the Company s Bylaws, except when otherwise determined by other regulation.

The Company is dedicated to prospecting, drilling, refining, processing, trading and transporting crude oil from producing onshore and offshore oil fields and from shale or other rocks, as well as oil products, natural gas and other liquid hydrocarbons. In addition, Petrobras carries out energy related activities, such as research, development, production, transport, distribution and trading of all forms of energy, as well as other related or similar activities.

Petrobras may perform any of the activities related to its corporate purpose, directly, through its wholly-owned subsidiaries, controlled companies, alone or through joint ventures with third parties, in Brazil or abroad.

The economic activities linked to its business purpose shall be undertaken by the Company in free competition with other companies according to market conditions, in compliance with the other principles and guidelines of Laws no. 9,478/97 and 10,438/02 (oil & gas and electricity sector regulations, respectively). However, Petrobras may have its activities, provided they are in compliance with its corporate purpose, guided by the Brazilian Federal Government to contribute to the public interest that justified its creation, aiming to meet national energy policy objectives when:

I established by law or regulation, as well as under agreements provisions with a public entity that is competent to establish such obligation, abiding with the broad publicly stated of such instruments; and

II the cost and revenues thereof have been broken down and disseminated in a transparent manner.

In this case, the Company s Finance Committee and Minority Shareholders Committee, exercising their advisory role to the Board of Directors, shall assess and measure the difference between such market conditions and the operating result or economic return of the transaction, based on technical and economic criteria for investment valuation and specific operating costs and results under the Company s operations, In this case, for every financial year, the Brazilian Federal Government shall compensate the Company.

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2. Basis of preparation

2.1. Statement of compliance and authorization of financial statements

The consolidated financial statements have been prepared and are presented in accordance with the International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB).

The consolidated financial statements have been prepared under the historical cost convention, except when otherwise indicated. The summary of significant accounting policies used in the preparation of these financial statements is set out in note 4.

The preparation of the financial statements requires the use of estimates and assumptions which may affect the application of accounting policies and reported amounts of assets, liabilities revenues and expenses. Although our management periodically reviews these assumptions and judgments, the actual results could differ from these estimates. For further information on accounting estimates, see note 5.

The annual consolidated financial statements were approved and authorized for issue by the Company s Board of Directors in a meeting held on February 27, 2019.

2.2. Functional and presentation currency

The functional currency of Petrobras and all of its Brazilian subsidiaries is the Brazilian Real. The functional currency of most of the Petrobras entities that operate outside Brazil is the U.S. dollar.

Petrobras has selected the U.S. dollar as its presentation currency to facilitate a more direct comparison to other oil and gas companies. The financial statements have been translated from the functional currency (Brazilian real) into the presentation currency (U.S. dollar). All assets and liabilities are translated into U.S. dollars at the closing exchange rate at the date of the financial statements; income and expenses, as well as cash flows are translated into U.S. dollars using the average exchange rates prevailing during the period. All exchange differences arising from the translation of the consolidated financial statements from the functional currency into the presentation currency are recognized as cumulative translation adjustments (CTA) within accumulated other comprehensive income in the consolidated statements of changes in shareholders equity.

Brazilian Real x U.S. Dollar	Quarterly average exchange rate	Period-end exchange rate
Dec 2018	3.81	3.87
Sep 2018	3.95	4.00
Jun 2018	3.61	3.86
Mar 2018	3.24	3.32
Dec 2017	3.25	3.31
Sep 2017	3.16	3.17
Jun 2017	3.22	3.31
Mar 2017	3.15	3.17
Dec 2016	3.29	3.26
Sep 2016	3.25	3.25
Jun 2016	3.51	3.21
Mar 2016	3.91	3.56

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2.3. Changes in accounting polices

IFRS 9, IFRS 15 and IFRIC 22 have been effective since January 1, 2018. Accordingly, the Company changed, in 2018, accounting policies related to financial instruments, revenue recognition and transactions that include the receipt or payment of advance consideration in a foreign currency.

2.3.1. IFRS 9 - Financial instruments

IFRS 9 establishes, among others things, new requirements for classification and measurement of financial assets, measurement and recognition of impairment of financial assets, changes in the terms of financial assets and liabilities, hedge accounting and disclosure.

As permitted by IFRS 9, the company did not restate prior periods with respect to classification and measurement (including impairment and modification of financial assets and liabilities) changes. Differences in the carrying amounts of financial assets and financial liabilities resulting from the adoption of IFRS 9 were recognized at January 1, 2018 in retained earnings within equity.

The new hedge accounting requirements were applied prospectively. The cash flow hedge relationships of highly probable future exports designated under IAS 39 were regarded as continuing hedging relationships under IFRS 9, since they also qualify for hedge accounting in accordance with the new standard.

Information on the consolidated impacts at January 1, 2018 is presented below:

Item of Consolidated Statement of Financial Position	Balance at 12.31.2017	Adjustment by initial application of IFRS 9	Note	Balance at 01.01.2018
Current assets				
Trade and other receivables	4,972	(103)	2.3.1 b	4,869
Non-current assets				
Trade and other receivables	5,175	(19)	2.3.1 b	5,156
Deferred income taxes	3,438	122		3,560
Others	3,084	(23)	2.3.1 b	3,061

Current liabilities				
Finance debt	7,001	1	2.3.1 a	7,002
Others	2,508	(7)	2.3.1 a	2,501
Non-current liabilities				
Finance debt	102,045	241	2.3.1 a	102,286
Equity				
Accumulated other comprehensive (deficit)	(81,422)	(20)	2.3.1 c	(81,442)
Retained earnings		(222)		(222)
Non-controlling interests	1,700	(15)		1,685

a) Modification of contractual cash flows

When the contractual cash flows of a financial liability measured at amortized cost are renegotiated or modified and this change is not substantial, its gross carrying amount will reflect the discounted present value of its cash flows under the new terms using the original effective interest rate. The difference between the book value immediately prior to such modification and the new gross carrying amount is recognized as gain or loss in the statement of income.

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b) Impairment of financial assets

IFRS 9 replaced the incurred loss model stated in IAS 39 by the expected credit loss model for the recognition of impairment on financial assets measured at amortized cost, including lease receivables, and on financial assets measured at fair value through other comprehensive income.

c) Classification and measurement of financial assets

This new standard established 3 categories in which financial assets are generally classified: Amortized cost, Fair value through other comprehensive income and Fair value through profit or loss. The classification of a financial asset is based on the business model in which assets are managed and on their contractual cash flow characteristics.

The following table presents comparative information of marketable securities between the former classification and measurement in accordance with IAS 39 and the current requirements following the effectiveness of IFRS 9:

	Carrying amount according to IAS 39 at December 31, 2017		
Classification according to IAS 39	**In Brazil**	**Abroad**	**Total**
Trading securities	1,067		1,067
Available-for-sale securities	153	609	762
Held-to-maturity securities	120		120
	1,340	**609**	**1,949**

	Carrying amount according to IFRS 9 at January 1, 2018		
Classification according to IFRS 9	**In Brazil**	**Abroad**	**Total**
Fair value through profit or loss	1,276		1,276
Fair value through other comprehensive income	13	609	622
Amortised cost	51		51

	1,340	**609**	**1,949**

Information about accounting policies, key estimates and judgments related to financial instruments is presented in notes 4 and 5.

2.3.2. Revenue from Contracts with Customers

For the purposes of the transition requirements, the Company applied IFRS 15 retrospectively with the cumulative effect of its application recognized at its effective date within retained earnings. However, the changes arising from the adoption of IFRS 15 only affected the way certain revenues from contracts with customers are disclosed within the statement of income and did not affect net income. Accordingly, there were no impacts within retained earnings (equity).

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The following table presents the impacts of adoption of this standard in 2018:

		Initial application of IFRS 15			
	2018	Agent	Breakage	Others	Amount without effects of initial application of IFRS 15 - 2018
Sales revenues	95,584	2,560	(273)	(24)	97,847
Cost of sales	(61,517)	(2,560)	20		(64,057)
Gross profit	34,067		(253)	(24)	33,790
Income and expenses	(16,635)		253	24	(16,358)
Income before finance income (expense), results in equity-accounted investments and income taxes	17,432				17,432

The Company acting as an agent

In accordance with accounting policies at December 31, 2017, the Company was regarded as the principal in the sale of biodiesel. Therefore, the revenues from these sales, cost of the products sold and sales expenses were presented separately in the statement of income. However, under the new standard s requirements, the Company acts as an agent because it does not obtain control of goods or services provided by another party before it is transferred to the customer. From January 1, 2018, revenues from these sales have been presented in the statement of income net of their cost of sales and sales expenses.

Non-exercised right income (breakage)

In accordance with accounting policies at December 31, 2017, the Company regarded the income from rights not exercised by customers in certain take or pay and ship or pay contracts as penalties revenue and presented it as other income and expenses in the statement of income. However, according to the new standard s requirements, the

Company has accounted for and presented its income from rights not exercised by customers as sales revenues in the statement of income, as from January 1, 2018.

Information about accounting policies related to revenue from contract with customers is presented in note 4.

2.3.3. IFRIC 22 Foreign Currency Transactions and Advance Consideration

Based on the transition provisions of IFRIC 22, the Company has applied the new requirements prospectively from January 1, 2018. IFRIC 22 clarifies that the date of the transaction for the purpose of determining the exchange rate to use on initial recognition of the related asset, expense or income (or part of it) is the date on which an entity initially recognizes the non-monetary asset or non-monetary liability arising from the payment or receipt of advance consideration.

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3. The Lava Jato (Car Wash) Operation and its effects on the Company

In 2009, the Brazilian Federal Police (*Polícia Federal*) began an investigation known as Lava Jato (Car Wash) aimed at criminal organizations engaged in money laundering in several Brazilian states. Beginning in 2014, the Brazilian Federal Prosecutor s Office focused part of its investigation on irregularities involving Petrobras s contractors and suppliers and uncovered a broad payment scheme that involved a wide range of participants, including former Petrobras personnel. Based on the information available to Petrobras, the payment scheme involved a group of companies that, between 2004 and April 2012, colluded to obtain contracts with Petrobras, overcharge the Company under those contracts and use the overpayment received under the contracts to fund improper payments to political parties, elected officials or other public officials, individual contractors and suppliers, former Petrobras personnel and other individuals involved in the scheme. Petrobras refers to this scheme as the payment scheme and to the companies involved in the scheme as the cartel members . The Company did not make any improper payment.

In addition to the payment scheme, the investigations identified specific instances of other contractors and suppliers that overcharged Petrobras and allegedly used the overpayment received from their contracts with the Company to fund improper payments, unrelated to the payment scheme, to certain former Petrobras personnel. Those contractors and suppliers are not cartel members and acted individually. Petrobras refers to these specific cases as the unrelated payments.

The amounts paid by Petrobras related to contracts with contractors and suppliers involved in the payment scheme were included in historical costs of its property, plant and equipment. However, the Company believes that, under International Accounting Standard IAS 16 Property, Plant and Equipment, the portion of the payments made to these companies and used by them to make improper payments, which represents additional charges incurred as a result of the payments scheme, should not have been capitalized. Thus, in the third quarter of 2014, the Company wrote off US$2,527 of capitalized costs representing amounts that Petrobras overpaid for the acquisition of property, plant and equipment in prior years.

3.1. Approach adopted by the Company to adjust its property, plant and equipment for overpayments

As it was impracticable to identify the periods and amounts of overpayments incurred, the Company developed a methodology to estimate the adjustment incurred in property, plant and equipment in the third quarter of 2014 using the five steps described below:

(1) Identify contractual counterparties: the Company listed all the companies identified as cartel members, and using that information the Company identified all of the contractors and suppliers that were either so identified or were part

of consortia that included entities so identified.

(2) Identify the period: the Company concluded from testimony that the payment scheme was operating from 2004 through April 2012.

(3) Identify contracts: the Company identified all contracts entered into with the counterparties identified in step 1 during the period identified in step 2, which included supplemental contracts when the original contract was entered into between 2004 and April 2012. It identified all of the property, plant and equipment related to those contracts.

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(4) Identify payments: the Company calculated the total contract values under the contracts mentioned in step 3.

(5) Apply a fixed percentage to the amount determined in Step 4: the Company estimated the aggregate overpayment by applying a percentage indicated in depositions (3%) to the total amounts for identified contracts.

For overpayments attributable to non-cartel members, unrelated to the payment scheme, the Company included in the write-off for incorrectly capitalized overpayments the specific amounts of improper payments or percentages of contract values, as described in the testimony, which were used by those suppliers and contractors to fund improper payments.

The Company has continuously monitored the Lava Jato investigation. In preparing the financial statements for the year ended December 31, 2018, the Company has not identified any additional information that would impact the adopted calculation methodology and consequently require additional write-offs.

3.2. The Company s response to the facts uncovered in the investigation

The Company has been closely monitoring the investigations and cooperating fully with the Brazilian Federal Police (*Polícia Federal*), the Brazilian Public Prosecutor s Office (*Ministério Público Federal*), the Federal Auditor s Office (*Tribunal de Contas da União* TCU) and the General Federal Inspector s Office (*Controladoria Geral da União*) in the investigation of all crimes and irregularities. We have responded to numerous requests for documents and information from these authorities.

We have been formally recognized as a victim of the crimes identified under the Lava Jato investigation by the Brazilian Federal Prosecutor s Office, the lower court hearing the case and also by the Brazilian Supreme Court. As a result, we have entered into 54 criminal proceedings as an assistant to the prosecutor. In addition, we have entered into five criminal proceedings as an interested party. We have also renewed our commitment to continue cooperating with authorities to clarify the issues and report them regularly to our investors and to the public in general.

We do not tolerate corrupt practices and illegal acts perpetuated by any of our employees. Accordingly, since 2015, the Company continued to implement several measures as a response to the facts uncovered in the Lava Jato investigation.

In addition, the Company has been taking the necessary procedural steps to seek compensation for damages suffered from the improper payments scheme, including those related to its reputation.

Accordingly, the Company joined 17 public civil suits addressing acts of administrative misconduct filed by the Brazilian Public Prosecutor s Office and the Brazilian Federal Government, including demands for compensation for reputation damages.

To the extent that any of the proceedings resulting from the Lava Jato investigation involve leniency agreements with cartel members or plea agreements with individuals pursuant to which they agree to return funds, the Company may be entitled to receive a portion of such funds. Nevertheless, the Company is unable to reliably estimate further recoverable amounts at this moment. Any recoverable amount will be recognized as income when received or when their economic benefits become virtually certain.

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In addition to US$ 455 recovered from Lava Jato investigation through December 31, 2017 (US$ 252 in 2017, US$ 131 in 2016 and US$ 72 in 2015), new leniency and plea agreements in 2018 entitled the Company to receive funds with respect to compensation for damages in the amount of US$ 457. This amount was accounted for as other income and expenses. Thus, the total amount recovered from Lava Jato investigation through December 31, 2018 was US$ 912.

On November 28, 2018, Petrobras Board of Directors approved the termination of the Special Committee, created in December 2014 to serve as an independent reporting line to the Board with respect to investigations carried out by the firms Trench, Rossi e Watanabe Advogados and Gibson, Dunn & Crutcher LLP. The Board also approved the termination the activities carried out by such independent firms. Since then, relevant departments of the Company have undertaken these duties.

3.3. Investigations involving the Company

3.3.1. U.S. Securities and Exchange Commission and Department of Justice inquiries

Petrobras is not a target of the Lava Jato investigation and is formally recognized as a victim of the improper payments scheme by the Brazilian Authorities.

On November 21, 2014, Petrobras received a subpoena from the U.S. Securities and Exchange Commission (SEC) requesting certain documents and information about the Company with respect to, among other things, the Lava Jato investigation and any allegations regarding a violation of the U.S. Foreign Corrupt Practices Act. The U.S. Department of Justice (DoJ) conducted a similar inquiry and the Company cooperated with both investigations working with independent Brazilian and U.S. law firms that were hired to conduct an independent internal investigation.

On September 27, 2018, the Company settled the open matters with the DoJ and the SEC investigation which encompassed the company s internal controls, books and records, and financial statements from 2003 to 2012.

These agreements fully resolve the inquiries carried out by these authorities. Following this agreement, the Company paid US$ 85 to the DOJ and will pay the same amount to the SEC in 2019. Additionally, the agreements also credit a remittance of US$ 683 million to the Brazilian authorities which Petrobras deposited on January 30, 2019 into a special fund for investments in Brazil, in accordance with the Commitment Assumption Agreement executed with the

Brazilian Federal Prosecutor s Office. (*Ministério Público Federal*-MPF). The Company fully recognized the effects of these settlements as other income and expenses in the third quarter of 2018.

This resolution meets the best interest of the Company and its shareholders, and eliminates uncertainties, risks, burdens and costs of potential litigations in the United States.

3.3.2. Order of civil inquiry - Brazilian Public Prosecutor s Office

On December 15, 2015, the State of São Paulo Public Prosecutor s Office issued the Order of Civil Inquiry 01/2015, establishing a civil proceeding to investigate the existence of potential damages caused by Petrobras to investors in the Brazilian stock market. The Brazilian Attorney General s Office (*Procuradoria Geral da República*) assessed this civil proceeding and determined that the São Paulo Public Prosecutor s Office has no authority over this matter, which must be presided over by the Brazilian Public Prosecutor s Office. The Company has provided all relevant information required by the authorities.

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3.4. Legal proceedings involving the Company

Note 31 provides information about class actions and other material legal proceedings.

4. Summary of significant accounting policies

4.1. Basis of consolidation

The consolidated financial statements include the financial information of Petrobras and the entities it controls (subsidiaries), joint operations and consolidated structured entities.

Control is achieved when Petrobras: i) has power over the investee; ii) is exposed, or has rights, to variable returns from involvement with the investee; and iii) has the ability to use its power to affect its returns.

Subsidiaries are consolidated from the date on which control is obtained until the date that such control no longer exists, by using accounting policies consistent with those adopted by Petrobras. Note 11 sets out the consolidated entities and other direct investees.

Investments structured through a separate vehicle are conceived so that the voting rights, or similar rights, are not the dominant factor to determine who controls the entity. At December 31, 2018, Petrobras controls and consolidates the following structured entities: Charter Development LLC - CDC (U.S.A., E&P); Companhia de Desenvolvimento e Modernização de Plantas Industriais - CDMPI (Brazil, RT&M) and, Fundo de Investimento em Direitos Creditórios Não-padronizados do Sistema Petrobras (Brazil, Corporate).

The consolidation procedures involve combining assets, liabilities, income and expenses, according to their function and eliminating all intragroup balances and transactions, including unrealized profits arising from intragroup transactions.

4.2. Reportable segments

The information related to the Company s operating segments is prepared based on available financial information directly attributable to each segment, or items that can be allocated to each segment on a reasonable basis. This information is presented by business activity, as used by the Company s Board of Executive Officers (Chief Operating

Decision Maker CODM) on the decision-making process of resource allocation and performance evaluation.

The measurement of segment results includes transactions carried out with third parties, including associates and joint ventures, as well as transactions between operating segments. Transfers between operating segments are recognized at internal transfer prices derived from methodologies that take into account market parameters and are eliminated only to provide reconciliations to the consolidated financial statements.

The Company s operating segments comprises the following business areas:

Exploration and Production (E&P): this segment covers the activities of exploration, development and production of crude oil, NGL (natural gas liquid) and natural gas in Brazil and abroad, for the primary purpose of supplying its domestic refineries. The E&P segment also operates through partnerships with other companies and includes holding interest in foreign entities operating in this segment.

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As an integrated energy company with a focus on oil and gas, intersegment sales revenue refers mainly to oil transfers to the Refining, Transportation and Marketing segment, aiming to supply the Company s refineries and meet the domestic demand for oil products. These transactions are measured by internal transfer prices based on international oil prices and their respective exchange rate impacts, taking into account the specific characteristics of the transferred oil stream.

In addition, the E&P segment revenues include transfers of natural gas to the natural gas processing plants within Gas and Power segment. These transactions are measured at internal transfer prices based on the international prices of this commodity.

Revenue from sales to third parties mainly reflects the oil and natural gas operations carried out by subsidiaries abroad, as well as services rendered under exploration and production operations.

Refining, Transportation and Marketing (RT&M): this segment covers the refining, logistics, transport and trading of crude oil and oil products activities in Brazil and abroad, as well as exports of ethanol. This segment also includes the petrochemical operations, such as extraction and processing of shale and holding interests in petrochemical companies in Brazil.

This segment carries out the acquisition of crude oil from the E&P segment, imports oil for refinery slate, and acquires oil products in international markets taking advantage of the existing price differentials between the cost of processing domestic oil and that of importing oil products.

Intersegment revenues primarily reflect the sale of derivatives for the distribution segment at market prices and the operations for the Gas and Power and E&P segments at internal transfer price.

Revenues from sales to third parties primarily reflect the trading of oil products in Brazil and the export and trade of oil and oil products by foreign subsidiaries.

Gas and Power: this segment covers the activities of logistic and trading of natural gas and electricity, transportation and trading of LNG (liquefied natural gas), generation and electricity by means of thermoelectric power plants, as well as holding interests in transporters and distributors of natural gas in Brazil and abroad. It also includes fertilizer operations.

Intersegment revenues primarily reflect the transfers of natural gas processed, liquefied petroleum gas (LPG) and NGL to RT&M. These transactions are measured at internal transfer prices.

Revenues from sales to third parties primarily reflect natural gas processed to distributors, as well as generation and trading of electricity.

Biofuels: this segment covers the activities of production of biodiesel and its co-products, as well as the ethanol-related activities through interest in entities producing and trading ethanol, sugar and surplus electric power generated from sugarcane bagasse.

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

Revenues from sales to third parties primarily reflect sales of oil products in Brazil.

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The **corporate segment** comprises the items that cannot be 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.

4.3. Financial instruments

A financial instrument is a contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

4.3.1. Financial asset

a) Initial recognition and measurement

A financial asset is initially recognized when the entity becomes party to the contractual provisions of the instrument. Except for the trade receivables that do not contain a significant financing component, financial assets are initially measured at their fair value and, if not classified as measured at fair value through profit or loss, transaction costs that are directly attributable to the acquisition or issue of the financial asset add or reduce the amount of initial recognition.

b) Classification and subsequent measurement

Based on the business model in which assets are managed and on their contractual cash flow characteristics, financial assets are generally classified as follows:

Amortized cost: when the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding, and the business model s objective is to hold financial assets in order to collect contractual cash flows;

Fair value through other comprehensive income: i) when the contractual terms of a debt instrument give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding and the business model s objective is to collect contractual cash flows and sell financial assets; and ii) equity instruments not held for trading purposes for which the Company has made an irrevocable election in their initial recognition to present changes in fair value in other comprehensive income rather than within profit or

loss; and

Fair value through profit or loss: if the financial asset does not meet the criteria for the two aforementioned categories. Derivative financial instruments are generally classified in this category.

c) Impairment of financial assets

An allowance for expected credit losses is recognized on a financial asset that is measured at amortized cost, including lease receivables, and on financial assets measured at fair value through other comprehensive income.

The Company measures expected credit losses for short-term trade receivables using a provision matrix based on historical observed default rates adjusted by current and forward-looking information when applicable and available without undue cost or effort.

The Company measures the allowance for expected credit losses of other financial assets based on their 12-month expected credit losses unless their credit risk has increased significantly since their initial recognition, in which case the allowance for expected credit losses is based on their lifetime expected credit losses.

Significant increase in credit risk since initial recognition

When determining whether there has been a significant increase in credit risk, the Company compares the risk of default on initial recognition and at the reporting date by using certain indicators, such as the actual or expected change in the financial instrument s external credit rating and information on payment delays.

Regardless of the assessment of significant increase in credit risk, a delinquency period of 30 days past due triggers the definition of significant increase in credit risk on a financial asset, unless otherwise demonstrated by reasonable and supportable information.

The Company assumes that the credit risk on a financial instrument has not increased significantly since initial recognition if the financial instrument is considered to have low credit risk at the reporting date. Low credit risk is determined based on external credit ratings or internal methodologies.

Definition of default

The Company assumes that a default occurs whenever the counterparty does not comply with the legal obligation to pay its debts when due or, depending on the financial instrument, when it is at least 90 days past due.

Measurement of expected credit losses

The measurement of credit loss comprises the difference between all contractual cash flows that are due to the Company and all the cash flows that the Company expects to receive, discounted at the original effective interest rate weighted by the probability of default.

4.3.2. Financial liabilities
a) Initial recognition and measurement

A financial liability is recognized when the entity becomes party to the contractual provisions of the instrument and initially measured at fair value. If it is not classified as fair value through profit or loss, transaction costs that are directly attributable to the acquisition or issue of the financial liability add or reduce the amount of its initial measurement.

b) Classification and subsequent measurement

Financial liabilities are classified as subsequently measured at amortized cost, except for certain financial liabilities , including those classified as fair value through profit or loss.

Loans and finance debt are measured at amortized cost using the effective interest method.

When the contractual cash flows of a financial liability measured at amortized cost are renegotiated or modified and this change is not substantial, its gross carrying amount will reflect the discounted present value of its cash flows under the new terms using the original effective interest rate. The difference between the book value immediately prior to such modification and the new gross carrying amount is recognized as gain or loss in statement of income.

Derivative financial instruments are subsequently measured at fair value through profit or loss, except when designated as hedging instruments.

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4.3.3. Cash flow hedge accounting

At inception of the hedge relationship, the Company documents its objective and strategy, including identification of the hedging instrument, the hedged item, the nature of the hedged risk and evaluation of hedge effectiveness requirements. The hedge relationship meets all of the hedge effectiveness requirements when:

An economic relationship exists between the hedged item and the hedging instrument;

The effect of credit risk does not dominate the value changes that result from the economic relationship; and

The hedge ratio is the same as that resulting from the quantity of the hedged item that the Company actually hedges and the quantity of the hedging instrument that the Company uses to hedge that quantity of hedged item.

The Company applies cash flow hedge accounting for certain transactions. Hedging relationships qualify for cash flow hedges when they involve the hedging of exposure to variability in cash flows that is attributable to a particular risk associated with a recognized asset or liability or a highly probable forecasted transaction that may impact the statement of income.

Gains or losses relating to the effective portion of such hedges are recognized in other comprehensive income and reclassified to the statement of income in finance income (expense) in the periods when the hedged item affects the statement of income. The gains or losses relating to the ineffective portion are immediately recognized in finance income (expense).

When the hedging instrument expires or is settled in advance or no longer meets the criteria for hedge accounting, the cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income is recorded separately in equity until the forecast transaction occurs. When the forecast transaction is no longer expected to occur, the cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income is immediately reclassified from equity to the statement of income.

In addition, when a financial instrument designated as a hedging instrument expires or is settled, the Company may replace it with another financial instrument in a manner such that the hedge relationship continues to occur. Likewise, whenever a hedged transaction effectively occurs, its financial instrument previously designated as a hedging instrument may be designated for a new hedge relationship.

4.4. Inventories

Inventories are determined by the weighted average cost method and mainly comprise crude oil, intermediate products and oil products, as well as natural gas, LNG, fertilizers and biofuels, adjusted to the net realizable value when it is lower than its carrying amount.

Net realizable value is the estimated selling price of inventory in the ordinary course of business, less estimated cost of completion and estimated expenses to complete its sale.

Crude oil and LNG inventories can be traded or used for production of oil products and/or electricity generation, respectively.

Intermediate products are those product streams that have been through at least one of the refining processes, but still need further treatment, processing or converting to be available for sale.

Biofuels mainly include ethanol and biodiesel inventories.

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Materials, supplies and others mainly comprise production supplies and operating materials used in the operations of the Company, stated at the average purchase cost, not exceeding replacement cost.

4.5. Investments in other companies

An associate is an entity over which the Company has significant influence. Significant influence is the power to participate in the financial and operating policy decisions of the investee but not the ability to exercise control or joint control over those polices. The definition of control is set out in note 4.1.

A joint arrangement is an arrangement over which two or more parties have joint control (pursuant to contractual provisions). A joint arrangement is classified either as a joint operation or as a joint venture depending on the rights and obligations of the parties to the arrangement.

In a joint operation, the parties have rights to the assets and obligations for the liabilities related to the arrangement, while in a joint venture the parties have rights to the net assets of the arrangement. Some of the Company s activities in the E&P segment are conducted through joint operations.

Profit or loss, assets and liabilities related to joint ventures and associates are accounted for by the equity method. In a joint operation the Company recognizes the amount of its assets, liabilities and related income and expenses.

Accounting policies of joint ventures and associates have been adjusted, where necessary, to ensure consistency with the policies adopted by Petrobras. Distributions received from an investee reduce the carrying amount of the investment.

4.6. Business combinations and goodwill

A business combination is a transaction in which the acquirer obtains control of another business, regardless it legal form. Acquisitions of businesses are accounted for using the acquisition method when control is obtained. Combinations of entities under common control are accounted for at cost. The acquisition method requires that the identifiable assets acquired and the liabilities assumed be measured at the acquisition-date fair value, with limited exceptions.

Goodwill is measured as the excess of the aggregate amount of: (i) the consideration transferred; (ii) the amount of any non-controlling interest in the acquiree; and (iii) in a business combination achieved in stages, the fair value of the acquirer s previously held equity interest in the acquiree at the acquisition-date; over the net of the amounts of the

identifiable assets acquired and the liabilities assumed. When this aggregate amount is lower than the net of the amounts of the identifiable assets acquired and the liabilities assumed, a gain on a bargain purchase is recognized in the statement of income.

Changes in ownership interest in subsidiaries that do not result in loss of control of the subsidiary are equity transactions. Any excess of the amounts paid/received, including directly attributable costs, over the carrying value of the ownership interest acquired/disposed of is recognized in shareholders equity as changes in interest in subsidiaries.

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4.7. Oil and Gas exploration and development expenditures

The costs incurred in connection with the exploration, appraisal and development of crude oil and natural gas production are accounted for using the successful efforts method of accounting, as set out below:

Geological and geophysical costs related to exploration and appraisal activities incurred until economic and technical feasibility can be demonstrated are expensed.
Amounts paid for obtaining concessions for exploration of crude oil and natural gas (capitalized acquisition costs) are initially capitalized as intangible assets and are transferred to property, plant and equipment once the technical and commercial feasibility can be demonstrated.

Costs directly attributable to exploratory wells, including their equipment and installations, pending determination of proved reserves are capitalized within property, plant and equipment. In some cases, exploratory wells have discovered oil and gas reserves, but at the moment the drilling is completed they are not yet able to be classified as proved. In such cases, the expenses continue to be capitalized if the well has found a sufficient quantity of reserves to justify its completion as a producing well and progress on assessing the reserves and the economic and operating viability of the project is under way. An internal commission of technical executives of the Company reviews these conditions monthly for each well, by analysis of geoscience and engineering data, existing economic conditions, operating methods and government regulations. For additional information on proved reserves estimates, see note 5.1.

Costs related to exploratory wells drilled in areas of unproved reserves are charged to expense when determined to be dry or uneconomic by the aforementioned internal commission.

Costs related to the construction, installation and completion of infrastructure facilities, such as drilling of development wells, construction of platforms and natural gas processing units, construction of equipment and facilities for the extraction, handling, storing, processing or treating crude oil and natural gas, pipelines, storage facilities, waste disposal facilities and other related costs incurred in connection with the development of proved reserve areas are capitalized within property, plant and equipment.

4.8. Property, plant and equipment

Property, plant and equipment are measured at the cost to acquire or construct, including all costs necessary to bring the asset to working condition for its intended use and the estimated cost of dismantling and removing the asset and restoring the site, reduced by accumulated depreciation and impairment losses.

A condition for continuing to operate certain items of property, plant and equipment, such as industrial plants, offshore plants and vessels is the performance of regular major inspections and maintenance. Those expenditures are capitalized if a maintenance campaign is expected to occur, at least, 12 months later. Otherwise, they are expensed when incurred. The capitalized costs are depreciated over the period through the next major maintenance date.

Spare parts are capitalized when they are expected to be used during more than one period and can only be used in connection with an item of property, plant and equipment. These are depreciated over the useful life of the item of property, plant and equipment to which they relate.

Borrowing costs directly attributable to the acquisition or construction of qualifying assets are capitalized as part of the costs of these assets. General borrowing costs are capitalized based on the Company s weighted average cost of borrowings outstanding applied over the balance of assets under construction. In general, the Company suspends capitalization of borrowing to the extent investments in a qualifying asset hibernates during a period greater than one year or whenever the asset is prepared for its intended use.

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Assets directly associated to oil and gas production of a contract area without useful life lower than the estimated length of reserves depletion, such as signature bonuses, are depreciated or amortized based on the unit-of-production method.

The unit-of-production method of depreciation (amortization) is computed based on a unit of production basis (monthly production) over the proved developed oil and gas reserves, except for signature bonuses for which unit of production method takes into account the monthly production over the total proved oil and gas reserves on a field-by-field basis.

Assets related to oil and gas production with useful lives shorter than the life of the field; floating platforms and other assets unrelated to oil and gas production are depreciated on a straight-line basis over their useful lives, which are reviewed annually. Note 12.2 provides further information on the estimated useful life by class of assets. Lands are not depreciated.

4.9. Intangible assets

Intangible assets are measured at the acquisition cost, less accumulated amortization and impairment losses and comprise rights and concessions, including the signature bonus paid for concessions and production sharing agreements for exploration and production of oil and natural gas (capitalized acquisition costs), public service concessions, trademarks, patents, software and goodwill.

Internally-generated intangible assets are not capitalized and are expensed as incurred, except for development costs that meet the recognition criteria related to the completion and use of assets, probable future economic benefits, and others.

Signature bonuses paid for obtaining concessions for exploration of crude oil and natural gas are initially capitalized within intangible assets and are transferred to property, plant and equipment when the technical and commercial feasibility can be demonstrated. They are not amortized before their transference to property, plant and equipment. Intangible assets with a finite useful life, other than amounts paid for obtaining concessions for exploration of oil and natural gas of producing properties, are amortized over the useful life of the asset on a straight-line basis. In the event of a signature bonus encompassing an area in which exploration activities occur in different locations, a portion of the signature bonus is transferred to property, plant and equipment whenever the technical and commercial feasibility can be demonstrated for a specific location, based on the ratio between the oil in place at this location and total reservoir volume of the area.

Intangible assets with an indefinite useful life are not amortized but are tested annually for impairment. Their useful lives are reviewed annually.

4.10. Impairment of property, plant and equipment and intangible assets

Property, plant and equipment and intangible assets with definitive lives are tested for impairment when there is an indication that the carrying amount may not be recoverable. Assets are assessed for impairment at the smallest identifiable group that generates largely independent cash inflows from other assets or groups of assets (the cash-generating unit - CGU). Note 5.3 presents detailed information about the Company s CGUs.

Assets related to development and production of oil and gas assets (fields or group of fields) that have indefinite useful lives, such as goodwill, are tested for impairment annually, irrespective of whether there is any indication of impairment.

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The impairment test is performed through the comparison of the carrying amount of an individual asset or a cash-generating unit (CGU) with its recoverable amount. Whenever the recoverable amount is less than the carrying amount, an impairment loss is recognized to reduce the carrying amount to the recoverable amount. The recoverable amount of an asset or a cash-generating unit is the higher of its fair value less costs of disposal and its value in use. Considering the existing synergies between the Company s assets and businesses, as well as the expectation of the use of its assets for their remaining useful lives, value in use is generally used by the Company for impairment testing purposes. When specifically indicated, the Company assesses differences between its assumptions and assumptions that would be used by market participants in the determination of the fair value of an asset or CGU.

Value in use is estimated based on the present value of the risk-adjusted (for specific risks) future cash flows expected to arise from the continuing use of an asset or cash-generating unit, discounted at a pre-tax discount rate. This rate is obtained from the Company s post-tax weighted average cost of capital (WACC). Cash flow projections are mainly based on the following assumptions: foreign exchange rates and prices based on the Company s most recent business and management plan and strategic plan; production curves associated with existing projects in the Company s portfolio, operating costs reflecting current market conditions, and investments required for carrying out the projects.

Reversal of previously recognized impairment losses is permitted for assets other than goodwill.

4.11. Impairment of associates and joint ventures (equity-accounted investments)

The Company assesses its investments in associates and joint ventures (equity-accounted investments) for impairment whenever there is an indication that their carrying amounts may not be recoverable.

When performing impairment testing of an equity-accounted investment, goodwill, if it exists, is also considered part of the carrying amount to be compared to the recoverable amount.

Except when specifically indicated, value in use is generally used by the Company for impairment testing purposes in proportion to the Company s interests in the present value of future cash flow projections via dividends and other distributions.

Reversals of previously recognized impairment losses are permitted.

4.12. Leases

Leases that transfer substantially all the risks and rewards incidental to ownership of the leased item are recognized as finance leases.

For finance leases, when the Company is the lessee, assets and liabilities are recognized at the lower of the fair value of the underlying asset or the present value of the minimum lease payments, both determined at the inception of the lease.

Capitalized lease assets are depreciated on a systematic basis consistent with the depreciation policy the Company adopts for property, plant and equipment that are owned. Where there is no reasonable certainty that the Company will obtain ownership by the end of the lease term, capitalized lease assets are depreciated over the shorter of the lease term or the estimated useful life of the asset.

When the Company is the lessor, a receivable is recognized at the amount of the net investment in the lease.

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If a lease does not transfer substantially all the risks and rewards incidental to ownership of the leased item, it is classified as an operating lease. Operating leases are recognized as expenses over the period of the lease.

Contingent rents are recognized as expenses when incurred.

As discussed in note 6.1, the IFRS 16 provisions have governed the accounting treatment for leases from January 1, 2019.

4.13. Assets classified as held for sale

Non-current assets, disposal groups and liabilities directly associated with those assets are classified as held for sale if their carrying amounts will, principally, be recovered through the sale transaction rather than through continuing use.

The condition for classification as held for sale is met only when the sale is approved by the Company s Board of Directors and the asset or disposal group is available for immediate sale in its present condition and there is the expectation that the sale will occur within 12 months after its classification as held for sale. However, an extended period required to complete a sale does not preclude an asset (or disposal group) from being classified as held for sale if the delay is caused by events or circumstances beyond the Company s control and there is sufficient evidence that the Company remains committed to its plan to sell the assets (or disposal groups).

Assets (or disposal groups) classified as held for sale and the associated liabilities are measured at the lower of their carrying amount and fair value less costs to sell. Assets and liabilities are presented separately in the statement of financial position.

4.14. Decommissioning costs

Decommissioning costs are future obligations to perform environmental restoration, dismantle and remove a facility when the Company terminates its operations due to the exhaustion of the area or economic feasibility.

When a future legal obligation exists and can be reliably measured, costs related to the abandonment and dismantling of areas are recognized as part of the cost of an asset (with a corresponding liability) based on the present value of the expected future cash outflows, discounted at a rate reflecting market assessments in terms of time value of money and liability specific risk.

Unwinding of the discount on the corresponding liability is recognized as a finance expense, when incurred. Decommissioning costs estimates are revised annually, at least.

4.15. Provisions, contingent assets and contingent liabilities

Provisions are recognized when there is a present obligation that arises from past events and for which it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, which must be reasonably estimable.

Contingent assets and liabilities are not recognized. Contingent liabilities are disclosed whenever the likelihood of loss is considered possible, including those for which the amount outflow of resources is not reasonably estimable. Contingent assets are disclosed whenever an inflow of economic benefits is probable. However, when such inflow is virtually certain, the related asset is not a contingent asset and it is recognized.

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4.16. Income taxes

Income tax expense for the period includes current and deferred taxes. They are recognized in the statement of income of the period, except when the tax arises from a transaction or event which is recognized directly in equity.

a) Current income taxes

Current income taxes are computed based on taxable profit for the year, determined in accordance with the rules established by the taxation authorities, using tax rates that have been enacted or substantively enacted at the end of the reporting period.

Current income taxes are offset when they relate to income taxes levied on the same taxable entity and by the same tax authority, when there is a legal right and the entity has the intention to set off current tax assets and current tax liabilities, simultaneously.

b) Deferred income taxes

Deferred income taxes are recognized on temporary differences between the tax base of an asset or liability and its carrying amount. They are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

Deferred tax assets are generally recognized for all deductible temporary differences and carryforward of unused tax losses or credits to the extent that it is probable that taxable profit will be available against which those deductible temporary differences can be utilized. When there are insufficient taxable temporary differences relating to the same taxation authority and the same taxable entity, a deferred tax is recognized to the extent that it is probable that the entity will have sufficient taxable profit in future periods, based on projections approved by management and supported by the Company s Business and Management Plan.

Deferred tax assets and deferred tax liabilities are offset when they relate to income taxes levied on the same taxable entity, when a legally enforceable right to set off current tax assets and current tax liabilities exists and when the deferred tax assets and deferred tax liabilities relate to taxes levied by the same tax authority on the same taxable entity.

4.17. Employee benefits (Post-Employment)

Actuarial commitments related to post-employment defined benefit plans and health-care plans are recognized as liabilities in the statement of financial position based on actuarial calculations which are revised annually by an independent qualified actuary (updating for material changes in actuarial assumptions and estimates of expected future benefits), using the projected unit credit method, net of the fair value of plan assets, when applicable, from which the obligations are to be directly settled. Under the projected credit unit method, each period of service gives rise to an additional unit of benefit entitlement and each unit is measured separately to determine the final obligation. Actuarial assumptions include demographic assumptions, financial assumptions, medical costs estimates, historical data related to benefits paid and employee contributions.

Service cost are accounted for within results and comprises: (i) current service cost, which is the increase in the present value of the defined benefit obligation resulting from employee service in the current period; (ii) past service cost, which is the change in the present value of the defined benefit obligation for employee service in prior periods, resulting from a plan amendment (the introduction, modification, or withdrawal of a defined benefit plan) or a curtailment (a significant reduction by the entity in the number of employees covered by a plan); and (iii) any gain or loss on settlement.

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Net interest on the net defined benefit liability (asset) is the change during the period in the net defined benefit liability (asset) that arises from the passage of time. Such interest is accounted for in results.

Remeasurement of the net defined benefit liability (asset) is recognized in shareholders equity, in other comprehensive income, and comprises: (i) actuarial gains and losses and; (ii) the return on plan assets, excluding amounts included in net interest on the net defined benefit liability (asset).

The Company also contributes amounts to defined contribution plans, that are expensed when incurred and are computed based on a percentage of salaries.

4.18. Share capital and distributions to shareholders

Share capital comprises common shares and preferred shares. Incremental costs directly attributable to the issue of new shares (share issuance costs) are presented (net of tax) in shareholders equity as a deduction from the proceeds.

To the extent the Company proposes distributions to shareholders, such dividends and interest on capital are determined in accordance with the limits defined in the Brazilian Corporation Law and in the Company s bylaws.

Interest on capital is a form of dividend distribution, which is deductible for tax purposes in Brazil to the entity distributing interest on capital. Tax benefits from the deduction of interest on capital are recognized in the statement of income.

4.19. Other comprehensive income

Other comprehensive income includes: i) changes in fair value of financial assets classified as subsequently measured at fair value through other comprehensive income; ii) effective portion of cash flow hedge; iii) remeasurement of defined benefit plans; and iv) cumulative translation adjustment.

4.20. Government grants

A government grant is recognized when there is reasonable assurance that the grant will be received and the Company will comply with the conditions attached to the grant.

4.21. Revenue from contracts with customers

The main contracts with customers involve oil exports and the sale of oil products, natural gas, biofuels and electricity in the domestic market. The Company evaluates contracts with customers that will be subject to revenue recognition and identifies the distinct goods and services promised in each of them.

Performance obligations are promises to transfer to the customer goods or services (or a bundle of goods or services) that are distinct, or series of distinct goods or services that are substantially the same and that have the same pattern of transfer to the customer.

Revenues are measured based on the amount of consideration to which an entity expects to be entitled in exchange for transferring promised goods or services to a customer, excluding amounts collected on behalf of third parties. Transaction prices are based on contractually stated prices, reflecting the Company s pricing methodologies and policies based on market parameters.

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When transferring a good, that is, when the customer obtains its control, the company satisfies the performance obligation and recognizes the respective revenue, which usually occurs at a point in time upon delivery.

5. Critical accounting policies: key estimates and judgments

The preparation of the consolidated financial information requires the use of estimates and judgments for certain transactions and their impacts on assets, liabilities, income and expenses. The assumptions are based on past transactions and other relevant information and are periodically reviewed by management, although the actual results could differ from these estimates.

Information about those areas that require significant judgment or involve a higher degree of complexity in the application of the accounting policies and that could materially affect the Company s financial condition and results of operations is set out as follows.

5.1. Oil and gas reserves

Oil and gas reserves are estimated based on economic, geological and engineering information, such as well logs, pressure data and drilling fluid sample data and are used as the basis for calculating unit-of-production depreciation, depletion and amortization rates, impairment testing, decommissioning costs estimates and for projections of high probable future exports subject to cash flow hedge.

These estimates require the application of judgment and are reviewed at least annually based on a re-evaluation of already available geological, reservoir or production data and new geological, reservoir or production data, as well as changes in prices and costs that are used in the estimation of reserves. Revisions can also result from significant changes in the Company s development strategy or in the production capacity.

The Company determines its oil and gas reserves both pursuant to the U.S. Securities and Exchange Commission - SEC and the ANP/SPE (Brazilian Agency of Petroleum, Natural Gas and Biofuels / Society of Petroleum Engineers) criteria. The main differences between the two criteria are: selling price of crude oil (*ANP/SPE* establishes the use of the Company s forecasted price, while SEC determines the use of an average price considering each first day of the last 12 months); concession period (ANP permission for the use of reserve quantities after the concession period). Additionally, pursuant to the SEC criteria, only proved reserves are determined, while proved and unproved reserves are determined pursuant to the ANP/SPE criteria.

According to the definitions prescribed by the SEC, proved oil and gas reserves are those quantities of oil and gas which, by analysis of geoscientific 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 regulation. Proved reserves are subdivided into developed and undeveloped reserves.

Proved developed oil and gas reserves are those that can be expected to be recovered through: (i) existing wells with existing equipment and operating methods; (ii) extraction technology installed and operational at the time of the reserves estimate, extracting oil and gas in other ways than using wells.

Although the Company is reasonably certain that proved reserves will be produced, the timing and amount recovered can be affected by a number of factors including completion of development projects, reservoir performance, regulatory aspects and significant changes in long-term oil and gas price levels.

Detailed information on reserves is presented as unaudited supplementary information.

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a) Impacts of oil and gas reserves on depreciation, depletion and amortization

Depreciation, depletion and amortization are measured based on estimates of reserves prepared by the Company s technicians in a manner consistent with SEC definitions. Reviews to the Company s proved developed and undeveloped reserves impact prospectively the amounts of depreciation, depletion and amortization recognized in the statement of income and the carrying amounts of oil and gas properties assets.

Therefore, considering all other variables being constant, a decrease in estimated proved reserves would increase, prospectively, depreciation, depletion and amortization expense, while an increase in reserves would reduce depreciation, depletion and amortization.

Notes 4.8 and 12 provide more detailed information on depreciation, amortization and depletion.

b) Impacts of oil and gas reserves on impairment testing

The Company assesses the recoverability of the carrying amounts of oil and gas exploration and development assets annually, regardless of any absence of impairment indication. The measurement of their value in use is based on proved and probable reserves pursuant to the ANP/SPE definitions.

c) Impacts of oil and gas reserves on decommissioning costs estimates

The timing of abandonment and dismantling areas is based on the length of reserves depletion, in accordance with ANP/SPE definitions. Therefore, the review of the timing of reserves depletion may impact the provision for decommissioning cost estimates.

d) Impacts of oil and gas reserves on highly probable future exports subject to cash flow hedge accounting

The Company estimates highly probable future exports in accordance with future exports forecasted in the scope of its Business and Management Plan - BMP and its Strategic Plan projections, which are driven by proved and probable reserves estimates. Changes in such estimates may impact future exports forecasts and, consequently, hedge relationship designations may also be impacted. For example, whenever future exports for which a hedging relationship has been designated are no longer considered as highly probable, the Company revokes this designation and the cumulative foreign exchange gains or losses recognized in other comprehensive income remain in shareholders equity until the forecast exports occur. Additionally, if the future exports are also no longer expected to occur, the cumulative foreign exchange recognized in other comprehensive income is immediately reclassified from

shareholders equity to the statement of income.

5.2. Main assumptions for impairment testing

Impairment testing involves uncertainties mainly related to its key assumptions: average Brent prices and Brazilian real/U.S. dollar average exchange rate. These assumptions are relevant to virtually all of the Company s operating segments and a significant number of interdependent variables are derived from these key assumptions and there is a high degree of complexity in their application in determining value in use for impairment tests.

The markets for crude oil and natural gas have a history of significant price volatility and although prices can drop precipitously, industry prices over the long term tends to continue being driven by market supply and demand fundamentals.

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Projections relating to the key assumptions are derived from the Business and Management Plan for the first five years and consistent with the Strategic Plan for the following years. These assumptions are consistent with market evidence, such as independent macro-economic forecasts, industry commentators and experts. Back testing analysis and feedback process in order to continually improve forecast techniques are also performed.

The Company s oil price forecast model is based on a nonlinear relationship between variables reflecting market supply and demand fundamentals. This model also takes into account other relevant factors, such as historical idle capacity, industry costs, oil and gas production forecasted by specialized firms, the relationship between the oil price and the U.S. dollar exchange rate, as well as the impact of OPEC on the oil market.

The Real/U.S. dollar exchange rate projections are based on econometric models that take into account long-term assumptions involving observable inputs, such as country risk, commodity prices, interest rates and the value of the U.S. Dollar relative to a basket of foreign currencies (U.S. Dollar Index USDX).

Changes in the economic environment may result in changing assumptions and, consequently, the recognition of impairment charges on certain assets or CGUs. For example, the Brent price directly impacts the Company s sales revenue and refining margins, while the Brazilian real/U.S. dollar exchange rate mainly impacts our capital and operating expenditures.

Changes in the economic and political environment may also result in higher country risk projections that would increase discount rates for impairment testing.

In addition, changes in reserve volumes, production curve expectations and lifting costs could trigger the need for impairment assessment, as well as capital expenditure decisions, which are also affected by the Company s plan to reduce its leverage, may result in postponement or termination of projects, reducing their economic feasibility.

The recoverable amount of certain assets may not substantially exceed their carrying amounts and, therefore, it is reasonably possible that outcomes in future periods that are different from the current assumptions may result in the recognition of additional impairment charges on these assets, as described in note 14.1.1.

5.3. Identifying cash-generating units for impairment testing

Identifying cash-generating units (CGUs) requires management assumptions and judgment, based on the Company s business and management model. Changes in the aggregation of assets into CGUs may occur due to a review of investment, strategic or operational factors, which could result in changes in the interdependencies between those assets and, consequently, alter the aggregation or breakdown of assets into CGUs. Therefore, this change could result

in additional impairment charges or reversals. The assumptions set out below have been consistently applied by the Company:

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a) Exploration and Production CGUs:

i) Crude oil and natural gas producing properties CGU: comprises exploration and development assets related to crude oil and natural gas fields and groups of fields in Brazil and abroad. In 2018, the following changes in the aggregation of CGUs occurred: (i) Barracuda-Caratinga group (formed by Barracuda and Caratinga fields, which became interdependent due to the redetermination in the Macabu reservoir); (ii) Sapinhoá group (due to the declaration of commerciality of Nordeste, Noroeste and Sudoeste de Sapinhoá fields, which are interdependent with Sapinhoá field); (iii) Tartaruga Verde group (formed by Espadarte, Tartaruga Verde and Sudoeste de Tartaruga Verde fields, which were declared interdependent since both fields share the same reservoir and relevant infrastructure); (iv) North group (Carapeba, Vermelho, Pargo and Garoupinha fields were removed from this CGU and grouped into a single CGU, due to the termination of the production in Garoupinha field, and the sale approval of the three other fields); and (v) Canto do Amaro group (from which the Pajeú field was removed due to its sale approval). Therefore, at December 31, 2018, Exploration and Production CGUs had 138 fields and 43 groups (totaling 184 fields).

The drilling rigs are not part of any grouping of assets and are assessed for impairment separately.

b) Refining, transportation and marketing CGUs:

i) Downstream CGU: comprises refineries and associated assets, terminals and pipelines, as well as logistics assets operated by Transpetro, with a combined and centralized operation of logistical and refining assets in Brazil. These assets are managed with a common goal of achieving efficiency, profitability and strategic value long term on a nationwide basis. They are not operated for the generation of profit by asset/location. The operational planning is made in a centralized manner and these assets are not managed, measured or evaluated by their individual results. The refineries do not have autonomy to choose the oil to be processed, the mix of oil products to produce, the markets in which these products will be traded, which amounts will be exported, which intermediaries will be received and to decide the sales prices of oil products. The operational decisions are analyzed through an integrated model of operational planning for market supply. This model evaluates the solutions to supply the market considering all the options for production, importing, exporting, logistics and inventories seeking a comprehensive optimum of Petrobras and not the profit of each unit. The decision regarding a new investment is not based on the profitability of the project for the asset where it will be installed, but for the Petrobras Group. The model in which the entire planning is based, used in the studies of technical and economic feasibility of new investments in refining, may, in its indications, allocate a lower economic kind of oil to a certain refinery or define a lower economic mix of products to it, or even force it to supply more distant markets (area of influence), leading it to operate with reduced margins if seen individually, in case this is the best for the integrated system as a whole. Pipelines and terminals are an integral part and interdependent portion of the refining assets, required to supply the market.

ii) CGU Comperj comprises assets under construction of the first refining unit of Petrochemical Complex of Rio de Janeiro. In 2014, the Company decided to postpone this project for an extended period of time;

iii) CGU Second Refining Unit of RNEST comprises assets under construction of the second refining unit of Abreu e Lima refinery. In 2014, the Company decided to postpone this project for an extended period of time;

iv) Transportation CGU: comprises assets relating to Transpetro s fleet of vessels.

v) PANAMAX CGU: comprises of three Panamax class vessels under construction (EI-512, EI-513 and EI-514) for which the Company decided, in December 2017, to postpone their completion for an extended period of time; thus, these assets are no longer part of Transportation CGU.

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vi) Hidrovia CGU: comprises the fleet of vessels of the Hidrovia project (transportation of ethanol along the Tietê River) that are under construction.

vii) SIX CGU: shale processing plant; and

viii) Other operations abroad defined as the smallest group of assets that generates independent cash flows.

c) Gas & Power CGUs:

i) Natural gas CGU: comprises natural gas pipelines, natural gas processing plants, consolidating the purchase, transportation and treatment of natural gas segments, in order to enable the commercialization of natural gas and its liquids (LPG, NGL and ethane). Since 2017, due to the strategic positioning defined in the Business and Management Plan to leave the fertilizer and nitrogen segment, all plants were removed from the CGU and had individual impairment tests. During 2018, the assets related to GASFOR II were excluded from this CGU due to the postponement of the project for an extended period of time, and are assessed for impairment separately;

ii) CGU UFN III: comprises assets under construction of the fertilizer plant Unidade de Fertilizantes e Nitrogenados III (UFN III). This working in progress has been halted since 2014 and the startup of this plant was postponed for an extended period of time.

iii) Power CGU: comprises the thermoelectric power generation plants;

iv) Fafens CGUs: The fertilizer plants Fafen BA and Fafen SE have been assessed for impairment separately since 2017.

v) Other CGUs: operations abroad defined as the smallest group of assets that generates largely independent cash flows.

d) Distribution CGU:

Mainly comprises the distribution assets related to the operations of Petrobras Distribuidora S.A.

e) Biofuels CGUs:

i) Biodiesel CGU: An integrated unit of biodiesel plants defined based on the production planning and operation process, that takes into consideration domestic market conditions, the production capacity of each plant, as well as the results of biofuels auctions and raw materials supply.

ii) Quixadá CGU: comprises the assets of Quixadá Biofuel Plant. In September 2016, it was removed from the Biodiesel CGU following the decision to discontinue its operations.

Investments in associates and joint ventures, including goodwill, are assessed for impairment separately.

Further information on impairment testing is set out in notes 4.10, and 14.

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5.4. Pension and other post-retirement benefits

The actuarial obligations and net expenses related to defined benefit pension and health care post-retirement plans are computed based on several financial and demographic assumptions, of which the most significant are:

- Discount rate: comprises the projected future inflation in addition to an equivalent real interest rate that matches the duration of the pension and health care obligations with the future yield curve of long-term Brazilian Government Bonds; and
- Medical costs: comprise the projected growth rates based on per capita health care benefits paid over the last five years, which are used as a basis for projections, converged to the general price inflation index within 30 years.

These and other estimates are reviewed at least annually and may differ materially from actual results due to changing market and financial conditions, as well as actual results of actuarial assumptions.

The sensitivity analysis of discount rates and changes in medical costs as well as additional information about actuarial assumptions are set out in note 22.

5.5. Estimates related to contingencies and legal proceedings

The Company is defendant in arbitrations and in legal and administrative proceedings involving civil, tax, labor and environmental issues arising from the normal course of its business, and makes use of estimates to recognize the amounts and the probability of outflow of resources, based on reports and technical assessments from legal advisors and on the management s assessment.

These estimates are performed individually, or aggregated if there are cases with similar characteristics, primarily considering factors such as assessment of the plaintiff s demands, consistency of the existing evidence, jurisprudence on similar cases and doctrine on the subject. Specifically for actions of outsourced employees, the Company estimates the expected loss based on a statistical procedure, due to the number of actions with similar characteristics.

Arbitral, legal and administrative decisions against the Company, new jurisprudence and changes on the existing evidences can result in changes regarding the probability of outflow of resources and on the estimated amounts, according to the assessment of the legal basis.

Note 31 provides further detailed information about contingencies and legal proceedings.

5.6. Decommissioning costs estimates

The Company has legal and constructive obligations to remove equipment and restore onshore and offshore areas at the end of operations. Its most significant asset removal obligations involve removal and disposal of offshore oil and gas production facilities in Brazil and abroad. Estimates of costs for future environmental cleanup and remediation activities are based on current information about costs and expected plans for remediation.

These estimates require performing complex calculations that involve significant judgment since: i) the obligations are long-term; ii)the contracts and regulations contain subjective definitions of the removal and remediation practices and criteria involved when the events actually occur; and iii) asset removal technologies and costs are constantly changing, along with regulations, environmental, safety and public relations considerations.

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The Company is constantly conducting studies to incorporate technologies and procedures to optimize the process of abandonment, considering industry best practices. However, the timing and amounts of future cash flows are subject to significant uncertainty.

Notes 4.14 and 20 provide further detailed information about the decommissioning provisions.

5.7. Deferred income taxes

The recognition of deferred taxes involves significant estimates and judgments by the Company. Deferred tax assets are recognized to the extent that it is probable that taxable profit will be available against which a deductible temporary difference can be utilized or it is probable that the entity will have sufficient taxable profit in future periods. In evaluating whether it will have sufficient taxable profit in future periods to support the recognition of deferred tax assets, the Company uses future projections and estimates based on its Business and Management Plan (BMP), which is approved by the Board of Directors annually. Future taxable profits projections are mainly based on the following assumptions: i) Brent crude oil prices; ii) foreign exchange rates; and iii) the Company s projected net finance expenses (income).

Changes in deferred tax assets and liabilities are presented in note 21.5.

5.8. Cash flow hedge accounting involving the Company s future exports

The Company determines its future exports as highly probable future exports based on its Business and Management Plan - BMP and its Strategic Plan. The highly probable future exports are determined by a percentage of projected exports revenue over the mid and long term, taking into account the Company s operational and capital expenditure optimization model, limited to a threshold based on a historical percentage of the oil production that is usually sold abroad. Future exports forecasts are reviewed whenever the Company reviews its BMP and Strategic Plan assumptions. The approach for determining exports as highly probable future exports is reviewed annually, at least.

See note 33.2 for more detailed information about cash flow hedge accounting and a sensitivity analysis of the cash flow hedge involving future exports.

5.9. Write-off overpayments incorrectly capitalized

As described in note 3, in the third quarter of 2014, the Company developed an estimation methodology and wrote off US$2,527 of capitalized costs representing the estimated amounts that Petrobras had overpaid for the acquisition of property, plant and equipment.

The Company acknowledges the degree of uncertainty involved in the estimation methodology and continues to monitor the ongoing investigations and the availability of other information concerning the amounts it may have overpaid in the context of the payment scheme. If reliable information becomes available that indicates with sufficient precision that the Company s estimate should be modified, it will evaluate materiality and, if so, adjust.

However, as previously discussed, the Company believes it has used the most appropriate methodology and assumptions to determine the amounts of overpayments incorrectly capitalized and there is no evidence that would indicate the possibility of a material change in the amounts written-off.

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5.10. Expected credit losses on financial assets

The Company uses judgment for inputs and assumptions, such as risk of default, the determination of whether or not there has been a significant increase in credit risk and expectation of recovery, that are factored into the estimate of expected credit losses.

6. New standards and interpretations

6.1. New International Financial Reporting Standards not yet adopted

6.1.1. IFRS 16 Leases

On January 13, 2016, the IASB issued IFRS 16 Leases , which has been effective since January 1, 2019, superseding the following standards and related interpretations: IAS 17 -Leases; IFRIC 4 - Determining whether an Arrangement contains a Lease; SIC-15 - Operating Leases Incentives; and SIC-27 - Evaluating the Substance of Transactions Involving the Legal Form of a Lease. IFRS 16 sets out the principles for the recognition, measurement, presentation and disclosure of leases, from the lessees and lessors perspectives.

Accounting policies

Among the changes arising from IFRS 16, this standard eliminates the classification of leases as either operating leases or finance, providing for a single lessee accounting model in which all leases result in the recognition of a right-of-use asset and a lease liability at the commencement date of the lease.

Following the adoption of IFRS 16, lease payments under operating leases will not be charged to operating results on accrual basis. Instead, depreciation of the right to use a leased asset, as well as the finance expenses and foreign exchange gains or losses over the lease liability will affect the results. Finance expenses may qualify for borrowing costs capitalization in accordance with IAS 23 and foreign exchange gains and losses may be first recognized within equity if designated as hedge instrument, as set out in IFRS 9.

Most of the Company s lease arrangements are denominated in U.S. dollars and foreign exchange gains and losses arising from them may be designated for hedging relationship according to the current cash flow hedge accounting policy involving the Company s future exports.

The Company will elect to apply short-term lease exemption and will recognize payments associated with such leases as expenses over the arrangements terms.

Transition

According to the transition provisions set forth in IFRS 16, the Company will apply this standard retrospectively with the cumulative effect of its initial application recognized at January 1. 2019, without restatement of prior period information, and the following practical expedients were chosen:

Application of this Standard to contracts that were previously identified as leases (note 18.2);

Lease liabilities measured at the present value of the remaining lease payments, discounted by the lessee s incremental borrowing rate at the date of initial application;

Recognition of right-of-use assets at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments relating to that lease recognized in the statement of financial position immediately before the date of initial application, excluding initial direct costs.

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Key estimates and judgments

The incremental borrowing rates used to determine the present value of the remaining lease payments were determined mainly based on the Company s cost of funding based on yields of bonds issued by the Company, adjusted by terms and currency of the lease arrangements, economic environment of the country where the lessee operates and similar collaterals.

The incremental borrowing rates applicable to the most significant lease arrangements range from 2.47% p.a. to 7% p.a.

Disclosure

The right-of-use assets will be presented as Property, plant and equipment (PP&E), primarily comprising the following underlying assets: drilling rig and other exploration and production equipment, vessels and support vessels, helicopters, lands and buildings. The lease liabilities will be presented as Finance debt.

Accordingly, the Company estimates that its balances of PP&E and Finance debt will increase approximately US$ 28 billion, due to changes brought up by the recognition, measurement and disclosure provision under IFRS 16 initial application. As the right-of-use assets will be recognized at an amount equal to the lease liability, the change will not affect equity.

In the statement of cash flows, operating lease payments, which are currently presented within Cash flows from operating activities, will be presented as Cash flows from financing activities made up of repayment of principal and interest. However, such change does not affect the Company s cash and cash equivalents balance.

Other significant matters

The changes arising from IFRS 16 adoption will affect, prospectively, the Net Debt/Adjusted EBITDA ratio, a financial measure that is set forth in the Company s Business and Management Plan. The impacts on this metric in 2019 will be provided only for comparative purposes. The Company does not intend to implement changes in its business practice and there was no need to renegotiate covenant clauses in finance debts.

6.1.2. IFRIC 23 Uncertainty over Income Tax Treatments

In May 2017, the International Accounting Standards Board (Board) issued IFRIC 23, which has been effective since January 1, 2019. This Interpretation clarifies how to apply the recognition and measurement requirements in IAS 12

when there is uncertainty over income tax treatments.

When there is uncertainty over income tax treatments, this Interpretation addresses:

Whether an entity considers uncertain tax treatments separately;

The assumptions an entity makes about the examination of tax treatments by taxation authorities;

How an entity determines taxable profit (tax loss), tax bases, unused tax losses, unused tax credits and tax rates; and

How an entity considers changes in facts and circumstances.

According to the transition provisions set forth in this interpretation, the Company will apply this interpretation retrospectively with the cumulative effect of its initial application recognized at January 1, 2019 within equity. The Company did not identify any material impact arising from IFRIC 23.

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7. Cash and cash equivalents and Marketable securities

Cash and cash equivalents

Cash and cash equivalents comprise cash in hand, term deposits with banks and short-term highly liquid financial investments that are readily convertible to known amounts of cash, are subject to insignificant risk of changes in value and have a maturity of three months or less from the date of acquisition.

	12.31.2018	12.31.2017
Cash at bank and in hand	863	1,570
Short-term financial investments		
-In Brazil		
Brazilian interbank deposit rate investment funds and other short-term deposits	1,875	1,176
Other investment funds	12	17
	1,887	1,193
- Abroad		
Time deposits	3,823	6,237
Automatic investing accounts and interest checking accounts	6,708	11,287
Other financial investments	618	2,232
	11,149	19,756
Total short-term financial investments	13,036	20,949
Total cash and cash equivalents	13,899	22,519

Short-term financial investments in Brazil primarily consist of investments in funds holding Brazilian Federal Government Bonds and related repo investments that mature within three months as of the date of their acquisition. Short-term financial investments abroad comprise time deposits that mature in three months or less from the date of their acquisition, highly-liquid automatic investment accounts, interest checking accounts and other short-term fixed income instruments.

The principal uses of funds in the year ended December 31, 2018 were for debt service obligations (US$ 39,854), including pre-payment of debts, and acquisition of PP&E and intangibles assets (US$ 12,021). These funds were principally provided by operating activities (US$ 26,353), proceeds from financing (US$ 10,950) and disposal of assets (US$ 5,791).

Marketable securities

	12.31.2018		01.01.2018		
	In Brazil	**Total**	**In Brazil**	**Abroad**	**Total**
Fair value through profit or loss	1,083	1,083	1,276		1,276
Fair value through other comprehensive income	8	8	13	609	622
Amortised cost	45	45	51		51
Total	1,136	1,136	1,340	609	1,949
Current	1,083	1,083	1,276	609	1,885
Non-current	53	53	64		64

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Marketable securities classified as fair value through profit or loss refer mainly to investments in Brazilian Federal Government Bonds. These financial investments have maturities of more than three months and are mostly classified as current assets due to their maturity or the expectation of their realization in the short term.

The amounts of marketable securities at December 31, 2017 classified by categories in accordance with the former accounting practice (IAS 39) are presented in note 2.3.1.

8. Trade and other receivables

8.1. Trade and other receivables, net

	12.31.2018	12.31.2017
Receivables from contracts with customers		
Third parties	6,614	6,995
Related parties		
Investees (note 19.1)	682	530
Receivables from the electricity sector (note 8.4) (*)	4,400	5,247
Subtotal	11,696	12,772
Other trade receivables		
Third parties		
Receivables from divestments (**)	1,296	872
Finance lease receivables	519	550
Other receivables	1,325	1,647
Related parties		
Diesel subsidy (note 19.1.1)	400	
Petroleum and alcohol accounts - receivables from Brazilian Government (note 19.1.2)	307	251
Subtotal	3,847	3,320
Total trade receivables	15,543	16,092

Expected credit losses (ECL) - Third parties	(3,390)	(3,686)
Expected credit losses (ECL) - Related parties	(915)	(2,259)
Total trade receivables, net	11,238	10,147
Current	5,746	4,972
Non-current	5,492	5,175

(*) It includes the amount of US$ 199 at December 31, 2018 (US$ 233 at December 31, 2017) regarding finance lease receivable from Amazonas Distribuidora de Energia.

(**) It comprises receivable from the divestment of NTS and contingent payments from the sale of interest in Roncador field.

Trade and other receivables were previously classified as loans and receivables in accordance with former IAS 39. As set out in note 2.3.1, following the adoption of IFRS 9, such assets are currently classified as measured at amortised cost, except for certain receivables with final prices linked to changes in commodity price after their transfer of control, which are classified as measured at fair value through profit and loss and amount to US$ 76 as of December 31, 2018.

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8.2. Aging of trade and other receivables third parties

	12.31.2018		12.31.2017	
	Trade receivables	Credit losses	Trade receivables	Credit losses
Current	5,863	(360)	5,760	(274)
Overdue:				
1-90 days	484	(54)	596	(73)
91-180 days	35	(12)	52	(36)
181-365 days	48	(20)	83	(47)
More than 365 days	3,325	(2,944)	3,573	(3,256)
Total	9,755	(3,390)	10,064	(3,686)

8.3. Changes in credit losses provision

	Jan-Dec/2018	Jan-Dec/2017
Opening balance	5,945	5,426
Initial application of IFRS 9	122	
Additions	104	708
Write-offs	(1,253)	(110)
Transfer of assets held for sale	6	
Cumulative translation adjustment	(619)	(79)
Closing balance	4,305	5,945
Current	1,715	2,068
Non-current	2,590	3,877

In 2018, write-offs in the balance of expected credit losses primarily reflects the effects related to the agreements signed with companies from electricity sector, as described in note 8.4.

In 2017, besides the losses on receivables from electricity sector amounting to US$ 210, additions also reflected impairments over lease receivables, as a result of the termination, in the third quarter of 2017, of a finance lease agreement relating to the Vitória 10,000 drilling rig, in the amount of US$ 278.

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8.4. Trade receivables electricity sector (isolated electricity system in the northern region of Brazil)

Receivables from electricity sector	Receivables outside the scope of DAAs*	DAA 2014	DAA 2018	Finance lease	Others	Total
Receivables	2,381	3,107		233	4	5,725
ECL	(2,187)	(332)			(4)	(2,523)
Balance at December 31, 2017	194	2,775		233		3,202
Sales	1,226					1,226
Amounts received	(757)	(374)	(532)	(39)	(3)	(1,705)
Interest	38	161	22	40		261
Derecognition of receivables	(1,240)			(1)		(1,241)
Agreements in 2018		127	1,291			1,418
(Additions)/reversals of ECL	(508)	291			3	(214)
Derecognition of receivables - ECL	1,240					1,240
CTA	(27)	(425)	(43)	(34)		(529)
Balance at December 31, 2018	166	2,555	738	199		3,658
Receivables	1,348	2,560	739	199	1	4,847
ECL	(1,182)	(5)	(1)		(1)	(1,189)
Balance at December 31, 2018	166	2,555	738	199		3,658

* Debt acknowledgement agreements.

	Receivables	ECL	Total
Related parties - Eletrobras Group			
Amazonas Energia - AME	3,747	(913)	2,834
Eletrobras	653	(2)	651

Total	4,400	(915)	3,485
Third parties			
Cia de Gás do Amazonas - CIGÁS	156	(2)	154
Cia de Eletricidade do Amapá - CEA	228	(228)	
Others	63	(44)	19
Total	447	(274)	173
Balance at December 31, 2018	4,847	(1,189)	3,658
Balance at December 31, 2017	5,725	(2,523)	3,202

The Company supplies fuel oil, natural gas, and other products to power distributors controlled by Eletrobras and to independent power producers (*Produtores Independentes de Energia* PIE) that operate in the isolated electricity system in the northern region of Brazil. This isolated system comprises electricity generation and distribution systems not totally connected to the Brazilian National Interconnected Power Grid (*Sistema Interligado Nacional*).

Due to operational, regulatory and administrative factors, the costs of the isolated electricity system is substantially covered by the Fuel Consumption Account (*Conta de Consumo de Combustível* CCC), a fund regulated and overseen by the Brazilian National Electricity Agency (*Agência Nacional de Energia Elétrica* - ANEEL), that receives funds from the Brazilian Energy Development Account (*Conta de Desenvolvimento Energético* - CDE). The CDE is a fund created by the Brazilian Federal Government to promote power development in Brazil and its transfers of funds to CCC are based on fees paid by all of concessionaires of electricity distribution and transmission in Brazil. However, regulatory and administrative issues have impacted funds flows from CCC to the companies operating in the isolated system since 2013, which also affected the payments of distributors controlled by Eletrobras for products supplied by the Company.

As a result, on December 31, 2014, the Company (Petrobras parent company and its subsidiary BR Distribuidora) entered into debt acknowledgement agreements (DAAs 2014) concerning the balance of its receivables as of November 30, 2014 with distributors controlled by Eletrobras, to be settled in 120 monthly installments updated by the Selic interest rate (Brazilian short-term interest rate). The balance of DAAs 2014 was 89% collateralized by payables from the CDE to the CCC and, despite some periodic delays, these payments have continued. At December 31, 2017, the amounts of DAAs 2014 totaled US$ 3,107.

The Company continued to sell its products to the isolated electricity system but took several measures to safeguard its interests arising from sales after the signing of the DAAs 2014, including judicial collection of all overdue receivables, as well as suspension of fuel supply on credit. Thus, the allowance for credit losses on receivables from electricity sector amounted to US$ 2,523 at December 31, 2017, primarily reflecting the historical defaults of companies operating in the isolated electricity system in the northern region of Brazil relating to receivables not under DAAs 2014.

At the end of 2017, following the inclusion of the power distributors controlled by Eletrobras within the Investments Partnership Program (*Programa de Parcerias de Investimentos* PPI), a Brazilian Federal program that foresees new infrastructure investments and privatizations, along with the process of privatization of the distributors controlled by Eletrobras, the Company intensified negotiations with the Eletrobras group aiming at reaching an agreement that would resolve disputes and mitigate future defaults.

Accordingly, both parties reached an agreement on April 30, 2018 in which the structure and indexation of collateralization under the DAAs 2014 was recomposed and new debt acknowledgement agreements comprising a portion of receivables under judicial disputes were signed (DAAs 2018). In addition, the parties also entered into debt assumption agreements in which Eletrobras would assume a significant portion of overdue receivables in case of the privatization of power distributors.

Following improvements in Eletrobras credit risk, the new collateralization structure under DAAs 2014 provides for replacement of original collateral by guaranties provided by Eletrobras (54%), collateral based on credits from Brazilian Treasury (34%) and new payables from the CDE (12%). However, the collateralization based on credits from Brazilian Treasury owned by Eletrobras Distributors, expected to be effective by the end of June 2018, did not occur as the Provisional Measure 814/2017 lost its effectiveness since June 1, 2018 and the Bill 10,332/18, the terms of which would reestablish the previous condition for such collateralization, was rejected by the Brazilian Senate in October 2018.

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The DAAs 2018 comprise receivables from sales of fuel oil and natural gas, which had been past due since December 2014 and under judicial collection. These agreements outline the settlement of US$ 459 and US$ 1,293 (gross nominal values), related to Petrobras parent company and its subsidiary BR Distribuidora, respectively, in 36 monthly instalments bearing interest at 124.75% of the Brazilian interbank deposit rate (CDI). However, their recognition and measurement take into account the conditions attached to their guarantees, which in the case of BR Distribuidora are substantially dependent on the privatization of distributors of Eletrobras group and, with respect to Petrobras parent company, an unsuccessful privatization process would not lead to the cancellation of surety provided by Eletrobras.

On December 3, 2018, the parties entered into a new agreement under which:

The collateral of DAAs 2014 based on credits from Brazilian Treasury was replaced by surety provided by Eletrobras;

Some contracts were renegotiated in order to fulfill certain conditions necessary for the privatization of the distributors;

Past due receivables until October 31, 2018 amounting to US$ 150 were rescheduled under the same terms of the agreement of April 2018; and

Creation of an escrow account in order to ensure the collection of future gas sales.

Based on the agreements reached in 2018, along with the conclusion of the privatization process of distributors of Eletrobras group (Ceron, Boa Vista Energia e Eletroacre) the Company recognized US$ 1,418 as finance income in 2018 primarily reflecting receivables under the DAAs 2018, which had been under judicial collection, recognized at their fair value due to the material changes in their contractual terms.

In 2018, the Company recognized credit losses amounting to US$ 214 (US$ 210 in 2017) primarily reflecting overdue receivables outside the scope of DAAs (US$ 508), notably from sale of gas for which collections are outstanding, partially offset by the replacement of collaterals of DAAs 2014 and debts assumed by Eletrobras following the privatization of its distributors (US$ 291).

Moreover, the Company has monitored the progress of AME privatization process, which is conditioned to certain conditions precedent, notably the effective transfer of its control, as well as additional investments and collaterals.

According to the progress of this process, the Company s assessment of credit risk over these receivables was not significantly affected at December 31, 2018.

9. Inventories

	12.31.2018	12.31.2017
Crude oil	4,150	3,647
Oil products	2,758	2,814
Intermediate products	610	613
Natural gas and LNG (*)	122	67
Biofuels	150	173
Fertilizers	78	25
Total products	7,868	7,339
Materials, supplies and others	1,119	1,150
Total	8,987	8,489

(*) Liquefied Natural Gas

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In the year ended December 31, 2018, the Company recognized as cost of sales US$ 420 reducing inventories to net realizable value (US$ 66 as of year ended December 31, 2017) primarily due to changes in international prices of crude oil and oil products.

At December 31, 2018, the Company had pledged crude oil and oil products volumes as collateral for the Terms of Financial Commitment (TFC) signed by Petrobras and Petros in 2008, in the amount of US$ 4,496 (US$ 4,067 as of December 31, 2017), as set out in note 23.1.

10. Disposal of assets and other changes in organizational structure

The Company has an active partnership and divestment portfolio, which takes into account opportunities for disposal of non-strategic assets in several areas in which it operates. The partnerships provide for the sharing and development of new technologies, strengthening corporate governance, and sharing future risks and investments. The divestment and partnership portfolio is dynamic, since the development of transactions also depends on conditions beyond the control of the Company. The divestment projects and strategic partnerships follow the procedures aligned with the guidelines of the Brazilian Federal Auditor s Office (*Tribunal de Contas da União* TCU) and the current legislation.

In 2018, partnerships and divestments resulted in US$ 6 billion cash inflows to the Company, which, along with other initiatives included in the Company s Business and Management Plan, enable the Company to reduce and improve its indebtedness and debt profile.

On October 3, 2018, the 1st Federal Court of the state of Sergipe, by means of a preliminary injunction relating to a public action, ordered Petrobras and ANP to suspend the sale process of oil fields located in the state of Bahia (Buracica and Miranga groups and related facilities) alleging absence of a proper bidding process, that would result in impending damage to the public treasury. On October 24, 2018, the Federal Regional Court of the 5th Region rejected the request for suspension of the effects of the preliminary ruling previously presented by the Federal Government.

On December 19, 2018, an injunction was issued against the Company before the Brazilian Federal Supreme Court, later suspended on January 11, 2019 by the president of this Court, until court assessment on this injunction. Thus, the Company is able to resume the publication of any opportunities related to new E&P divestment projects, following the normal course of its business.

The competitive process for the divestment of the wholly-owned subsidiary Transportadora Associada de Gás S.A. (TAG) was previously suspended by decision of the Federal Regional Court of the 5th Region, but the Superior Court of Justice reversed this decision on January 15, 2019. Therefore, on January 17, 2019, Petrobras resumed the process for the disposal of 90% of TAG, for 100% of Araucária Nitrogenados S.A., as well as for forming partnerships in

refining business.

Moreover, the Brazilian Federal Attorney-General s Office (AGU) stated that Petrobras meets the requirements on this divestment process, since it has legislative authorization to dispose of its subsidiaries and complies with applicable regulation for divestment of assets by state-owned companies, relating to corporate governance, transparency and market best practices.

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10.1. Disposal of assets
Second installment of the exploratory block BM-S-8 sale

On July 28, 2016 the Board of Directors of Petrobras approved the disposal of the Company s 66% interest in the exploratory block BM S-8 to Statoil Brasil Óleo e Gás Ltda, which includes the Carcará area located in the pre-salt of Santos Basin, for the amount of US$ 2.5 billion.

The first installment of US $ 1.25 billion, corresponding to 50% of the transaction value, was received on November 22, 2016, and the remaining amount relates to two contingent payments.

The production sharing agreement with respect to the Norte de Carcará area, entered into by the Brazilian Federal Government, Statoil, Petrogal and Exxon, was made official on February 2, 2018 through the Brazilian Federal Register (official gazette). This fact completed the conditions precedent for the second payment of the exploratory block BM-S-8. Accordingly, the Company received US$ 300 on March 21, 2018 and accounted for it within other income and expenses.

The third installment of this sale, in the amount of US$ 950, is still pending of certain future events related to the signing of a unitization agreement and will be recognized if and when these events occur.

Disposal of Liquigás

On November 17, 2016 the Company s Board of Directors approved the disposal of its wholly-owned subsidiary Liquigás Distribuidora S.A, a group entity from the RT&M business segment (Refining, Transportation and Marketing), to Companhia Ultragaz S.A., a subsidiary of Ultrapar Participações S.A. In January 2017, this sale was approved at Ultrapar s and Petrobras Shareholders Meetings for the amount of US$ 828.

On February 28, 2018, the Brazilian Antitrust Regulator (CADE) ruled on this matter and disallowed this sale. The sales and purchase agreement was subject to a termination clause providing for compensation to the Company in case of such decision. Accordingly, the Company received US$ 88 on March 13, 2018 and the related assets and liabilities are no longer classified as held for sale.

Strategic alliance with Total

On December 21, 2016, the Company entered into a master agreement with Total, in connection with the Strategic Alliance established in the Memorandum of Understanding signed on October 24, 2016. Accordingly, certain E&P assets were classified as held for sale at December 31, 2016 due to the share of interests established in this agreement, as described below:

Transfer of the Company s 22.5% stake in the concession area named as Iara, comprising Sururu, Berbigão and West of Atapu fields, which are subject to unitization agreements with Entorno de Iara (an area under the Assignment Agreement in which the Company holds 100% stake and is located in the Block BM-S-11). The Company will continue to operate the block;

Transfer of the Company s 35% stake in the concession area of Lapa field, located in the Block BM-S-9. Total will also become the operator and the Company will retain a 10% interest in this area; and

Transfer of the Company s 50% interests in Termobahia S.A, including the power plants Celso Furtado and Rômulo Almeida. In 2016, the Company recognized an impairment loss on this transaction in the amount of US$ 47.

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On February 28, 2017, the Company and Total signed purchase and sale agreements with respect to the aforementioned assets. Total will pay to the Company the amount of US$ 1,675 in cash for assets and services, subject to price adjustments. In addition, a long-term line of credit in the amount of US$ 400 will be provided by Total, which may be used to fund the Company s investments in the Iara fields.

The aforementioned agreements supplement the ones already executed on December 21, 2016, such as: (i) the Company s preemptive right to purchase a 20% interest in block 2 of the Perdido Foldbelt area, in the Mexican sector of the Gulf of Mexico, (ii) the joint exploration studies in the exploratory areas of Equatorial Margin and in Santos Basin; and (iii) the Technological partnership agreement in the areas of digital petrophysics, geological processing and subsea production systems.

On January 12, 2018, Petrobras and Total closed the aforementioned transfers of interests of Iara and Lapa fields, after performing all conditions precedent to this transaction.

This transaction totaled US$ 1.95 billion, including price adjustments, but not including the long-term line of credit. Accordingly, the Company recognized US$ 689 as other income and expenses in the first quarter of 2018.

On December 21, 2018, Petrobras and Total entered into the following agreements:

Petrobras exercised its put option, as provided in the contract signed in January 2018, transferring its remaining 10% stake in Lapa field to Total, in block BM-S-9. This transaction is still subject to some conditions precedent; and

Investment agreement for the creation of a joint venture, with the participation of 49% of Petrobras and 51% of Total Eren S.A. (an associate of Total), with the objective of developing onshore projects in solar and wind energy in Brazil. This agreement has legally binding obligations, where both companies are committed to prepare the required documentation to establish the joint venture, aiming at developing a portfolio of projects of up to 500MW of installed capacity over a 5-year horizon.

The negotiations relating to the power plants deal are ongoing and the assets and liabilities thereof remained classified as held for sale at December 31, 2018.

Disposal of Suape and Citepe petrochemical plants

On December 28, 2016, the Company s Board of Directors approved the disposal of the interests in the wholly-owned subsidiaries Companhia Petroquímica de Pernambuco (PetroquímicaSuape) and Companhia Integrada Têxtil de Pernambuco (Citepe), both from the RT&M business segment, to Grupo Petrotemex S.A. de C.V. and to Dak Americas Exterior, S.L., both subsidiaries of Alpek, S.A.B. de C.V., which is a company from Grupo Alfa S.A.B. de C.V. (a Mexican public company), for the amount of US$ 385, to be disbursed at the transaction closing and subject to adjustments relating to working capital, net debt and recoverable taxes.

This transaction was approved at Petrobras Shareholders Meeting on March 27, 2017.

On February 7, 2018, the CADE approved this transaction provided the execution of an Agreement on Concentration of Control (*Acordo de Controle de Concentração* ACC).

On April 30, 2018, this transaction was completed with the payment of US$ 435 after the fulfillment of all conditions precedent and adjustments established in the purchase and sale agreement, except for the final price adjustment, whose calculation is based on the audited financial statements of these companies.

Thereby, reversals of impairment in the amount of US$ 86 were accounted for in the second and third quarters of 2018.

Sale of Azulão field

On November 22, 2017, the Company entered into an agreement with Parnaíba Gás Natural S.A., a subsidiary of Eneva S.A, concerning the assignment of its entire participation in the Azulão Field (Concession BA-3), located in the state of Amazonas, in the amount of US$ 55.

This transaction was concluded on April 30, 2018 upon fulfillment of the conditions precedent, adjustments set forth in the agreement and payment of US$ 57 to the Company, resulting in a US$ 45 gain accounted for as other income and expenses.

Strategic alliance with Equinor ASA (formerly Statoil)

On December 18, 2017, the Company entered into agreements with the Norwegian company Equinor relating to the assets of the strategic partnership, in continuity with the Heads of Agreement (HoA) signed and disclosed on September 29, 2017. The main signed contracts are:

(i) Strategic Alliance Agreement (SAA) - agreement describing all documents related to the strategic partnership, covering all negotiated initiatives;

(ii) Sale and Purchase Agreement (SPA) - sale of 25% of Petrobras interest in the Roncador field to Equinor.

(iii) Strategic Technical Alliance Agreement (STAA) - strategic agreement for technical cooperation aiming at maximizing the value of the asset and focusing on increasing the recoverable oil volume (recovery factor), including the extension of the useful life of the field; and

(iv) Gas Term Sheet - Equinor may hire a certain processing capacity of natural gas at the Cabiúnas Terminal (TECAB) for the development of the BM-C-33 area, where the companies already are partners and Equinor is the operator.

The strategic alliance, among other goals, aims at applying the Equinor s expertise in mature fields in the North Sea towards increasing the recovery factor of Roncador field. Accordingly, the parties signed the STAA for technical cooperation and the joint development of projects.

The SPA has a total amount of US$ 2.9 billion, made up of US$ 118 paid at the signature date of the agreement, contingent payments relating to investments in projects to increase the recovery factor of the field, limited to US$ 550, and the remaining amount will be paid at the transaction closing.

At December 31, 2017, a US$ 405 loss was recognized on this transaction, as its sale price was lower than carrying amount.

On June 14, 2018, this transaction was completed upon receipt of US$ 2 billion, including price adjustments at its closing amounting to US$ 14, in addition to the US$ 118 received as an advance on the signing date. Additionally, Equinor will make payments, limited to US$ 550, to the extent investments in projects for improvement of the recovery factor occur. The present value of such payments was recognized as account receivables in the amount of US$ 386, net of the aforementioned advance.

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Following the closing of this transaction, the Company recognized US$ 222 as an additional loss within other income and expenses as a result of price adjustment under the SPA.

All the conditions precedent to the closing were fulfilled, including approval by the ANP and CADE, as well as the negotiation of contracts for the use of production facilities and of the purchase of associated gas by Petrobras. The final price adjustment of this transaction will occur in up to 180 business days after the closing.

Sale of distributors in Paraguay

On June 26, 2018 the Board of Directors approved the sale to Copetrol Group of its entire interest held through its wholly-owned subsidiary Petrobras International Braspetro B.V. (PIB BV) in Petrobras Paraguay Distribución Limited (PPDL UK), Petrobras Paraguay Operaciones y Logistica SRL (PPOL) and Petrobras Paraguay Gas SRL (PPG).

The proceeds estimated from this sale is US$ 384, of which US$ 49 was deposited in an escrow account at the signing date, and the remaining amount will be disbursed to the Company when the transaction closes, including US$ 55 related to cash balance of these companies. The sale amount is still subject to adjustments due to changes in working capital until the conclusion of the transaction.

The corresponding assets and liabilities of this transaction are classified as held for sale as of December 31, 2018 as the conclusion of the transaction is still subject to approval procedures according to the Paraguay regulation.

Joint venture in Gulf of Mexico

In October 2018, the Company, through its wholly-owned subsidiary Petrobras America Inc. (PAI), entered into an agreement with Murphy Exploration & Production Company USA (Murphy), a wholly-owned subsidiary of Murphy Oil Corporation, in order to establish a joint venture (MP Gulf of Mexico, LLC) consisting of their producing properties of oil and gas activities in the Gulf of Mexico.

On November 30, 2018, the operation was completed with the creation of a joint venture with 80% of Murphy and 20% of PAI, with the contribution of all oil and gas producing assets located in the Gulf of Mexico, of both companies. The transaction was concluded with Murphy s following the payment of US$ 795 to PAI, after price adjustments provided for in the contract, corresponding to the difference between the value of assets used as contribution by both parties at the transaction closing. The agreement also set forth payments of up to US$ 150 to be made until 2025, and investments of up to US$ 50 to be carried out by Murphy, linked to PAI production development costs in the St. Malo field. These remaining payments were measured at their present value, amounting to US$ 158, and were accounted for as receivables.

An impairment loss in the amount of US$ 715 was accounted for in the statement of income, of which US$ 264 relates to the last quarter of 2018 (see note 14).

Sale of Petrobras Oil & Gas B.V. (PO&GBV)

On October 31, 2018, the wholly owned subsidiary Petrobras International Braspetro BV (PIBBV) entered into an agreement to sale its 50% interest in PO&GBV to Petrovida Holding B.V, a company formed in partnership by Vitol Investment Partnership II Ltd, Africa Oil Corp and Delonex Energy Ltd.

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PO&GBV is a joint venture in the Netherlands formed by PIBBV (50%) and BTG Pactual E&P B.V. (50%), consisting of assets located in Nigeria. It has 8% interest in the Agbami producing field, and 16% interest in Akpo producing field and Egina developing field (final stage). PO&GBV does not operate any of these fields.

The transaction will involve a total amount of up to US$ 1,530, with a cash payment of US$ 1,407, subject to adjustments until the closing of the transaction, and a deferred payment of up to US$ 123 (nominal value), to be settled as soon as the Agbami field redetermination process is implemented.

This transaction is subject to customary conditions precedent, such as approvals by relevant Nigerian authorities. Therefore, the investment in PO&GBV is classified as held for sale as of December 31, 2018, and an impairment reversal in the amount of US$ 45 was accounted for within equity-accounted investments.

Sale of onshore producing fields

On December 27, 2018, the Company s Board of Directors approved the sale of its total interest in 34 onshore producing fields, located in Potiguar basin, in the state of Rio Grande do Norte, to 3R Petroleum company, in the amount of US$ 453.

Accordingly, the related assets and liabilities were reclassified as held for sale and reversals of impairments previously recognized on these assets were accounted for at December 31, 2018, as described in note 14.2.

Sale of interest in three offshore producing fields in Campos basin

On November 28, 2018, the Company s Board of Directors approved the sale of interest in Pargo, Carapeba and Vermelho fields (the Northeast group of fields), located in shallow waters on the coast of the state of Rio de Janeiro, to Perenco company. The transaction value amounts to US$ 370, of which 20% (US$ 74) paid at the contract signature, and the remaining balance will be paid at the transaction closing, subject to price adjustments.

The transaction closing is subject to the fulfillment of conditions precedent determined by the contract, such as approval by the ANP and the grant, by the Brazilian Institute of the Environment and Renewable Natural Resources (*Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis* - IBAMA), of the required environmental licenses to Perenco, which will be the operator of the fields. Therefore, the related assets and liabilities are classified as held for sale as of December 31, 2018.

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10.2. Assets classified as held for sale

The major classes of assets and liabilities classified as held for sale are shown in the following table:

	12.31.2018					12.31.2017
	E&P	Gas & Distribution	Power	Others	Total	Total
Assets classified as held for sale						
Cash and Cash Equivalents		40			40	8
Trade receivables		39			39	117
Inventories		47			47	128
Investments (*)	973				973	5
Property, plant and equipment	593	70	81	1	745	4,751
Others		102			102	309
Total	1,566	298	81	1	1,946	5,318
Liabilities on assets classified as held for sale						
Trade Payables		1			1	102
Provision for decommissioning costs	932				932	170
Others		50			50	119
Total	932	51			983	391

(*) The amount of US$ 973 refers to the divestment in PO&GBV.

As of December 31, 2018, the amounts refer to assets and liabilities classified as held for sale following the approvals of sale of interests in Rômulo Almeida and Celso Furtado thermoelectric power generation plants; PPDL UK, PPOL and PPG (distribution operation in Paraguay); the remaining interest in PO&GBV (correspondent to 50%); the remaining 10% interest in Lapa field; the three fields in Campos basin; and the 34 onshore fields in Potiguar basin.

At December 31, 2017, the amounts also comprise assets and liabilities pertaining to Liquigás, Suape and Citepe petrochemical plants, the concession areas named as Iara and Lapa, the entire interest in Azulão field and 25% interest

in Roncador field.

10.3. Other changes in organizational structure
Sale and merger of Nova Fronteira Bioenergia

On December 15, 2016, the Company s wholly-owned subsidiary PBIO (biofuels business segment) entered into an agreement with the São Martinho group to merge PBIO s interests in Nova Fronteira Bioenergia S.A. (49%) into São Martinho.

On February 23, 2017, São Martinho granted to PBIO additional 24 million of its common shares, corresponding to 6.593% of its total capital. These shares were accounted for as available-for-sale securities.

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On February 16, 2018, following the approval by its Extraordinary General Shareholder s Meeting, PBIO disposed of, through a public auction held in the Brazilian stock exchange (B3), these 24 million of shares, at the share price of US$ 5.72 dollars. The settlement of the transaction occurred on February 21, 2018, finalizing the complete disposal of PBIO s interests in São Martinho s capital.

10.4. Cash flows from sales of interest with loss of control

In 2018 and 2017, the Company disposed of its interest in certain subsidiaries over which control was lost. The following table summarizes cash flows arising from losing control in subsidiaries:

	Cash received	Cash in subsidiary before losing control	Net Proceeds
Suape and Citepe petrochemical plants (note 10.1)	435	(14)	421
Total in 2018	435	(14)	421
NTS	2,481	(88)	2,393
Petrobras Chile Distribución	470	(104)	366
Total in 2017	2,951	(192)	2,759

Disposal of interest in Nova Transportadora do Sudeste (NTS)

On April 4, 2017, the sale of a 90% interest in Nova Transportadora do Sudeste NTS, a group entity from the gas and power business segment, to Brookfield Infrastructure Partners (BIP) and its affiliates, through a Private Equity Investment Fund (FIP), was completed in the amount of US$ 5.08 billion, and the Company recognized a gain in the amount of US$ 2,169 accounted for as other income and expenses.

Disposal of distribution assets in Chile

This transaction was concluded on January 4, 2017 and the net proceeds from this sale were US$ 470 was paid by Southern Cross Group at the transaction closing. Accordingly, the Company recognized a gain of US$ 0.8 as other

income and expenses. In addition, a US$ 79 loss was reclassified from shareholders equity to other income and expenses within the income statement, reflecting the reclassification of cumulative translation adjustments resulting from the depreciation of the Chilean Peso against the U.S Dollar from the time of the acquisition of this investment to its disposal.

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11. Investments

11.1. Information on direct subsidiaries, joint arrangements and associates

	Main business segment	% Petrobras ownership	% Petrobras voting rights	Share-holders equity (deficit)	Net income (loss) for the year	Country
Subsidiaries						
Petrobras Netherlands B.V. - PNBV (i)	E&P	100.00	100.00	29,529	2,489	Netherlands
Petrobras Distribuidora S.A. - BR	Distribution	71.25	71.25	2,500	874	Brazil
Petrobras International Braspetro - PIB BV (i)	Several (ii)	100.00	100.00	7,197	(2,022)	Netherlands
Petrobras Transporte S.A. - Transpetro	RT&M	100.00	100.00	886	(221)	Brazil
Petrobras Logística de Exploração e Produção S.A. - PB-LOG	E&P	100.00	100.00	944	240	Brazil
Transportadora Associada de Gás S.A. - TAG	Gas & Power	100.00	100.00	3,468	678	Brazil
Petrobras Gás S.A. - Gaspetro	Gas & Power	51.00	51.00	519	74	Brazil
Petrobras Biocombustível S.A.	Biofuels	100.00	100.00	430	49	Brazil
Petrobras Logística de Gás - Logigás	Gas & Power	100.00	100.00	186	92	Brazil
Liquigás Distribuidora S.A.	RT&M	100.00	100.00	257	40	Brazil
Araucária Nitrogenados S.A.	Gas & Power	100.00	100.00	23	(90)	Brazil
Termomacaé Ltda.	Gas & Power	100.00	100.00	68	20	Brazil
Braspetro Oil Services Company - Brasoil (i)	Corporate	100.00	100.00	108	2	Cayman Islands
Breitener Energética S.A.	Gas & Power	93.66	93.66	201	34	Brazil
Termobahia S.A.	Gas & Power	98.85	98.85	149	4	Brazil
Baixada Santista Energia S.A.	Gas & Power	100.00	100.00	77	3	Brazil
Petrobras Comercializadora de Energia Ltda. - PBEN	Gas & Power	100.00	100.00	23	2	Brazil
	E&P	99.20	99.20	13	(26)	Brazil

Fundo de Investimento Imobiliário RB Logística - FII						
Petrobras Negócios Eletrônicos S.A. - E-Petro	Corporate	100.00	100.00	10	2	Brazil
Termomacaé Comercializadora de Energia Ltda	Gas & Power	100.00	100.00	3		Brazil
5283 Participações Ltda.	Corporate	100.00	100.00	1		Brazil
Joint operations						
Fábrica Carioca de Catalizadores S.A. - FCC	RT&M	50.00	50.00	65	17	Brazil
Ibiritermo S.A.	Gas & Power	50.00	50.00	41	10	Brazil

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	Main business segment	% Petrobras ownership	% Petrobras voting rights	Share-holders equity (deficit)	Net income (loss) for the year	Country
Joint ventures						
Logum Logística S.A.	RT&M	30.00	30.00	270	(31)	Brazil
Cia Energética Manauara S.A.	Gas & Power	40.00	40.00	54	31	Brazil
Petrocoque S.A. Indústria e Comércio	RT&M	50.00	50.00	63	28	Brazil
Refinaria de Petróleo Riograndense S.A.	RT&M	33.20	33.20	(21)	2	Brazil
Brasympe Energia S.A.	Gas & Power	20.00	20.00	23	1	Brazil
Brentech Energia S.A.	Gas & Power	30.00	30.00	25	3	Brazil
Metanol do Nordeste S.A. - Metanor	RT&M	34.54	34.54	8	1	Brazil
Eólica Mangue Seco 1 - Geradora e Comercializadora de Energia Elétrica S.A.	Gas & Power	49.00	49.00	10	1	Brazil
Eólica Mangue Seco 2 - Geradora e Comercializadora de Energia Elétrica S.A.	Gas & Power	51.00	51.00	10		Brazil
Eólica Mangue Seco 3 - Geradora e Comercializadora de Energia Elétrica S.A.	Gas & Power	49.00	49.00	11	1	Brazil
Eólica Mangue Seco 4 - Geradora e Comercializadora de Energia Elétrica S.A.	Gas & Power	49.00	49.00	11	1	Brazil
Companhia de Coque Calcinado de Petróleo S.A. - Coquepar	RT&M	45.00	45.00	(1)	5	Brazil
Participações em Complexos Bioenergéticos S.A. - PCBIOS	Biofuels	50.00	50.00			Brazil
Associates						
Sete Brasil Participações S.A. (iii)	E&P	5.00	5.00	(5,937)	(40)	Brazil
Fundo de Investimento em Participações de Sondas - FIP Sondas	E&P	4.59	4.59			Brazil
Braskem S.A. (iv)	RT&M	36.20	47.03	1,851	806	Brazil
UEG Araucária Ltda.	Gas & Power	20.00	20.00	94	(23)	Brazil
Deten Química S.A.	RT&M	27.88	27.88	113	23	Brazil
Energética SUAPE II		20.00	20.00	93	35	Brazil

	Gas & Power					
Termoelétrica Potiguar S.A. - TEP	Gas & Power	20.00	20.00	49	22	Brazil
Nitroclor Ltda.	RT&M	38.80	38.80			Brazil
Bioenergética Britarumã S.A.	Gas & Power	30.00	30.00			Brazil
Nova Transportadora do Sudeste - NTS	Gas & Power	10.00	10.00	828	529	Brazil

(i) Companies abroad with financial statements prepared in foreign currencies.
(ii) Cover segments abroad in E&P, RTM, Gas & Power and Distribution segments.
(iii) Despite the negative amount of net assets, allowance for losses was not recognized as the Company s obligations with Sete Brasil are limited to the investments made in this associate.
(iv) Equity and net income at September 30, 2018, most current public information.

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The main investees of PNBV are: Tupi BV (65%), Guará BV (45%), Agri Development BV (90%), Libra (40%), Papa Terra BV (62.5%), Roncador BV (75%), Iara BV (42,5%) and Lapa BV (10%). They are dedicated to construction and lease of equipment and platforms for Brazilian E&P consortia and are incorporated under the law of the Netherlands. PNBV s interests in these entities comprise the voting rights.

The main investees of PIB BV are the wholly-owned subsidiaries Petrobras Global Trading B.V. PGT, Petrobras Global Finance B.V. PGF; Petrobras America Inc. PAI. PGT is incorporated under the law of The Netherlands and is dedicated to the trade of oil, oil products, biofuels and LNG (liquefied natural gas), as well as to the funding of its activities in light of Petrobras Group. PGF also is incorporated under the law of The Netherlands and is the finance subsidiary of Petrobras Group, raising funds through bonds issued in the international market. PAI is incorporated under the law of United Sates and is dedicated to E&P (MP Gulf of Mexico, LLC) and refining activities (Pasadena).

Gaspetro holds interests in several natural gas distributors in Brazil that carry out, by means of concessions, public service of distribution of piped natural gas.

11.2. Investments in associates and joint ventures

	Balance at 12.31.2017	Investments	Transfer to assets held for sale	Restructuring, capital decrease and others	Results in equity-accounted investments	CTA	OCI	Dividends	Balance at 12.31.2018
Joint Ventures									
Petrobras Oil & Gas B.V. - PO&G	1,410		(1,207)		66	(15)		(254)	
MP Gulf of Mexico, LLC (*)		8		604	9	1			622
State-controlled natural gas distributors	345				75	(53)		(59)	308
Compañia Mega S.A. - MEGA	49				2	36		(9)	78
Petrochemical joint ventures	29			(1)	16	(4)		(6)	34
Other joint ventures	104	28		18	11	(17)		(16)	128

Associates									
Nova Transportadora do Sudeste	331			(18)	53	(49)		(54)	263
Petrochemical associates	1,461				288	(129)	(135)	(217)	1,268
Other associates	48	8		(11)	4	(6)		(1)	42
Other investments	18			(1)	(1)				16
Total	3,795	44	(1,207)	591	523	(236)	(135)	(616)	2,759

(*) As set out note 10.1.

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11.3. Investments in non- consolidated listed companies

	Thousand-share lot			Quoted stock exchange prices (US$ per share)		Market value	
	12.31.2018	12.31.2017	Type	12.31.2018	12.31.2017	12.31.2018	12.31.2017
Associate							
Braskem S.A.	212,427	212,427	Common	11.75	13.15	2,495	2,794
Braskem S.A.	75,762	75,762	Preferred A	12.23	12.96	926	982
						3,421	3,776

The market value of these shares does not necessarily reflect the realizable value upon sale of a large block of shares.

On June 15, 2018, the Company was informed by Odebrecht S.A that it had initiated negotiations with LyondellBasell for a potential transaction involving the transfer of Odebrecht s entire interest in Braskem. This transaction is subject, among other conditions, to due diligence, negotiation of definitive agreements and all necessary approvals. There is no binding obligation between the parties to assure the conclusion of the transaction.

Depending on the outcome of this transaction, the Company will assess the terms and conditions of LyondellBasell s offer in the context of exercising its tag-along right as set forth in Braskem S.A. Shareholder s Agreement.

According to an amendment to Braskem S.A. Shareholder s Agreement on September 25, 2018, preferred shares owned by the Company became also subject to tag-along rights as already set forth for the ordinary shares.

Information on the main estimates used in the cash flow projections to determine the value in use of Braskem is set out in Note 14.

11.4. Non-controlling interest

The total amount of non-controlling interest at December 31, 2018 is US$ 1,631 (US$ 1,700 in 2017) primarily comprising US$ 719 of Petrobras Distribuidora (US$ 792 in 2017), US$ 255 of Gaspetro (US$ 289 in 2017), US$ 65 of Transportadora Brasileira Gasoduto Brasil-Bolívia TBG (US$ 76 in 2017), and US$ 206 refer to Consolidated Structured Entities (US$ 284 in 2017).

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Condensed financial information is set out as follows:

	Gaspetro		Consolidated Structured entities		TBG		BR Distribuidora	
	2018	2017	2018	2017	2018	2017	2018	2017
Current assets	79	80	826	728	174	140	3,304	3,235
Long-term receivables	58	74	781	1,106	1	1	1,609	2,042
Investments	360	406					9	11
Property, plant and equipment	1	1			463	594	1,496	1,758
Other non-current assets	76	89			2	2	123	137
	574	650	1,607	1,834	640	737	6,541	7,183
Current liabilities	26	24	75	226	173	248	1,177	1,334
Non-current liabilities	29	36	1,326	1,322	334	335	2,864	3,181
Shareholders equity	519	590	206	286	133	154	2,500	2,668
	574	650	1,607	1,834	640	737	6,541	7,183
Sales revenues	114	111			425	462	26,753	26,483
Net income	74	75	(142)	106	160	265	874	330
Increase (decrease) in cash and cash equivalents	(7)	15	128	57	7	204	704	(49)

Petrobras Distribuidora (BR) is a company that operates in distribution, transportation, trade and industrialization of oil products and other fuels. It is controlled by Petrobras parent company, which holds a 71.25% interest.

Gaspetro, a Petrobras subsidiary, holds interests in several state distributors of natural gas in Brazil. The Company holds 51% of interests in this indirect subsidiary.

TBG is an indirect subsidiary which operates in natural gas transmission activities mainly through Bolivia-Brazil Gas Pipeline. The Company holds 51% of interests in this indirect subsidiary.

Structured entities include Charter Development LLC CDC, dedicated to construct, acquirer and charter FPSOs, and Companhia de Desenvolvimento e Modernização de Plantas Industriais CDMPI, which is dedicated to coking and hydrotreating of coke naptha from Henquique Lage refinery (REVAP).

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11.5. Summarized information on joint ventures and associates

The Company invests in joint ventures and associates in Brazil and abroad, whose activities are related to petrochemical companies, gas distributors, biofuels, thermoelectric power plants, refineries and other activities. Condensed financial information is set out below:

	2018				2017			
	Joint ventures			Associates	Joint ventures			Associates
	In Brazil	MP Gulf of Mexico, LLC	Other companies abroad	Other companies in Brazil	In Brazil	PO&G(*)	Other companies abroad	Other companies in Brazil
Current assets	1,162	151	158	6,314	938	625	72	5,729
Non-current assets	520		10	1,388	502	71	1	1,454
Property, plant and equipment	866	3,643	45	12,932	897	3,706	8	9,342
Other non-current assets	633		1	863	725			980
	3,181	3,794	214	21,497	3,062	4,402	81	17,505
Current liabilities	1,163	86	72	6,159	1,005	276	29	5,973
Non-current liabilities	673	599	23	17,566	639	2,197	1	16,172
Shareholders equity	1,354	2,487	79	(2,168)	1,418	1,929	51	(4,390)
Non-controlling interest	(9)	622	40	(60)				(250)
	3,181	3,794	214	21,497	3,062	4,402	81	17,505
Sales revenues	3,975	92	136	18,954	3,208	557	145	15,790
Net Income (loss) for the year	92	48	17	1,888	160	272	26	1,338
Ownership interest - %	20 to 83%	20%	34 to 50%	5 to 49%	20 to 83%	50%	34 to 50%	5 to 49%

(*) In the fourth quarter of 2018, PO&G s assets and liabilities were classified as held for sale, as set out in note 10.

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12. Property, plant and equipment

12.1. By class of assets

	Land, buildings and improvement	Equipment and other assets (*)	Assets under construction (**)	Exploration and development costs (oil and gas producing properties) (***)	Total
Balance at January 1,2017	6,982	78,724	38,569	51,195	175,470
Additions	2	1,167	11,031	31	12,231
Additions to / review of estimates of decommissioning costs				4,503	4,503
Capitalized borrowing costs			1,972		1,972
Write-offs	(14)	(6)	(545)	(35)	(600)
Transfers (****)	316	3,296	(7,631)	3,079	(940)
Depreciation, amortization and depletion	(437)	(7,320)		(5,366)	(13,123)
Impairment recognition	(145)	(937)	(568)	(892)	(2,542)
Impairment reversal	52	831	165	692	1,740
Cumulative translation adjustment	(91)	(753)	(472)	(745)	(2,061)
Balance at December 31, 2017	6,665	75,002	42,521	52,462	176,650
Cost	9,914	128,603	42,521	86,491	267,529
Accumulated depreciation, amortization and depletion	(3,249)	(53,601)		(34,029)	(90,879)
Balance at December 31, 2017	6,665	75,002	42,521	52,462	176,650
Additions	4	1,751	8,707	6	10,468

Additions to / review of estimates of decommissioning costs				4,778	4,778
Capitalized borrowing costs			1,810		1,810
Write-offs	(61)	(16)	(327)	(27)	(431)
Transfers (****)	(93)	13,720	(18,667)	4,086	(954)
Depreciation, amortization and depletion	(359)	(6,529)		(5,028)	(11,916)
Impairment recognition		(742)	(250)	(1,686)	(2,678)
Impairment reversal		309	23	226	558
Cumulative translation adjustment	(946)	(7,467)	(4,891)	(7,598)	(20,902)
Balance at December 31, 2018	5,210	76,028	28,926	47,219	157,383
Cost	7,829	128,711	28,926	77,141	242,607
Accumulated depreciation, amortization and depletion	(2,619)	(52,683)		(29,922)	(85,224)
Balance at December 31, 2018	5,210	76,028	28,926	47,219	157,383
Weighted average useful life in years	40 (25 to 50) (except land)	20 (3 to 31)		Units of production method	

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(*) It is composed of platforms, refineries, thermoelectric power plants, natural gas processing plants, pipelines, rights of use and other operating, storage and production plants, also including exploration and production assets depreciated based on the units of production method.
(**) See note 30 for assets under construction by business area.
(***) It is composed of exploration and production assets related to wells, abandonment and dismantling of areas, signature bonuses associated to proved reserves and other costs directly associated to the exploration and production of oil and gas.
(****) It includes transfers to/from assets held for sale.

For the year ended December 31, 2018, additions to property, plant and equipment primarily relate to the development of oil and gas production in the pre-salt area, where four main new production systems started operating: FPSOs P-74 and P-75, located in the Búzios field; FPSO P-69, located in the Lula field; and FPSO Campos dos Goytacazes, located in the Tartaruga Verde field. In addition, the Company completed the first stage of production tests in the Mero field, the first field in the production sharing regime to start operating in Brazil, whose declaration of commerciality took place in 2017 (note 13.3).

In 2017, important platforms started operating in 2017, such as the FPSOs Libra Pioneer, in Mero field, and P-66, in South of Lula field, as well as the interconnection of new wells to FPSOs Cidade de Saquarema, Cidade de Maricá and Cidade de Itaguaí, in pre-salt fields of Santos basin.

At December 31, 2018, property, plant and equipment include assets under finance leases of US$ 96 (US$ 118 as of December 31, 2017).

12.2. Estimated useful life

	Buildings and improvements, equipment and other assets		
Estimated useful life	**Cost**	**Accumulated depreciation**	**Balance at 2018**
5 years or less	3,850	(2,914)	936
6 - 10 years	10,038	(6,272)	3,766
11 - 15 years	3,299	(1,515)	1,784
16 - 20 years	34,267	(13,473)	20,794

21 - 25 years	21,462	(4,733)	16,729
25 - 30 years	13,942	(4,001)	9,941
30 years or more	23,323	(6,843)	16,480
Units of production method	26,059	(15,551)	10,508
Total	136,240	(55,302)	80,938
Buildings and improvements	7,529	(2,619)	4,910
Equipment and other assets	128,711	(52,683)	76,028

12.3. Unitization Agreements

A unitization agreement occurs when a reservoir extends across two or more license or contract areas. In this case, parties pool their individual interests in return for an interest in the overall unit and determine their new equity interest in the single producing unit.

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Events that occurred prior to the individualization of production may lead to the need for compensation between the parties. These events include the monetization of production and the realization of expenses of different natures. An amount to be reimbursed by the Company will be recognized as a liability when it derives from a contractual obligation or, when the outflow of funds is deemed probable and the amount can be reliable estimated. An amount to be reimbursed to Company will be recognized as an asset only when there is a contractual right to reimbursement or when it is practically certain.

In 2018, Petrobras entered into Production Individualization Agreements (*Acordos de Individualização da Produção* - AIPs) with Pré-Sal Petróleo S.A. (PPSA) and its partners (Shell, Petrogal and Total) in certain E&P consortiums, submitting these agreements to ANP s approval. These agreements provide for the equalization of expenses and production volumes relating to Sapinhoá, Lula, Tartaruga Verde, Sururu and Berbigão fields.

Therefore, in the last quarter of 2018, a US$ 275 loss was accounted for within other income and expenses, and property, plant and equipment was written down by US$ 62.

The table below presents the effects of the agreements:

	12.31.2018
Equalization payables (*)	279
Indexation charges	2
Write-offs	(62)
Payments maid	(100)
Cumulative translation adjustments	(2)
Remaining payables	118

(*) It was accounted for within other income and expenses as set out note 26.

On December 21, 2018, the Company, Shell and Repsol reimbursed PPSA for the unitization of Sapinhoá field, The Company is the operator of this field and the amount disbursed with respect to its interest was US$ 100, according to the Agreement of Equalization of Expenses and Volumes.

12.4. Concession for exploration of oil and natural gas - Assignment Agreement (Cessão Onerosa)

Petrobras and the Brazilian Federal Government entered into the Assignment Agreement in 2010, which grants the Company 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. The agreement has a term of forty years and is renewable for a further five years subject to certain conditions. As of December 31, 2018, the Company s property, plant and equipment include the amount of US$ 19,306 related to the Assignment Agreement (US$ 22,614 as of December 31, 2017).

Petrobras has already declared commerciality in fields of all six blocks under this agreement: Franco (Búzios), Florim (Itapu), Nordeste de Tupi (Sépia), Entorno de Iara (Norte de Berbigão, Sul de Berbigão, Norte de Sururu, Sul de Sururu, Atapu), Sul de Guará (Sul de Sapinhoá) and Sul de Tupi (Sul de Lula).

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The agreement establishes that its review procedures will commence immediately after the declaration of commerciality for each area and must be based on reports by independent experts engaged by Petrobras and the ANP.

If the review of the Assignment Agreement determines that the value of acquired rights is greater than the amount initially paid, the Company may be required to pay the difference to the Brazilian Federal Government, or may proportionally reduce the total volume of barrels acquired. If the review determines that the value of the acquired rights is lower than initially paid by the Company, the Brazilian Federal Government will reimburse the Company for the difference by delivering cash or bonds or equivalent means of payment, subject to budgetary regulations.

The formal review procedures for each block are based on costs incurred over the exploration phase, and estimated costs and production for the development period. The review of the Assignment Agreement may result in renegotiation of: (i) the amount of the agreement; (ii) the total volume (in barrels of oil) to be produced; (iii) the term of the agreement; and (iv) the minimum percentages of local content.

The information gathered made possible the identification of volumes exceeding five million barrels of oil equivalent.

In November 2017, the Company set up an internal commission responsible for the negotiation with the Brazilian Federal Government, composed of representatives of the Chief Exploration and Production Officer and the Chief Financial Officer.

In January 2018, the Brazilian Federal Government established, through the Interministerial Ordinance No. 15/2018, the Interministerial Commission responsible for negotiating and concluding the terms of this review.

The negotiations are ongoing and have taken into account appraisals by independent experts engaged by both parties and their respective reports. On September 14, 2018, the Brazilian Energy Policy Council (*Conselho Nacional de Política Energética* CNPE) enacted Resolution 12/2018 recommending the Brazilian Ministry of Mines and Energy (*Ministério de Minas e Energia* MME) to send a draft of an amendment to the agreement to the Brazilian Federal Auditor s Office (*Tribunal de Contas da União* TCU) in order to make an assessment of its terms. Accordingly, this draft was sent to TCU and to the Company and the negotiations toward the end of the review will progress after TCU assessment.

The draft under review by the TCU consolidates one of several scenarios that have been discussed between the commissions. This scenario, after assessment of the TCU and approval by the parties, may result in a credit in favor of the Company. Due to the features of the review, any credit in favor of the Company will be only confirmed following an amendment to the agreement that results in a contractual right and would support the recognition of an account receivable.

The identification of the volume exceeding five million barrels of oil equivalent provides an opportunity for both parties to reach an agreement in case of compensation to the Company arising from the review. The Brazilian Energy Policy Council also recommended that the Brazilian Ministry of Mines and Energy, by means of Resolution 12/2018, send drafts of the public auction and the agreement for the bidding rounds of the exceeding volume under production-sharing regime. Aiming to support an eventual negotiation where this compensation would be paid through the right over exceeding volume, the Company completed its assessment based on reports issued by the independent experts it has engaged.

This review process of the Assignment Agreement has been monitored by the Minority Shareholders Committee, which is composed of two board members elected by the minority shareholders and by a third independent member with knowledge in technical-financial analysis of investment projects. This Committee provides support to the board s decisions through opinions about related matters.

12.5. Oil and Gas fields operated by Petrobras returned to ANP

In 2018, the following oil and gas fields were returned to ANP: Japiim, Camarão Norte, part of Espadarte and part of Sibite. These fields were returned to ANP mainly due to their economic unfeasibility and, as a consequence, the Company wrote off the amount of US$ 0.1 in addition to impairments recognized in prior years.

In 2017, the Mosquito, Siri and Saíra oil and gas fields were returned to ANP also due to economic unfeasibility. However, due to impairment losses recorded for these assets in prior years, these write-offs amounted to US$ 0.1.

In 2016 the Tiziu, Japuaçu, Rio Joanes, part of Golfinho and part of Tambuatá oil and gas fields were returned to ANP following their uneconomic feasibility and, as a consequence, the Company wrote off the amount of US$ 4 in addition to impairments recognized in prior years.

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13. Intangible assets

13.1. By class of assets

	Rights and Concessions	Software Acquired	Software Developed in-house	Goodwill	Total
Balance at January 1, 2017	2,678	68	306	220	3,272
Addition	935	16	61		1,012
Capitalized borrowing costs			4		4
Write-offs	(81)		(2)		(83)
Transfers	(1,656)	2			(1,654)
Amortization	(20)	(29)	(101)		(150)
Impairment recognition	(33)				(33)
Cumulative translation adjustment	(22)		(4)	(2)	(28)
Balance at December 31, 2017	1,801	57	264	218	2,340
Cost	2,006	496	1,225	218	3,945
Accumulated amortization	(205)	(439)	(961)		(1,605)
Balance at December 31, 2017	1,801	57	264	218	2,340
Addition	841	35	50		926
Capitalized borrowing costs			4		4
Write-offs	(15)				(15)
Transfers	(42)	6		14	(22)
Amortization	(14)	(23)	(75)		(112)
Cumulative translation adjustment	(241)	(8)	(38)	(29)	(316)
Balance at December 31, 2018	2,330	67	205	203	2,805
Cost	2,549	487	1,105	203	4,344
Accumulated amortization	(219)	(420)	(900)		(1,539)

Balance at December 31, 2018	2,330	67	205	203	2,805
Estimated useful life in years	(*)	5	5	Indefinite	

(*) Mainly composed of assets with indefinite useful lives, which are reviewed annually to determine whether events and circumstances continue to support an indefinite useful life assessment.

On March 29, 2018, the Company acquired seven offshore blocks in the fifteenth round of bids under the concession regime. The Company will be the operator in two blocks located in Campos basin, which were acquired in partnership with Exxon and Equinor. Another two blocks within Campos basin were acquired in partnership with Exxon and Qatar Petroleum and will be operated by ExxonMobil. The other three blocks are located in Potiguar basin, of which two were acquired in partnership with Shell and will be operated by the Company, and one was totally acquired by Company. The total amount of the signature bonus paid by the Company in August 2018 was US$ 559.

In 2018, the Company paid US$ 271 as signature bonus related to the production sharing contract, as set out in note 13.3.

At December 31, 2018, no impairment was identified on goodwill.

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13.2. Exploration rights returned to the Brazilian Agency of Petroleum, Natural Gas and Biofuels - Agência Nacional de Petróleo, Gás Natural e Biocombustíveis (ANP)

Exploration areas returned to the ANP in 2018, totaling US$ 6 (US$ 3 in 2017) are set out below:

Area	Exploratory phase	
	Exclusive	**Partnership**
Sergipe-Alagos basin	5	
Espirito Santo basin	2	
Barreirinhas basin	1	

13.3. Exploration rights - production sharing contract

Following the first pre-salt public auction held in October, 2013, the Libra consortium, composed of Petrobras, Shell , Total, CNPC , CNOOC and the Pré-Sal Petróleo S.A. (PPSA) as the manager of the agreement, entered into a production sharing contract with the Federal Government on December 2, 2013. The signature bonus (acquisition cost) of US$ 6,589 was paid by the consortium. The Company paid US$ 2,636 relating to its share of the acquisition cost paid by the consortium, initially recognized in its intangible assets as Rights and Concessions.

On November 30, 2017, ANP was informed about the declaration of commerciality of the Northwest area of Libra, confirming the potential of the area and its economic viability. In total, twelve wells have been drilled in Libra block, of which nine in the Northwest area. Following the declaration of commerciality, the Northwest area of Libra is now named Mero field (Campo de Mero). The results confirmed oil reservoirs at thickness of up to 410 meters with high porosity and permeability. The production tests confirmed the high productivity and oil quality of these reservoirs. Following this declaration of commerciality, US$ 1,614 was transferred to property, plant and equipment with respect to a portion of the signature bonus relating to the Northwest area of Libra

The Ministry of Mines and Energy granted to the consortium an extension of the exploration phase by 27 months to the Central and Southeast areas of the block, where new assessments will be performed to evaluate the economic viability of these areas. The portion of the signature bonus pertaining to these areas amounts to US$ 196 at December 31, 2018.

On October 27, 2017, the Company acquired three offshore blocks in the second and third rounds of bids under the production sharing regime, in partnership with Shell, British Petroleum (BP), Repsol and CNODC Brasil Petróleo e Gás. The total amount of signature bonus payed by the Company was US$ 351. The contracts were signed on January 31, 2018.

On June 7, 2018, the Company acquired three offshore blocks (*Uirapuru, Dois Irmãos and Três Marias*) in partnership with other companies through the 4th ANP Bidding Round under the production-sharing regime. The Company will be the operator of all these blocks and the total amount of the signature bonus paid by the Company in September 2018 was US$ 254.

On September 28, 2018, the Company acquired the *Sudoeste de Tartaruga Verde* block through the 5th ANP Bidding Round under the production-sharing regime. The Company offered the minimum profit oil set forth in this bidding and a bonus of US$ 17 was paid in November 2018.

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13.4. Service concession agreement - Distribution of piped natural gas

As of December 31, 2018, intangible assets include service concession agreements related to piped natural gas distribution in Brazil, in the amount of US$ 145 (US$ 171 in 2017), maturing between 2029 and 2043, which may be renewed. According to the distribution agreements, service is provided to customers in the industrial, residential, commercial, automotive, air conditioning and transport sectors, among others.

The consideration receivable is a factor of a combination of operating costs and expenses, and return on capital invested. The rates charged for gas distribution are subject to periodic reviews by the state regulatory agency.

The agreements establish an indemnity clause for investments in assets which are subject to return at the end of the service agreement, to be determined based on evaluations and appraisals.

On February 2, 2016, the state of Espírito Santo enacted Law No. 10,493/2016 under which the service concession agreements related to piped natural gas distribution are considered ineffective pursuant to Brazilian Federal Law 8,987/1995. The law states that a bidding process is required for this concession, or the establishment of a state-run company to provide this service, which would receive compensation pursuant to this law. This was appealed by the Company.

Accordingly, the Company entered into an agreement with the State of Espírito Santo, through a Memorandum of Understanding signed on August 12, 2016, aiming to evaluate the establishment of a state-run company of that state, to provide the public service of distributing piped natural gas. The evaluation is ongoing as of December 31, 2018.

This concession is accounted for as intangible assets totaling US$ 81 as of December 31, 2018 (US$ 82 as of December 31, 2017) and the Company has not recognized any provision on this matter based on indemnity established by law.

14. Impairment

The Company annually tests its assets for impairment on December 31 or when there is an indication that their carrying amount may not be recoverable. In 2018, impairment losses and reversals were primarily recognized in the last quarter reflecting assets management and updates of mid and long-term assumptions used in the recent Company s Business and Management Plan (BMP 2019-2023) concluded and approved in December 2018.

A higher estimate in decommissioning costs of E&P fields contributed significantly to the recognition of impairment losses, notably in Sergipe-Alagoas basin (Camorim, Piranema and Guaricema fields) and Campos basin (Linguado and Bicudo). However, these losses were partially offset by the effects of certain projects review, with consequent

lengthening in the expected production curve in fields located in the Santos and Espirito Santo basins, which generated reversals of impairments previously recognized.

The deterioration in the scenario of future freight prices for the Transpetro s fleet of vessels, the need to cease the operation of a single buoy mooring (Monobóia 2 - PDET), the continuous plan to withdrawal from fertilizer business and the decision to postpone for an extended period the GASFOR II project, resulting in its removal from the Natural Gas CGU in the fourth quarter of 2018, also led the company to recognize impairment losses.

The Company accounted for impairment losses for certain assets in the scope of the partnership and divestment program, mainly with respect to oil and gas production fields in Gulf of Mexico.

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The table below shows the impairment losses, net of reversals, recognized within the statement of income in 2018, 2017 and 2016:

Assets or CGU by nature (*)	Carrying amount	Recoverable amount (**)	Impairment (***)	Business segment	Comments
2018					
Property, plant and equipment and intangible assets					
Producing properties relating to oil and gas activities in Brazil (several CGUs)	7,019	9,923	524	E&P - Brazil	item (a1)
Transpetro s fleet of vessels	1,721	1,300	428	RTM - Brazil	item (b1)
Oil and gas production and drilling equipment in Brazil	199	6	197	E&P - Brazil	item (c1)
UFN III	312	200	114	RTM - Brazil	item (d1)
Producing properties relating to oil and gas activities Abroad (several CGUs)	2,258	1,554	715	E&P - Abroad	item (e1)
GASFOR II	58		59	Gas & Power - Brazil	item (f)
Comperj	46		47	RTM - Brazil	item (g1)
Second refining unit in RNEST	1,114	1,092	22	RTM - Brazil	item (h1)
Others	666	756	14	Several Segments	
			2,120		
Assets classified as held for sale					
Producing properties relating to oil and gas activities - in Riacho da Forquilha	98	459	(34)	E&P - Brazil	item 14.2
Others	25	109	(81)	Several Segments	
Total			2,005		
2017					
Property, plant and equipment and intangible assets					

Producing properties relating to oil and gas activities in Brazil (several CGUs)	11,826	16,070	(870)	E&P - Brazil	item (a2)
Second refining unit in RNEST	1,716	1,261	464	RTM - Brazil	item (h2)
Fertilizer Plants	412		412	Gas & Power - Brazil	item (j)
Oil and gas production and drilling equipment in Brazil	360	4	363	E&P - Brazil	item (c2)
Producing properties relating to oil and gas activities Abroad (several CGUs)	215	89	128	E&P - Abroad	item (e2)
Panamax vessels - Transpetro	112		112	RTM - Brazil	item (k)
Araucária	70		70	Gas & Power - Brazil	item (l1)
Comperj	51		51	RTM - Brazil	item (g2)
Conecta and DGM	38		38	Distribution - Abroad	item (i)
Others	1,863	1,797	68	Several Segments	
			836		
Assets classified as held for sale					
Producing properties relating to oil and gas activities in Roncador	3,164	2,766	405	E&P - Brazil	item 14.2
Others	317	366	(50)	Several Segments	
Total			1,191		

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Assets or CGU by nature (*)	Carrying amount	Recoverable amount (**)	Impairment (***)	Business segment	Comments 2016
Producing properties relating to oil and gas activities in Brazil (several CGUs)	12,788	10,718	2,268	E&P - Brazil	item (a3)
Oil and gas production and drilling equipment in Brazil	918	64	854	E&P - Brazil	item (c3)
Second refining unit in RNEST	2,488	1,708	780	RTM - Brazil	item (h3)
Suape Petrochemical Complex	1,099	480	619	RTM - Brazil	item (m)
Comperj	403		403	RTM - Brazil	item (g3)
Transpetro s fleet of vessels	1,793	1,549	244	RTM - Brazil	item (b2)
Fertilizer Plant - UFN III	523	370	153	Gas & Power - Brazil	Item (d2) (d1)
Araucária (fertilizers plant)	197	57	140	Gas & Power - Brazil	item (l2)
Quixada Power plant	28		28	Biofuel, Brazil	
Others	614	424	148	Several Segments	
			5,637		
Assets classified as held for sale					item 14.2
Suape Petrochemical Complex	816	381	435	RTM - Brazil	
Petrobras Chile Distribución	546	464	82	Distribution - Abroad	
Power Plants Celso Furtado and Rômulo Almeida	120	72	47	RTM - Brazil	
Others	96	104	(8)	Several Segments	

	556
Total	6,193

(*) It only includes carrying amounts and recoverable amounts of impaired assets or asses for which reversals were recognized.

(**) The recoverable amounts of assets for impairment computation were their value in use, except for oil and gas production and drilling equipment that were based on their fair value.

(***) Reversals are presented in brackets.

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14.1. Impairment of property, plant and equipment and intangible assets

For impairment testing purposes, the Company bases its cash flow projections on:

The estimated useful life of the asset or assets grouped into the CGU, based on the expected use of those assets, considering the Company s maintenance policy;

Assumptions and financial budgets/forecasts approved by management for the period corresponding to the expected life cycle of each different business; and

A pre-tax discount rate derived from the Company s post-tax weighted average cost of capital (WACC).

Information on key assumptions for impairment testing and the definition of Company s CGUs are presented in notes 5.2 and 5.3, respectively. Management assumptions and judgements, which are based on the Company s business and management model, are required on these matters.

The cash flow projections used to measure the value in use of the CGUs in 2018 were mainly based on the following estimates of key assumptions for impairment testing:

For comparative purposes, estimates of key assumptions for impairment testing in 2018, 2017 and 2016 are shown below:

2018

	2019	2020	2021	2022	2023	Long term Average
Average Brent (US$/bbl)	66	67	72	75	75	73
Average Brazilian Real (excluding inflation) - Real /U.S. dollar exchange rate	3.64	3.56	3.5	3.46	3.44	3.37

2017

	2018	2019	2020	2021	2022	Long term Average
Average Brent (US$/bbl)	53	58	66	70	73	71
Average Brazilian Real (excluding inflation) - Real /U.S. dollar exchange rate	3.44	3.47	3.47	3.46	3.49	3.4

2016

	2017	2018	2019	2020	2021	Long term Average
Average Brent (US$/bbl)	48	56	68	71	71	70
Average Brazilian Real (excluding inflation) - Real /U.S. dollar exchange rate	3.46	3.54	3.48	3.42	3.38	3.36

Information on the main impairment losses and reversals of property, plant and equipment and intangible assets are described below:

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a1) Producing properties in Brazil 2018

Impairment assessment for producing properties in Brazil under the concession regime for oil and gas resulted in a net reversal of impairment losses of US$ 524. Cash flow projections were based on financial budgets/forecasts approved by management and the post-tax discount rates (excluding inflation) derived from the WACC for the E&P business of 7.4% p.a. at December 31, 2018. This amount comprises:

Impairment losses totaling US$ 1,054 primarily related to CGUs Camorim (US$ 140), Linguado (US$ 139), Piranema (US$ 93), Guaricema (US$ 92), Juruá (US$ 91), Bicudo (US$ 83), Caioba (US$ 61), Pper-1 group (US$ 49), Garoupinha (US$ 39), Frade (US$ 39), Castanhal (US$ 36) and Papa Terra (US$ 35). These losses were substantially due to higher estimates of future decommissioning costs driven by costs related to subsea facilities and equipment and depreciation of the Brazilian real against the U.S. dollar.

Reversals of impairment totaling US$ 530 primarily from the CGUs Cvit group (US$ 158), Uruguá group (US$ 151), Ceará Mar group (US$ 50), Dom João (US$ 23), Miranga group (US$ 16), Fazenda Belém group (US$ 13) and Bijupirá-Salema group (US$ 13), due to upward revision in the estimated production curves following a review of certain projects investments, as set out in the BMP 2019-2023.

a2) Producing properties in Brazil 2017

Impairment assessment for producing properties in Brazil under the concession regime for oil and gas resulted in a net reversal of impairment losses of US$ 870. Cash flow projections were based on financial budgets/forecasts approved by management and the post-tax discount rates (excluding inflation) derived from the WACC for the E&P business of 7.6% p.a. at December 31, 2017. This amount comprises:

Reversals of impairment totaling US$ 1,733 primarily from North group (US$ 912), *Espadarte and Papa-Terra* fields (US$ 125 and US$ 122), *Uruguá* group (US$ 100), *Pampo* field (US$ 91), *Fazenda Alegre* group (US$ 45), *Cidade de São Mateus* group (US$ 44), *Riachuelo* field (US$ 40), *Fazenda Imbé* group (US$ 28), *Fazenda Bálsamo* field (US$ 26), *Peroá* group (US$ 25), *São Mateus* group (US$ 19) and *Riacho da Forquilha* field (US$ 18). These reversals substantially reflected the lower post-tax real discount rate, the approval of investments in enhancing recovery of mature fields and the lower tax burden set forth in the new tax rules applicable to the oil and gas industry (see note 21.4).

Impairment losses totaling US$ 863 mainly related to CGUs *Piranema* (US$ 227), *Salgo* (US$ 104) *Ceara Mar* group (US$ 95), Cvit group (US$ 63), *Miranga* group (US$59), *Fazenda* Belém group (US$ 49), *Frade* (US$ 40) *Dom João* (US$ 27) and *Candeias* (US$ 18). These losses were 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 these areas.

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a2) Producing properties in Brazil 2016

Impairment losses of US$ 2,268 were recognized for certain oil and gas fields in Brazil under E&P concessions. Cash flow projections were based on: financial budgets/forecasts approved by Management and the post-tax discount rates (excluding inflation) derived from the WACC for the E&P business of 9.1% p.a. at December 31, 2016. The impairment losses were related primarily to the following fields and groups of fields: North group (US$ 1,178), *Ceará Mar* Group (US$ 210), *Guaricema* (US$ 126), *Dourado* (US$ 88), *Maromba* (US$ 86), *Bijupirá* and *Salema* (US$ 82), *Papa-Terra* (US$ 72), *Trilha* (US$ 69), *Uruguá* group (US$ 62), *Pampo* (US$ 67), *Frade* (US$ 65), *Badejo* (US$ 56), *Bicudo* (US$ 49), *Riachuelo* (US$ 44), *Fazenda Bálsamo* (US$ 41) and *Água Grande* group (US$ 31). These impairment losses were mainly due to the appreciation of the Brazilian Real against the U.S. Dollar, price assumptions review, Company s annual reviews of oil and gas reserves and decommissioning cost estimates, as well a higher discount rate following the increase in Brazil s risk premium. In addition, an impairment reversal relating to *Centro Sul* group, amounting to US$ 415, was recognized due to increased estimate of reserves and production, as well as lower operating expenses estimates based on a review of its fields operations, as set forth in 2017-2021 BMP, considering the decommissioning of a unit which had high operational costs and replacing another unit with an investment in a new processing plant which was committed to during the third quarter of 2016.

b1) Transpetro s fleet of vessels 2018

The lower freight rates projected in PNG 2019-2023 significantly affected impairment assessment of the Transpetro s fleet of vessels, resulting in the recognition of impairment losses in the amount of US$ 428 in 2018. The post-tax discount rates (excluding inflation) applied to the transportation sector ranged from 3.8% p.a. to 6.6% p.a.

b2) Transpetro s fleet of vessels - 2016

In 2016, an impairment loss of US$ 244 was recognized for Transpetro s fleet of vessels. Cash flow projections were based on: financial budgets/forecasts approved by Management; and post-tax discount rates (excluding inflation) ranging from 4.53% p.a. to 9.97% p.a. (3.92% p.a. to 8.92% p.a. in 2015) derived from the WACC for the transportation industry, considering financial leverage and the respective tax benefits. The impairment loss recognized in the third quarter mainly relates to a group of support vessels of Hidrovias project that were removed from this CGU due to the postponements and suspension of constructions projects, as well as the use of a higher discount rate. In the last quarter of 2016, additional impairment charges were accounted for due to the commencement of construction on 5 vessels after securing the projects funding, which avoided the possibility of future claims by alleging breach of contracts, as well as a further increase in discount rate.

c1) Oil and gas production and drilling equipment in Brazil 2018

In 2018, impairment losses for oil and gas production and drilling equipment in Brazil that were not directly related to oil and gas producing properties amounted to US$ 197, as a result of: i) ceased operation of the single buoy mooring Monobóia 2 PDET (US$ 172); ii) lower fair value of certain equipment related to the FPSO P-72 and P- 73 that could not be committed to other projects, when compared to their carrying amount (US$ 24).

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c2) Oil and gas production and drilling equipment in Brazil 2017

In 2017, impairment losses amounted to US$ 363 as a result of: i) lower fair value of certain equipment related to the FPSO P-72 and P- 73 that could not be committed to other projects, when compared to their carrying amount (US$ 127); ii) decommissioning of a crane and launch ferry (US$ 114) and iii) hibernation of equipment of Inhaúma Shipyard excluded from the initial scope of Inhauma logistic center (US$ 125).

c3) Oil and gas production and drilling equipment in Brazil 2016

Impairment losses of US$ 854 were recognized for oil and gas production and drilling equipment which were not directly related to oil and gas producing properties. Cash flow projections were based on: financial budgets/forecasts approved by Management; and an 9.9% p.a. post-tax discount rate (excluding inflation) derived from the WACC for the oil and gas services and equipment industry. These impairment losses were mainly related to uncertainties over the ongoing hulls construction of the FPSOs P-71, P-72 and P-73, amounting to US$ 593 as set out in note 14.4.

d1) Fertilizer Plant - UFN III 2018

An impairment loss of US$ 114 was recognized for the fertilizer plant UFN III (*Unidade de Fertilizantes e Nitrogenados* III) due to its lower fair value.

d2) Fertilizer Plant - UFN III - 2016

An impairment loss of US$ 153 was recognized in 2016. Cash flow projections were based on: financial budgets/forecasts approved by Management; and an 8.3% p.a. post-tax discount rate (excluding inflation) derived from the WACC for the fertilizer business, reflecting a specific risk premium for the postponed projects. This impairment loss mainly relates to: (i) the use of a higher discount rate, (ii) the appreciation of the Brazilian Real against the US Dollar.

e1) Producing properties abroad 2018

The Company recognized an impairment loss in the amount of US$ 715 with respect to producing properties of oil and gas activities in the Gulf of Mexico. The impairment loss was primarily driven by changes in operational assumptions and discount rate considering the terms of the agreement between the Company and Murphy Oil Corporation in order to establish a joint venture through such assets.

e2) Producing properties abroad 2017

In 2017, impairment losses of US$ 128 were recognized for E&P assets located in the United States, principally reflecting the expected cessation of production and definitive abandonment of operation in Hadrian South field. Cash flow projection were based on: financial budgets/forecasts approved by Management; 5.7% p.a. post-tax real discount rate (5.5% p.a. in 2016) derived from the WACC for the E&P business in United States.

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f) GASFOR II 2018

Management decided to halt the development of the GASFOR II project, carried out by TAG, for an extended period. Accordingly, this asset was excluded from the Natural Gas CGU and its impairment test was performed separately. Due to its halt, it is not possible to estimate future cash flows arising from the use of this asset, resulting in the recognition of impairment losses in the amount equal to the carrying amount thereof (US 59).

g1) Comperj - 2018

As set forth in BMP 2019-2023, the resumption of the Comperj 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) are in progress as the facilities are part of the infrastructure for transporting and processing natural gas from the pre-salt layer in the Santos Basin. Nevertheless, due to the interdependence between such infrastructure and Comperj first refining unit, the Company recognized additional impairment charges, totaling US$ 47 in 2018.

g2) Comperj - 2017

In 2017, the resumption of the Comperj project was still depending on new partnerships. Accordingly, due to the same aforementioned reasons, the Company recognized impairment charges, in 2017, totaling US$ 51.

g3) Comperj - 2016

Following a reassessment of COMPERJ project in the second quarter of 2016 confirming the postponement of its first refining unit until December 2020, with continuous efforts to seek new partnerships to resume the project, the Company recognized an impairment charge on the remaining balance of this project (US$ 403) in 2016.

h1) Second refining unit in RNEST 2018

The impairment assessment over the Second refining unit in RNEST resulted in the recognition an impairment loss amounting toUS$ 22, as its start-up was postponed by five months. The real discount rate applied was 7.3% p.a. post-tax discount rate derived from the WACC for the refining business, reflecting a specific risk premium for the postponed project.

h2) Second refining unit in RNEST - 2017

An impairment loss of US$ 464 was recognized for the second refining unit in RNEST. Cash flow projections were based on: financial budgets/forecasts approved by Management; and an 7.7% p.a. post-tax discount rate (excluding

inflation) derived from the WACC for the refining business, reflecting a specific risk premium for the postponed project. The impairment loss was mainly attributable to: (i) higher costs of raw materials and ii) lower refining margin, as set forth in BMP 2018-2022.

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h3) Second refining unit in RNEST - 2016

An impairment loss of US$ 780 was recognized for the second refining unit in RNEST. Cash flow projections were based on: financial budgets/forecasts approved by Management; and an 8.7% p.a. (8.1% p.a. in 2015) post-tax discount rate (excluding inflation) derived from the WACC for the refining business, reflecting a specific risk premium for the postponed project. The impairment loss was mainly attributable to: (i) the use of a higher discount rate and (ii) a delay in expected future cash inflows to 2023 resulting from postponing the project, considering the completion of this project with the Company s own capital resources as set forth in the 2017-2021 Business and Management Plan.

i) Conecta and DGM 2017

Following prices forecast and current agreements of natural gas supply in Uruguay, the Company recognized impairment losses for intangible assets and property, plant and equipment, in the amount of US$ 38, with respect to concession agreements for natural gas distribution carried out by the subsidiaries Conecta and DGM.

j) Fertilizer Plants - 2017

The Company decided to halt its operations in the fertilizer plants Camaçari-BA (FAFEN-BA) and Laranjeiras-SE (FAFEN-SE), following its plans to optimize its investment portfolio as set out in BMP 2018-2022, thereby, being removed from the Gas & Power CGU, assessed for impairment separately and their cash flow projections for the period covered by the BMP 2018-2022 were not able to be estimated. Accordingly, an impairment loss amounting to US$ 412 was recognized in 2017 with respect to these fertilizer plants.

k) Panamax vessels Transpetro - 2017

In December 2017, the decision to hibernate the construction of three vessels of PANAMAX project (EI-512, EI-513 and EI-514) triggered their removal from the Transpetro s fleet of vessels CGU. These assets were assessed for impairment separately and, as a result, the Company accounted for an impairment loss for the total carrying amounts of these assets (US$ 112).

l1) Araucária - 2017

Indications of impairment were identified during this period, such as lower sales volume and prices, as well as higher production costs. Therefore, the Company assessed the related assets for impairment and, as a result, an impairment charge of US$ 70 was recognized primarily in the second quarter of 2017 due to negative cash flow projections that were based on financial budget and forecasts approved by the 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.

l2) Araucária - 2016

An impairment loss of US$ 140 was recognized for *Araucária Nitrogenados S.A*. Cash flow projections were based on: financial budgets/forecasts approved by Management; and a 7.8% p.a. post-tax discount rate (excluding inflation) derived from the WACC for the fertilizer business (6.6% p.a. in 2015). The impairment loss was mainly attributable to (i) the use of a higher discount rate, (ii) the appreciation of Brazilian Real against the U.S. Dollar and (iii) an increase in estimated production costs.

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m) Suape Petrochemical Complex - 2016

An impairment loss of US$ 619 was recognized for Companhia Integrada Têxtil de Pernambuco S.A. - CITEPE and *Companhia Petroquímica de Pernambuco S.A. PetroquímicaSuape* at September 30, 2016. Cash flow projections were based on: financial budgets/forecasts approved by Management; and a 7.5% p.a. post-tax discount rate (excluding inflation) derived from the WACC for the petrochemical business. The impairment loss was mainly attributable to lower market projections and the appreciation of Brazilian real against the U.S. dollar. Following the disposal of Suape Petrochemical Complex in December 2016, the Company recognized an additional impairment charge as set out in note 14.2.

14.1.1. Assets most sensitive to future impairment

As set out in note 4.10, whenever the recoverable amount of an asset or CGU falls below the carrying amount, an impairment loss is recognized to reduce the carrying amount to the recoverable amount. The following table presents the assets and CGU most sensitive to future impairment losses as their recoverable amounts were close to their current carrying amount. Changes in material assumptions for impairment testing may result in the recognition of additional impairment charges on such assets in future periods.

		12.31.2018		
	Business segment	**Carrying amount**	**Recoverable amount**	**Sensitivity (*)**
Producing properties relating to oil and gas activities in Brazil (3 CGUs)	E&P	305	337	(7)

(*) It is based on a 10% reduction in the recoverable amount of CGUs.

For information on the main assumptions for impairment testing, see note 5.2.

14.2. Assets classified as held for sale

Following the Company s Board of Director approvals of disposal of certain assets in 2018, as described in note 10, impairment reversals amounting to US$ 115 for assets held for sale, including the effects arising from the sale of onshore producing fields located in Potiguar basin.

In 2017, impairment losses amounting to US$ 355 on assets held for sale were primarily attributable to the sale of 25% interest in Roncador field.

In 2016, the Company recognized impairment losses amounting to US$ 556 due to certain sales of interests in investees approved by the Board of Directors, mainly related to Suape Petrochemical Complex (US$ 435), Petrobras Chile Distribución (US$ 82) and Power plants *Romulo Almeida and Celso Furtado* (US$ 47).

14.3. Investments in associates and joint ventures (including goodwill)

Value in use is generally used for impairment test of investments in associates and joint ventures (including goodwill). The basis for estimates of cash flow projections includes: projections covering a period of 5 to 12 years, zero-growth rate perpetuity, budgets, forecasts and assumptions approved by management and a pre-tax discount rate derived from the WACC or the Capital Asset Pricing Model (CAPM), when applicable.

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14.3.1. Investment in publicly traded associate (Braskem S.A.)

Braskem s shares are publicly traded on stock exchanges in Brazil and abroad. As of December 31, 2018, the quoted market value of the Company s investment in Braskem was US$ 3,421 based on the quoted values of both Petrobras interest in Braskem s common stock (47% of the outstanding shares), and preferred stock (22% of the outstanding shares). However, there is extremely limited trading of the common shares, since non-signatories of the shareholders agreement hold only approximately 3% of the common shares.

Given the operational relationship between Petrobras and Braskem, the recoverable amount of the investment for impairment testing purposes was determined based on value in use, considering future cash flow projections and the manner in which the Company can derive value from this investment via dividends and other distributions to arrive at its value in use. As the recoverable amount was higher than the carrying amount, no impairment losses were recognized for this investment.

Cash flow projections to determine the value in use of Braskem were based on the following key assumptions:

Estimated average exchange rate of R$ 3.64 to U.S.$1.00 in 2019 (converging to R$ 3.37 in the long run);

Average Brent crude oil price at US$ 66 in 2019, converging to US$ 73 in the long run;

Prices of feedstock and petrochemical products reflecting projected international prices;

Petrochemical products sales volume estimates reflecting projected Brazilian and global G.D.P growth;

Post-tax real discount rate (excluding inflation) of 9.6%p.a (same rate in 2017); and

Increases in the EBITDA margin during the growth cycle of the petrochemical industry in the next years and declining in the long run.

14.3.2. Investments in state-controlled natural gas distributors

In 2018, impairment assessments on investments in state-controlled natural gas distributors did not give rise to any indication that these assets would be impaired. Post-tax real discount rate (excluding inflation) used in such assessment was 5.8% p.a (5.9% p.a in 2017).

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14.3.3. Impairment losses on equity-method investments

In 2018, the Company accounted for a US$ 28 reversal of impairment losses previously recognized as results in equity-accounted investments, substantially attributable to POGBV and Riograndense refinery (RPR).

In 2017, the Company accounted for US$ 20 as results in equity-accounted investments, substantially attributable to the investees Logum, Belém Bioenergia Brasil and Refinaria de Petróleo Riograndense.

In 2016, impairment losses on equity-method investments in the amount of US$ 182 were substantially attributable to investees of biofuels segment, notably the former associate Guarani (US$ 178) and the former joint venture Nova Fronteira (US$ 30).

14.4. Construction of platform hulls by Ecovix and Enseada shipyards

The Company entered into contracts with the suppliers Ecovix-Engevix Construções Oceânicas S.A and Enseada Industria Naval S.A. for supplying eight hulls for the FPSOs P-66 to P-73 and for hulls conversion of four FPSOs (P-74 to P-77), respectively.

Considering the relevance of these assets in the context of the Business and Management Plan and due to the financial difficulties faced by the suppliers, escrow accounts relating to these projects were created in the last quarter of 2015 in order to ensure the ongoing performance of the services hired.

These escrow accounts have comprised funds transferred in advance for payments to be made by the shipyards, restricted to the scope of the contracts and limited to their total balance. The deposits would be offset to the extent that services rendered or equipment delivered, with the remaining balance being reimbursed. This strategy was considered effective as the projects achieved significant progress up to September 2016, enabling the delivery of P-67 hull to a shipyard in China for integration services, the recommence of the work in progress of P-69 hull also in China, the continuity of the work in progress of P-68 hull in Rio Grande shipyard, as well as the progress on priority activities for the conclusion of minimum scope of P-74 and P-76 hulls, delivering these units to shipyards in China for integration services and for setting up topsides.

During the third quarter of 2016, the Company reassessed the progress of the hulls project and the continuity of the escrow accounts related to the projects and concluded that this strategy, which in its beginning avoided the work in progress discontinuation, was not as effective as it was previously.

Due to uncertainties regarding the FPSOs P-71, P-72 and P-73 hulls construction continuity after significant delays on projects progress, the Company recognized, in the third quarter of 2016, impairment charges amounting to US$ 593 as

set out in note 14.1.

Based on management evaluation, in 2016 the Company recognized allowances for impairment amounting to US$ 689 within other expenses, net with respect to the remaining balance of advances to these suppliers in the context of the escrow accounts (US$ 352) and debts assumption relating to Ecovix and Enseada (US$ 337), in which legal procedures to recover them are being assessed.

In addition, the Company wrote-off, in 2016, capital expenditures related to the right of use the Rio Grande shipyard in the amount of US$ 155, as well as other investments related to the P-71, P-72 and P-73 amounting to US$ 146.

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15. Exploration and evaluation of oil and gas reserves

The exploration and evaluation activities include the search for oil and gas reserves from obtaining the legal rights to explore a specific area to the declaration of the technical and commercial viability of the reserves.

Changes in the balances of capitalized costs directly associated with exploratory wells pending determination of proved reserves and the balance of amounts paid for obtaining rights and concessions for exploration of oil and natural gas (capitalized acquisition costs) are set out in the following table:

Capitalized Exploratory Well Costs / Capitalized Acquisition Costs (*)	**12.31.2018**	**12.31.2017**
Property plant and equipment		
Opening Balance	4,522	5,133
Additions to capitalized costs pending determination of proved reserves	379	797
Capitalized exploratory costs charged to expense	(10)	(107)
Transfers upon recognition of proved reserves	(95)	(1,227)
Cumulative translation adjustment	(664)	(74)
Closing Balance	4,132	4,522
Intangible Assets	1,980	1,390
Capitalized Exploratory Well Costs / Capitalized Acquisition Costs	6,112	5,912

(*) Amounts capitalized and subsequently expensed in the same period have been excluded from this table.

For detailed information about signature bonus paid and declaration of commerciality in 2018, see note 13.

Exploration costs recognized in the statement of income and cash used in oil and gas exploration and evaluation activities are set out in the following table:

	2018	2017	2016
Exploration costs recognized in the statement of income			
Geological and geophysical expenses	330	361	371
Exploration expenditures written off (includes dry wells and signature bonuses)	87	279	1,281
Contractual penalties	91	152	46
Other exploration expenses	16	8	63
Total expenses	524	800	1,761

Cash used in :	**2018**	**2017**	**2016**
Operating activities	346	371	435
Investment activities	1,273	1,794	1,075
Total cash used	1,619	2,165	1,510

For the year ended December 31, 2018, the Company recognized a provision in the amount of US$ 91 arising from potential contractual penalties for non-compliance with minimum percentages of local content in 131 blocks for which the exploratory phases were concluded.

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15.1. Aging of Capitalized Exploratory Well Costs

The following tables set out the amounts of exploratory well costs that have been capitalized for a period of one year or more after the completion of drilling, the number of projects whose costs have been capitalized for a period greater than one year, and an aging of those amounts by year (including the number of wells relating to those costs):

Aging of capitalized exploratory well costs (*)	2018	2017
Exploratory well costs capitalized for a period of one year	85	111
Exploratory well costs capitalized for a period greater than one year	4,047	4,411
Total capitalized exploratory well costs	4,132	4,522
Number of projects relating to exploratory well costs capitalized for a period greater than one year	49	54

	Capitalized costs (2018)	Number of wells
2017	52	2
2016	288	4
2015	806	16
2014	1,041	16
2013 and previous years	1,860	36
Exploratory well costs that have been capitalized for a period greater than one year	4,047	74

(*) Amounts paid for obtaining rights and concessions for exploration of oil and gas (capitalized acquisition costs) are not included.

Exploratory well costs that have been capitalized for a period greater than one year since the completion of drilling amount to US$ 4,047. Those costs relate to 49 projects comprising (i) US$3,834 for wells in areas in which there has been ongoing drilling or firmly planned drilling activities in the near term and for which an evaluation plan (*Plano de Avaliação*) has been submitted for approval by ANP; and (ii) US$213 relate to costs incurred to evaluate the reserves

and their potential development.

16. Trade payables

	12.31.2018	12.31.2017
Third parties in Brazil	4,008	3,671
Third parties abroad	1,572	1,380
Related parties	747	716
Balance in current liabilities	6,327	5,767

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In 2018, there was an increase in trade payables in Brazil due to a rise in oil purchases, following a higher supply of crude oil produced by third parties in Brazil, as well as due to the new production individualization agreements. The increase in trade payables abroad primarily reflects higher international prices and a rise in imports of oil, oil products, natural gas and NGL.

17. Finance debt

17.1. Balance by type of finance debt

	12.31.2018	12.31.2017
In Brazil		
Banking Market	9,576	12,672
Capital Market	3,320	3,649
Development banks	3,346	5,571
Others	9	38
Total	16,251	21,930
Abroad		
Banking Market	24,124	31,265
Capital Market	39,627	51,912
Development banks	41	
Export Credit Agency	3,881	3,670
Others	251	269
Total	67,924	87,116
Total finance debt	84,175	109,046
Current	3,667	7,001
Non-current	80,508	102,045

In order to reflect the changes in accounting practices arising from the application of IFRS 9, the Company remeasured its financing agreements in force at January 1, 2018 which previously had their contractual clauses

renegotiated and the modifications thereof did not result in substantial changes, as set out in note 2.3.1. Accordingly, the balance of current and non-current debt increased by US$242 due to the initial application of IFRS 9, which was recognized within equity at January 1, 2018.

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17.2. Changes in finance debt and reconciliation with cash flows from financing activities

	Balance at 12.31.2016	Adoption of IFRS 9	Additions	Principal amortization (*)	Interest amortization (*)	Accrued interest (**)	Foreign exchange, inflation indexation charges	Cumulative translation adjustment (CTA)	Modification of contractual cash flows	Balance at 12.31.2017
In Brazil	25,921		6,801	(10,641)	(2,286)	2,296	114	(275)		21,930
Abroad	92,205		18,788	(25,489)	(4,251)	4,851	1,057	(45)		87,116
	118,126		25,589	(36,130)	(6,537)	7,147	1,171	(320)		109,046

	Balance at 12.31.2017	Adoption of IFRS 9	Additions	Principal amortization (*)	Interest amortization (*)	Accrued interest (**)	Foreign exchange, inflation indexation charges	Cumulative translation adjustment (CTA)	Modification of contractual cash flows	Balance at 12.31.2018
In Brazil	21,930	65	2,442	(5,451)	(1,220)	1,338	27	(2,880)		16,251
Abroad	87,116	177	8,644	(27,988)	(4,465)	4,400	1,409	(1,357)	(12)	67,924
	109,046	242	11,086	(33,439)	(5,685)	5,738	1,436	(4,237)	(12)	84,175
Reconciliation to the Statement of Cash Flows										
PP&E on credit			(136)							
Debt restructuring				(635)						
Deposits linked to financing					(106)					
Finance leases				11						
Net cash used in financing activities			10,950	(34,063)	(5,791)					

(*) It includes pre-payments.
(**) It includes premium and discount over notional amounts, as well as gains and losses by modifications in contractual cash flows.

In line with the Company s Business and Management Plan and following its liability management strategy, recent funds have been raised in order to settle older debts, as well as aiming at improving the debt repayment profile taking into account its alignment with investments returns over the long run.

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For the year ended December 31, 2018, proceeds from financing amounted to US$10,950 , principally reflecting: (i) funds raised from the domestic and international banking market in the amount of US$ 7,513 maturing from 4.5 to 6.5 years; (ii) global notes issued in the capital market in the amount of US$ 1,962 and maturing in 2029; and (iii) proceeds from Export Credit Agency amounting to US$ 1,041.

In addition, the Company repaid several finance debts, notably: (i) US$ 13,943 relating to repurchase of global bonds previously issued by the Company in the capital market, with net premium paid to bond holders amounting to US$ 329; and (ii) pre-payment of banking loans in the domestic and international market totaling US$ 15,480; and (iii) pre-payment of US$ 1,356 with respect to financings with the Brazilian Development Bank (*Banco Nacional de Desenvolvimento Econômico e Social* BNDES).

17.3. Summarized information on current and non-current finance debt

Maturity in	2019	2020	2021	2022	2023	2024 onwards	Total (**)	Fair value
Financing in U.S.Dollars (US$)(*):	2,100	1,538	4,598	5,726	9,274	39,189	62,425	64,763
Floating rate debt	1,359	1,473	2,526	4,358	6,175	12,550	28,441	
Fixed rate debt	741	65	2,072	1,368	3,099	26,639	33,984	
Average interest rate	5.4%	5.9%	5.8%	5.7%	5.7%	6.5%	6.2%	
Financing in Brazilian Reais (R$):	1,380	2,164	2,090	3,906	2,160	4,308	16,008	14,621
Floating rate debt	919	1,916	1,835	3,576	1,932	3,104	13,282	
Fixed rate debt	461	248	255	330	228	1,204	2,726	
Average interest rate	6.1%	6.1%	6.7%	6.5%	6.7%	5.9%	6.3%	
Financing in Euro ( ):	124	219	324	685	517	1,649	3,518	4,258
Floating rate debt	1	174					175	
Fixed rate debt	123	45	324	685	517	1,649	3,343	
Average interest rate	4.5%	4.6%	4.8%	4.9%	4.6%	4.6%	4.7%	

Financing in Pound Sterling (£):	58					2,161	2,219	2,282
Fixed rate debt	58					2,161	2,219	
Average interest rate	5.9%					6.3%	6.2%	
Financing in other currencies:	5						5	5
Floating rate debt								
Fixed rate debt	5						5	
Average interest rate	9.9%						9.9%	
Total as of December 31, 2018	3,667	3,921	7,012	10,317	11,951	47,307	84,175	85,929
Average interest rate	5.5%	5.9%	5.9%	5.8%	5.8%	6.4%	6.1%	
Total as of December 31, 2017	7,001	6,476	9,641	12,745	18,014	55,169	109,046	116,621
Average interest rate	5.6%	5.9%	5.9%	5.9%	5.7%	6.4%	6.1%	

(*) Includes debt raised in Brazil (in Brazilian reais) indexed to the U.S. dollar.

(**) The average maturity of outstanding debt as of December 31, 2018 is 9.14 years (8.62 years as of December 31, 2017).

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The fair value of the Company s finance debts is mainly determined and categorized into a fair value hierarchy as follows:

Level 1- quoted prices in active markets for identical liabilities, when applicable, amounting to US$ 39,057 as of December 31, 2018 (US$ 54,248 as of December 31, 2017); and

Level 2 discounted cash flows based on discount rate determined by interpolating spot rates considering financing debts indexes proxies, taking into account their currencies and also Petrobras credit risk, amounting to US$ 46,872 as of December 31, 2018 (US$ 62,373 as of December 31, 2017).

The sensitivity analysis for financial instruments subject to foreign exchange variation is set out in note 34.2.

17.4. Capitalization rate used to determine the amount of borrowing costs eligible for capitalization

The capitalization rate used to determine the amount of borrowing costs eligible for capitalization was the weighted average of the borrowing costs applicable to the borrowings that were outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. For the year ended December 31, 2018, the capitalization rate was 6.35% p.a. (6.16% p.a. for the year ended December 31, 2017).

17.5. Lines of credit

Company	Financial institution	Date	Maturity	Amount Available (Lines of Credit)	Used	Balance
Abroad						
PGT BV	CHINA EXIM	10/24/2016	5/23/2019	1,000	900	100
PGT BV	Syndicate of banks	3/7/2018	2/7/2023	4,350		4,350
PGT BV	Credit Agricole Corporate	4/12/2018	6/20/2019	400	222	178
Petrobras	New Development Bank	8/27/2018	8/27/2022	200	40	160
Total				5,950	1,162	4,788

In Brazil						
Petrobras	Banco do Brasil	3/23/2018	1/26/2023	516		516
Petrobras	Bradesco	6/1/2018	5/31/2023	516		516
Petrobras	Banco do Brasil	10/4/2018	9/5/2025	516		516
Transpetro	BNDES	11/7/2008	8/12/2041	117	53	64
Transpetro	Caixa Econômica Federal	11/23/2010	Not defined	85		85
Total				1,750	53	1,697

In the year ended December 31, 2018, the Company entered into a revolving credit facility (RCF) with a syndicate of 17 banks and also entered into three lines of credits: two with Banco do Brasil and one with Bradesco Bank. The Company can promptly access these funds at any moment until their maturities.

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17.6. Covenants and Collateral

17.6.1. Covenants

The Company has covenants that were not in default at December 31, 2018 in its loan agreements and notes issued in the capital markets requiring, among other obligations i) the presentation of interim financial statements within 90 days of the end of each quarter (not reviewed by Independent Registered Public Accounting Firm) and audited financial statements within 120 days of the end of each fiscal year, with a grace period ranging from 30 to 60 days, depending on the agreement; ii) Negative Pledge / Permitted Liens clause; iii) clauses of compliance with the laws, rules and regulations applicable to the conduct of its business including (but not limited to) environmental laws; (iv) clauses in financing agreements that require both the borrower and the guarantor to conduct their business in compliance with anti-corruption laws and anti-money laundering laws and to institute and maintain policies necessary for such compliance; (v) clauses in financing agreements that restrict relations with entities or even countries sanctioned primarily by the United States (including, but not limited to, the Office of Foreign Assets Control (OFAC), Department of State and Department of Commerce), the European Union and United Nations; and vi) covenants with respect to debt level in some of its loan agreements with the Brazilian Development Bank (Banco Nacional de Desenvolvimento Econômico e Social - BNDES).

17.6.2. Collateral

Most of the Company s debt is unsecured, but certain specific funding instruments to promote economic development are collateralized.

Financing agreements with China Development Bank (CDB) maturing in 2026 and 2027 are also collateralized based on future oil exports for specific buyers limited to 200 thousand barrels per day up to 2019, 300 thousand barrels per day from 2020 to 2026, and 100 thousand barrels per day in 2027. This collateral may not exceed the amount of the related debt (US$ 10,020 at December 31, 2018 and US$ 10,815 at December 31, 2017).

On January 30, 2018, the Company pre-paid the balance of a financing agreement maturing in 2019 in the amount of US$ 2,800.

The loans obtained by structured entities are collateralized based on the projects assets, as well as liens on receivables of the structured entities. Bonds issued by the Company in the capital market are unsecured.

The global notes issued by the Company in the capital market through its wholly-owned subsidiary Petrobras Global Finance B.V. PGF are unsecured. However, Petrobras fully, unconditionally and irrevocably guarantees these notes,

as set out in note 35.

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18. Leases

18.1. Future minimum lease payments / receipts finance leases

	Receipts			Payments		
Estimated lease payments / receivable	Future value	Annual interest	Present value	Future value	Annual interest	Present value
2019	123	(63)	60	45	(22)	23
2020 - 2023	466	(195)	271	112	(59)	53
2024 and thereafter	476	(89)	387	331	(222)	109
As of December 31, 2018	1,065	(347)	718	488	(303)	185
Current			60			23
Non-current			658			162
As of December 31, 2018			718			185
Current			54			25
Non-current			735			204
As of December 31, 2017			789			229

18.2. Future minimum lease payments operating leases

Operating leases mainly include oil and gas production units, drilling rigs and other exploration and production equipment, vessels and support vessels, helicopters, land and building leases.

2019	11,132
2020	8,981
2021	8,498
2022	7,195

2023	6,498
2024 and thereafter	53,074
As of December 31, 2018	95,378
As of December 31, 2017	92,019

As of December 31, 2018, the balance of estimated future minimum lease payments under operating leases includes US$ 54,825 (US$ 52,701 as of December 31, 2017) with respect to assets under construction, for which the lease term has not commenced.

For the year ended December 31, 2018, the Company recognized expenditures of US$ 7,253 (US$ 10,228 for the year ended December 31, 2017) for operating leases installments.

As discussed in note 6.1, the IFRS 16 provisions have governed the accounting treatment for operating leases from January 1, 2019.

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19. Related-party transactions

The Company has a related-party transactions policy, which is annually revised and approved by the Board of Directors, and is applicable to all the Petrobras Group, in accordance with the Company s by-laws.

In order to ensure the goals of the Company are achieved and to align them with transparency of processes and corporate governance best practices, this policy guides Petrobras while entering into related-party transactions and dealing with potential conflicts of interest on these transactions, based on the following assumptions and provisions:

Prioritization of the Company s interests regardless of the counterparty;

Arm s length basis;

Compliance with market conditions, especially concerning terms, prices and guarantees or with adequate compensatory payment;

Accurate and timely disclosure in accordance with applicable authorities.

The Audit Committee must approve in advance transactions between the Company and its associates, the Brazilian Federal Government, including its agencies or similar bodies and controlled entities, taking into account the materiality established by this policy. The Audit Committee reports monthly to the Board of Directors.

Transactions with entities controlled by key management personnel or by their close family members are also approved in advance by the Audit Committee regardless of the amount involved.

Transactions with the Brazilian Federal Government, including its agencies or similar bodies and controlled entities, which are under the scope of Board of Directors approval, must be preceded by the Audit Committee and Minority Shareholders Committee assessment and must have prior approval of, at least, 2/3 of the board members.

The related-party transactions policy also aims to ensure an adequate and diligent decision-making process for the Company s key management.

19.1. Transactions with joint ventures, associates, government entities and pension plans

The Company has engaged, and expects to continue to engage, in the ordinary course of business in numerous transactions with joint ventures, associates, pension plans, as well as with the Company s controlling shareholder, the Brazilian federal government, which includes transactions with banks and other entities under its control, such as financing and banking, asset management and others.

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The balances of significant transactions are set out in the following table:

	12.31.2018		12.31.2017	
	Assets	**Liabilities**	**Assets**	**Liabilities**
Joint ventures and associates				
State-controlled gas distributors (joint ventures)	307	114	294	141
Petrochemical companies (associates)	90	7	59	16
Other associates and joint ventures	285	744	177	691
Subtotal	682	865	530	848
Brazilian government Parent and its controlled entities				
Government bonds	1,958		1,702	
Banks controlled by the Brazilian Government	7,445	10,332	5,839	14,926
Receivables from the Electricity sector (note 8.4)	4,400		5,247	
Petroleum and alcohol account - receivables from the Brazilian Government	307		251	
Diesel Price Subsidy Program	400			
Federal Government - dividends		324		
Empresa Brasileira de Administração de Petróleo e Gás Natural Pré-Sal Petróleo S.A. PPSA		144		
Others	64	121	45	217
Subtotal	14,574	10,921	13,084	15,143
Pension plans	59	96	68	94
Total	15,315	11,882	13,682	16,085
Current	4,345	2,528	2,521	2,013
Non-Current	10,970	9,354	11,161	14,072
Total	15,315	11,882	13,682	16,085

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The income/expenses of significant transactions are set out in the following table:

	2018	2017	2016
Joint ventures and associates			
State-controlled gas distributors (joint ventures)	2,306	2,203	1,740
Petrochemical companies (associates)	3,762	3,847	3,578
Other associates and joint ventures	(896)	(633)	462
Subtotal	5,172	5,417	5,780
Brazilian government Parent and its controlled entities			
Government bonds	109	153	130
Banks controlled by the Brazilian Government	(902)	(1,466)	(3,073)
Receivables from the Electricity sector (note 8.4)	1,713	643	962
Petroleum and alcohol account - receivables from the Brazilian Government	92	1	5
Diesel Price Subsidy Program	1,559		
Federal Government - dividends	3		
Empresa Brasileira de Administração de Petróleo e Gás Natural Pré-Sal Petróleo S.A. PPSA	(461)		
Others	144	227	200
Subtotal	2,257	(442)	(1,776)
Pension plans			
Total	7,429	4,975	4,004
Revenues, mainly sales revenues	8,733	7,517	6,652
Purchases and services	(2,239)	(1,588)	(94)
Foreign exchange and inflation indexation charges, net	(316)	239	(284)
Finance income (expenses), net	1,251	(1,193)	(2,270)
Total	7,429	4,975	4,004

In addition to the aforementioned transactions, Petrobras and the Brazilian Federal Government entered into the Assignment Agreement in 2010, which grants the Company the right to carry out prospecting and drilling activities for hydrocarbons located in the pre-salt area limited to the production of five billion barrels of oil equivalent. For detailed information on Assignment Agreement, see note 12.4.

In 2018, the Company participated in three competitive processes and, subsequently, in the second bidding round of oil sales carried out by the Pre-Sal Petróleo SA - PPSA, the state-owned company that represents the interests of the Brazilian Federal Government. In the first three processes, the Company committed to acquire approximately 200,000 m3 of oil from Mero field. With respect to the second bidding round, the Company committed to acquire, from September 2018 to August 2021, approximately 1,781,000 m3 of oil from Mero and Sapinhoá fields, with an estimated amount of US$ 759.

On November 27, 2018, Petrobras signed a lease agreement with the Federal University of Rio de Janeiro (UFRJ) for the concession of land use in areas where the Company s research and development center is located. This contract will last 50 years, renewable for an equal period, with a total estimated value of US$ 203.

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19.1.1. Diesel Price Subsidy Program

In 2018, after risk assessment, the Company joined the Diesel Price Subsidy Program established by the Brazilian Federal Government. This program granted reimbursements to diesel producers and importers to the extent that their selling prices to the domestic distributors were equal or lower than prices determined by relevant regulation. The amount of this government grant resulted from the following parameters governed by each phase of the program as shown below:

Phase	Period	Methodology of computation	Regulation
1st phase	June 1 to June 7, 2018	US$ 0.02 dollars (R$0.07) per liter	Decree 9,392/2018
2nd phase	June 8 to July 31, 2018	Difference between reference price provided for by ANP (Preço de Referência - PR) and the sales price to domestic distributors (Preço de Comercialização - PC), limited to US$ 0.08 dollars (R$ 0.30) per liter	Decree 9,403/2018
3rd phase	August 1 to December 31, 2018	Difference between PR and PC, limited to US$ 0.08 dollars (R$ 0.30) per liter, taking into account a fixed portion comprising charges related to Social Integration Program and Social Security Financing (PIS and COFINS) and previous differences greater than the limit	Decree 9,454/2018

The PR was driven by diesel international prices and U.S. dollar exchange rates. The first and second phases of the program included sales of different types of diesel, such as marine diesel. From the third phase of program, the subsidy become restricted to sales of road diesel and, additionally, a fixed portion made up of charges related Social Integration Program and Social Security Financing (PIS and COFINS), as well as differences exceeding US$ 0.08 dollars (R$ 0.30) per liter in previous periods, were included in its computation.

The settlement of the subsidy was granted to the extent the Company provided all necessary information to ANP in order to prove its fiscal regularity and prices of diesel sold in accordance with the relevant regulation. The period of the subsidy computation was up to thirty days with ANP confirmation within fifteen business days after receiving all the necessary documentation.

On October 10, 2018, ANP refused to grant the Company the subsidy of US$ 17 related to the first phase of the program, alleging that the Company did not comply with the requirements. The Company has taken measures to enable the collection and recognition of such amount.

Such revenue recognition occurred as the diesel was sold and delivered to distributors and the right to the grant was recognized within current account receivables. Through December 31, 2018, the Company accounted for US$ 1,415 as revenues with respect to sales within the second and third phases of the program (see note 25). Of this amount, US$ 1,157 was disbursed to the Company in 2018.

The Company collected the remaining balance of the subsidy in the first two months of 2019.

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19.1.2. Petroleum and Alcohol accounts - Receivables from the Brazilian Federal Government

Pursuant to Provisional Measure 2,181 of August 24, 2001, the Brazilian Federal Government may settle the balance of receivables related to the Petroleum and Alcohol accounts by using National Treasury Notes in an amount equal to the outstanding balance, or allow the Company to offset the outstanding balance against amounts payable to the Federal Government, including taxes payable, or both.

The Company provided all the information required by the National Treasury Secretariat (Secretaria doTesouro Nacional - STN) in order to resolve disputes between the parties and conclude the settlement with the Brazilian Federal Government.

Following several negotiation attempts at the administrative level, the Company filed a lawsuit in July 2011 to collect the receivables.

On October 28, 2016, the court ruled in favor of the Company disallowing the use of an alleged debt from the liquidated company of the group, Petrobras Comércio Internacional S.A. Interbrás, by the Brazilian Federal Government, when offsetting the outstanding balance.

On July 18, 2017, the Brazilian Federal Government appealed the ruling and, shortly after, the Regional Federal Court (*Tribunal Regional Federal* TRF) denied the appeal, sustained the aforementioned ruling from 2016 and determined the settlement of the amount owed by the Brazilian Federal Government including inflation charges from August 2011 based on the National Consumer Price Index IPCA and interest at rates provided for the Brazilian Federal Justice.

In September 2018, the Brazilian Supreme Court ruled on a decision of including inflation indexation on an amount to be paid by the Brazilian Federal Government with respect to another proceeding in which the Company is not a party. According to this decision, such inflation charges were stayed and this decision affects all similar claims in which the Brazilian Federal Government is a party.

Accordingly, as of December 31, 2018, the balance of receivables related to the Petroleum and Alcohol accounts was US$ 307 (US$ 251 as of December 31, 2017) and the Company recognized US$ 87 as finance income reflecting the interest accrued on such receivables. In addition, a favorable decision of Brazilian Supreme Court with respect to the inflation charges based on IPCA would represent an increase of US$ 267, at December 31, 2018, on the amount owed by the Brazilian Federal Government.

19.2. Compensation of key management personnel

The criteria for compensation of employees and officers are established based on the relevant labor legislation and the Company s Positions, Salaries and Benefits Plan (Plano de Cargos e Salários e de Benefícios e Vantagens).

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The compensation of employees (including those occupying managerial positions) and officers in December 2018 and December 2017 were:

Compensation of employees, excluding officers (amounts in U.S. dollars)	**Dec/2018**	**Dec/2017**
Lowest compensation	973.00	964.52
Average compensation	4,961.00	5,591.00
Highest compensation	27,219.00	30,644.55
Compensation of highest paid Petrobras officer	30,659.00	35,964.15

The compensation of Executive Officers and Board Members of Petrobras parent company, which are based on the assumptions governed by the Secretariat of Management and Governance of the State-owned Companies (*Secretaria de Coordenação e Governança das Empresas Estatais* SEST) and the Ministry of Mines and Energy , is set out as follows:

	Jan-Dec/2018			**Jan-Dec/2017**		
	Officers	**Board members**	**Total**	**Officers**	**Board members**	**Total**
Wages and short-term benefits	3.6	0.4	4.0	3.7	0.4	4.1
Social security and other employee-related taxes	1.0		1.0	1.0		1.0
Post-employment benefits (pension plan)	0.3		0.3	0.4		0.4
Variable compensation	1.4		1.4			
Benefits due to termination of tenure	0.5		0.5			
Total compensation recognized in the statement of income	6.8	0.4	7.2	5.1	0.4	5.5
Total compensation paid	4.9	0.4	5.3	5.1	0.4	5.5
Average number of members in the period (*)	7.92	10.08	18.00	7.92	9.00	16.92
Average number of paid members in the period (**)	7.92	6.00	13.92	7.92	5.75	13.67

(*) Monthly average number of members.

(**) Monthly average number of paid members.

For the year ended December 31, 2018, charges related to compensation of the board members and executive officers of the Petrobras group amounted to US$ 24.2 (US$ 24.3 for the year ended December 31, 2017).

The Company s General Shareholder s Meeting held on April 26, 2018 determined the amount of US$ 8 as the threshold of executive officers and board members compensation for the period from April 2018 to March 2019, as well as approved the increase in the number of board members to 11.

The compensation of the Advisory Committees to the Board of Directors is apart from the fixed compensation set for the Board Members and, therefore, has not been classified under compensation of Petrobras key management personnel.

The monthly compensation of Audit Committee members is fixed at 10% of monthly average executive officers compensation, excluding certain social security benefits and paid vacation.

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The General Shareholder s Meeting held on October 4, 2018 amended the Company s Bylaws and created the Statutory Audit Committee of the Petrobras Conglomerate, an additional advisory committee to the Board of Directors serving as the audit committee for the Brazilian subsidiaries from Petrobras group with no such exclusive committee as required by the Law 13,303/16. The monthly compensations of its chairman and other members are fixed at 40% and 30%, respectively, of monthly average executive officers compensation, excluding certain social security benefits and paid vacation.

In accordance with Brazilian regulations applicable to companies controlled by the Brazilian Government, Board members who are also members of the Audit Committee or Audit Committee of the Petrobras Conglomerate are only compensated with respect to their Audit Committee duties. The total compensation concerning these members was US$ 188 thousand for the year ended December 31,2018 (US$ 226 thousand with social security and related charges).

In 2018, the Board of Directors approved the variable compensation program (PRV) of the Board of Executive Officers for the year 2018. The amount of compensation to be paid varies according to the percentage of achievement of the financial and operational targets. The program foresees compensations being disbursed through 5 years and may also trigger other compensations to officers from 2019, due to the achievement of certain prerequisites at December 31, 2018.

Benefits due to termination of tenure amounting to US$ 0.5 refer to the remuneration for a period of six months, in compliance with the Public Federal Employee Conflict of Interest Law (Law 12,813/2013).

Exemption from damage (indemnity)

The company s bylaws establishes the obligation to indemnify and keep the officers without losses, members with statutory functions and other employees and agents that legally act through officers delegation, so as to cope with certain expenses related to arbitration, judicial or administrative processes that involve acts performed in the exercise of their duties or powers, since the date of your possession or the since the beginning of the contractual relation with the Company.

The period of the agreement coverage began on December18, 2018 and continues until the occurrence of the following events, whichever comes last: (i) the end of the fifth (5th) year following the date on which the beneficiary leave, for any reason, to exercise the mandate, function or position; (ii) the course of the time required in transit of any Process in which the Beneficiary is partly due to the practice of Regular Management Act; or (iii) the course of the limitation period according to law to events that can generate the obligations of indemnification by the Company, including, but not limited to, the criminal statute applicable deadline, even if such period is applied by administrative authorities. The maximum exposure established by the company (global limit for all eventual claims) until April 2020 is US$ 505 (R$1.955 billion).

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Indemnity agreements shall not cover: (i) acts covered under and insurance policy purchased by the Company, as formally recognized and implemented by the insurance company; (ii) acts outside the regular exercise of the duties or powers of the Beneficiaries; (iii) acts in bad faith act, malicious acts, fraud or serious fault on the part of the Beneficiaries; (iv) self-interested acts or in favor of third parties that damage the company s social interest; (v) obligation to pay damages arising from social action according to article 159 of Law 6,404/76 or reimbursement of the damages according to art. 11, § 5°, II of Law 6,385/76; (iv) other cases where a manifest conflict of interest with the company is established. It is worth noting that after a final unappealable decision, if it is proved that the act performed by the beneficiary is not subject to indemnification, the beneficiary is obligated to return the advanced amounts to the company.

In case of potential conflicts of interest, it is important to mention that the company may hire outside professionals, with a principled, impartial and independent reputation and with a strong experience to evaluate eventual indemnity lawsuits, verifying whether or not the act will be covered. In addition, the beneficiary of an indemnity agreement would be prevented from attending meetings or discussions concerning the payment approval of his or her own expenses.

20. Provision for decommissioning costs

	2018	2017
Opening balance	14,143	10,252
Adjustment to provision	4,129	4,166
Transfers related to liabilities held for sale (*)	(1,221)	(117)
Payments made	(481)	(709)
Interest accrued	649	757
Others	51	24
Cumulative translation adjustment	(2,137)	(230)
Closing balance	15,133	14,143

(*) It includes transfer to held for sale related to campos basin (US$ 850); Rio Grande do Norte (US$ 70) and Lapa (US$ 11), as set out note 10.2.

The estimates for abandonment and dismantling of oil and natural gas producing properties are revised annually at December 31 along with the annual process of oil and gas reserves certification and whenever an indication of significant change in the assumptions used in the estimates occurs.

In 2018, the increase to this provision in the amount of US$ 4,129 primarily reflecting changes in the scope and timing of intermediate abandonments of equipment expected to occur during the useful life of producing fields, as well as higher costs to decommission assets in the near-term. These factors were partially offset by increases in useful lives of certain fields following higher oil prices forecast, lower operational costs estimates and upward review in their production curves.

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21. Taxes

21.1. Income taxes and other taxes

Income taxes	Current assets		Current liabilities		Non-current liabilities	
	12.31.2018	12.31.2017	12.31.2018	12.31.2017	12.31.2018	12.31.2017
Taxes in Brazil						
Income taxes	733	442	66	39		
Income taxes - Tax settlement programs			56	228	552	671
	733	442	122	267	552	671
Taxes abroad	6	37	89	32		
Total	739	479	211	299	552	671

Other taxes	Current assets		Non-current assets		Current liabilities		Non-current liabilities (*)	
	12.31.2018	12.31.2017	12.31.2018	12.31.2017	12.31.2018	12.31.2017	12.31.2018	12.31.2017
Taxes in Brazil								
Current / Deferred ICMS (VAT)	781	934	700	707	922	1,021		
Current / Deferred PIS and COFINS	442	820	2,668	2,282	309	820		
CIDE	22	14			50	104		
Production taxes					1,757	1,605		
Withholding income taxes					308	157		
Tax Settlement Program (**)					2	648		
Others	36	170	158	72	184	165	107	86
Total in Brazil	1,281	1,938	3,526	3,061	3,532	4,520	107	86
Taxes abroad	15	20	14	14	24	28		

Total	1,296	1,958	3,540	3,075	3,556	4,548	107	86

(*) Other non-current taxes are classified as other non-current liabilities.
(**)It includes the amount of US$ 2 relating to refinancing program (REFIS) from previous periods.

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21.2. Brazilian federal settlement programs

In 2017, the Company joined certain settlement programs created by the Brazilian Federal Government, which enabled the settlement of significant disputes in which the Company was a defendant, with certain benefits, such as the use of tax loss carry forwards and reduction in interests, penalties and related charges. The settlement of disputes involving Brazilian Federal Tax Authorities, Brazilian Federal Agencies and similar bodies reduced tax disputes amounting to US$ 11,552 as shown below:

Provisional measures	Signed into law	Brazilian federal settlement programs	Disputes	Amount of relief	Debts
766/17		Tax Settlement Program - PRT (*)	502		502
783/17	13496/17	Special Tax Settlement Program - PERT	2,203	1,001	1,202
780/17	13494/17	Non-Tax Debts Settlement Program - PRD	340	113	227
795/17	13586/17	Withholding income tax on remittances for payment of charter of vessels	8,507	7,976	531
			11,552	9,090	2,462

(*) Benefit of using tax loss carryforwards to settle 80% of the debt.

The Company settled a portion of the balance of the respective liabilities during 2017 in accordance with the terms of the programs and, at December 31, 2017, their outstanding amounts totaled US$ 1,545. During 2018, the Company settled a significant part of the balance of respective liabilities carried on the statement of financial position as presented in the table below:

	12.31.2017	Payments	Use of tax loss carryforwards	Inflation indexation	Others	CTA	12.31.2018
PRT							
Income taxes	153		(136)			(16)	1
Other taxes							
Total	153		(136)			(16)	1

PERT							
Income taxes	744	(56)		43	(17)	(107)	607
Others taxes	40	(60)		2	16	2	
	784	(116)		45	(1)	(105)	607
PRD							
Production taxes	87	(95)		2	5	1	
Law 13.586/17							
Withholding income tax	521	(500)		17	13	(51)	
Total	1,545	(711)	(136)	64	17	(171)	608
Current	874						56
Non-current	671						552

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The following table presents the settlement years of the outstanding amounts under these programs:

	2019	2020	2021	2022	2023	2024 onwards	Total
PRT	1						1
PERT	55	55	55	55	55	332	607
Total	56	55	55	55	55	332	608

21.2.1. Tax Settlement Program (Programa de Regularização Tributária - PRT)

The PRT enabled relief for the settlement of tax and non-tax debts overdue up to November 30, 2016 to the Brazilian Federal Tax Authorities (Brazilian Federal Revenue Service and National Treasury Attorney s Office).

The Company joined the program to settle, principally, proceedings at administrative level totaling US$ 502, for which outflow of resources were probable, related to disallowed tax credits applied for income taxes and other Brazilian Federal taxes computation. After assessing the reliefs provided by the PRT, the Company decided to settle it with the benefit of using tax loss carry forwards to pay US$ 136.

The impacts of this program were accounted for in the second quarter of 2017 within the Company s statement of income amounting to US$ 82 after tax effects, as shown in note 21.2.5.

21.2.2. Special Tax Settlement Program (Programa Especial de Regularização Tributária - PERT)

The PERT enabled relief for the settlement of tax and non-tax debts overdue up to April 30, 2017 to the Brazilian Federal Tax Authorities (Brazilian Federal Revenue Service and National Treasury Attorney s Office), including amounts under disputes involving these authorities.

The Company elected to join the PERT to settle the legal proceeding, in the amount of US$ 1,977, with respect to a notice of deficiency issued due to the use of expenses arising from the Terms of Financial Commitment (TFC), signed by Petrobras and Petros Plan in 2008, as deductible in determining taxable profit. The Company decided to settle this tax dispute, by paying US$ 1,317, which takes into account the benefits reliefs on interests, penalties and related charges. Of this amount, US$ 432 was settled up to December 2017, and the remaining amount is being settled

through 145 monthly installments bearing interest from January 2018 onwards. In addition, pursuant the law 13.496 enacted on October 24, 2017, which enabled incremental relief relating to this matter, the remaining amount was recalculated and decreased by US$ 239.

Pursuant to the Provisional Measure 807/2017 enacted on October 31, 2017, the period to join this program was extended from August 31 to November 14, 2017. Therefore, the Company decided in the third quarter of 2017 to settle other disputes relating to debts in the scope of the Brazilian Federal Revenue Service amounting to US$ 226, After the relief under the PERT, the total amount of these disputes was reduced to US$ 125, of which US$ 103 was settled in January 2018 through a lump sum payment, and the remaining amount is being settled through 141 monthly installments.

Accordingly, the Company recognized the amount of US$ 1,839 within the statement of income in 2017, made up of tax debts after reliefs and tax effects amounting to US$ 1,117, reversals of deferred income tax assets for unused tax losses from 2012 to 2017 amounting to US$ 711 and indexation charges of US$ 22.

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21.2.3. Non-Tax Debts Settlement Program (Programa de Regularização de Débitos não Tributários - PRD)
The PRD enabled relief for the settlement of non-tax debts overdue to the Brazilian Federal Agencies and similar bodies up to October 25, 2017, including amounts under disputes and debts in the scope of other settlement programs involving these authorities.

The Company joined the PRD to settle some legal proceedings involving ANP, with respect to production tax debts for which the likelihood of losses were deemed probable, following a court ruling in August 2017 granting to ANP its arguments. After assessing the benefits from relief on interest, penalties and related charges provided for by this program, the Company decided to settle these disputes, totaling US$ 340 by paying US$ 227 plus interest, of which US$ 136 was settled in the fourth quarter of 2017 and the remaining amount in January 2018.

Accordingly, the Company recognized US$ 164 within the statement of income in December 31, 2017, after tax effects, as shown in note 21.2.5.

21.2.4. Settlement program under law 13.586/2017
As presented in note 21.4, the law 13.586 enacted on December 28, 2017, formerly Provisional Measure 795/17, provided for the tax treatment of several relevant issues relating to the exploration and production of oil or natural gas. This law also established the settlement program of withholding income tax on remittances abroad related to charter contracts for vessels, enabling the regularization of events occurred in the period from 2008 to 2014.

The decision to join the program was based on the economic benefits thereof. Proceeding with the disputes would involve financial efforts to provide significant judicial deposits and this program gave rise to the possibility of ceasing disputes at administrative and judicial levels related to the period from 2008 to 2013 in the amount of US$ 8,507, as well as amounts relating to the 2014 not yet under dispute. The Company paid US$ 531 in 12 consecutive installments bearing interest at SELIC rate, of which the first was paid in January 2018.

Accordingly, the Company recognized US$ 351 within the statement of income in December 31, 2017, after tax effects, as shown in note 21.2.5.

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21.2.5. Impacts of the tax settlement programs within statement of income of 2017

	PRT	PERT	PRD	Law 13,586/17	Total
Cost of sales			(131)		(131)
Other taxes	(169)	(366)	(25)	(323)	(883)
Finance expenses	(249)	(309)	(71)	(208)	(837)
Income taxes - notice of deficiency	(98)	(565)			(663)
Total - after reliefs	(516)	(1,240)	(227)	(531)	(2,514)
Impacts of PIS/COFINS on settlement programs		(69)	(7)		(76)
Income taxes - deductible expenses	(51)	192	70	180	391
Other income and expenses - reversal of provision	485	11			496
Total	(82)	(1,106)	(164)	(351)	(1,703)
Income taxes - reversal of unused tax losses from 2012 to 2017		(711)			(711)
Impacts within the statement of income (before Indexation charges)	(82)	(1,817)	(164)	(351)	(2,414)
Indexation charges		(22)			(22)
Impacts within the statement of income	(82)	(1,839)	(164)	(351)	(2,436)

21.3. Tax amnesty programs State Tax (Programas de Anistias Estaduais)

In accordance with its current corporate governance process and following cost-benefit analysis, the Company elected, during the year ended December 31, 2018, to settle in cash VAT (ICMS) tax disputes by joining states amnesty settlement programs and taking advance of their reliefs, as shown below:

State	Benefits received	Disputes

	State Law/Decree n°			Reduction Benefit	Amount to be paid after benefit (*)
TO	3.346/18	Reduction of 90% of debts from fines and interest.	5	(3)	2
RN	27.679/18 and 10.341/18	Reduction of 95% of fines, 80% of the interest and 50% of Vat tax forgiveness	205	(175)	30
SE	8.458/18	Reduction of 90% of fines and interest	252	(219)	33
MT	10.433/16 and 1.630/18	Reduction of 75% of interest, fines and penalties.	104	(48)	56
BA	14.016/18	Reduction of 90% of fines and interest	269	(199)	70
RJ	182/18	Reduction of 50% of interest and 70% or 85% of the fines related to ICMS, with the respective charges.	376	(185)	191
RS	54.346/2018	Reduction of up to 85% and 40% over fines and interest, respectvely.	1		1
			1,212	(829)	383

(*) Amounts recognized in other taxes (US$ 289) and financial expenses (US$ 94).

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21.4. 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 regime, the Company expects 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 provides for the continuation of total tax relief over goods imported with temporary permanence in Brazil, as previously governed by the former Repetro (Special Customs Regime for the Export and Import of Goods designated to Exploration and Production of Oil and Natural Gas Reserves), and adds this relief to goods permanently held in Brazil. Accordingly, the absence of the need to return such goods to foreign countries eliminates future cost of removal. This benefit made possible the migration of all the goods acquired in the former REPETRO to the REPETRO-Sped, with lower operating and financial costs. Since 2018, the Company has transferred the ownership of oil and gas assets under this regime from foreign subsidiaries to the parent company in Brazil and intends to finish this process until 2020. 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 grant tax incentives relating to VAT (ICMS) over transactions in the scope of this regime to the extent each state enacts its specific regulation providing for the tax relief for the oil and gas industry.

At the date of issuance of these financial statements, the states enacting new regulations governing the VAT tax incentives authorized by CONFAZ were: Amazonas, Bahia, Ceará, Espirito Santo, Rio de Janeiro, Rio Grande do Norte, São Paulo, Sergipe, Minas Gerais and Piauí.

21.5. Deferred income taxes - non-current

a) **The changes in the deferred income taxes are presented as follows:**

Income taxes in Brazil comprise corporate income tax (IRPJ) and social contribution on net income (CSLL). Brazilian statutory corporate tax rates are 25% and 9%, respectively.

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	Property, Plant and Equipment		Loans, trade and other receivables / payables and financing		Provision for legal proceedings			Employee Benefits		
	Exploration and decommissioning costs	Others (*)		Finance lease		Tax losses	Inventories		Others	Total
Balance at January 1, 2017	(11,205)	937	3,512	(90)	1,128	6,040	429	3,009	284	4,044
Recognized in the statement of income for the year	363	(1,292)	(1,099)	(64)	1,134	278	130	(4)	139	(415)
Recognized in shareholders equity (**)			(887)			(69)		(273)	9	(1,220)
Cumulative translation adjustment	150	45	34	4	(40)	(67)	(6)	(34)	(11)	75
Use of tax credits						(271)				(271)
Others		(188)	(16)	20	(21)	120	16	(10)	108	29
Balance at December 31, 2017	(10,692)	(498)	1,544	(130)	2,201	6,031	569	2,688	529	2,242
Initial application of IFRS9			117						5	122
Balance at January1,2018	(10,692)	(498)	1,661	(130)	2,201	6,031	569	2,688	534	2,364
Recognized in the statement of income for the period	2,048	(1,109)	(1,509)	(134)	208	(244)	(49)	192	(167)	(764)
Recognized in shareholders equity			1,916					(119)	2	1,799

(**)										
Cumulative translation adjustment	1,397	205	(260)	28	(345)	(668)	(65)	(417)	(34)	(159)
Use of tax credits						(1,117)			(105)	(1,222)
Others		(26)	18	89	2	15		11	(101)	8
Balance at December 31, 2018	(7,247)	(1,428)	1,826	(147)	2,066	4,017	455	2,355	129	2,026
Deferred tax assets										3,438
Deferred tax liabilities										(1,196)
Balance at December 31, 2017										2,242
Deferred tax assets										2,680
Deferred tax liabilities										(654)
Balance at December 31, 2018										2,026

(*) It mainly includes impairment adjustments and capitalized borrowing costs.

(**) The amounts presented as Loans, trade and other receivables/payables and financing relate to the tax effect on exchange rate variation recognized within other comprehensive income (cash flow hedge accounting) as set out in note 34.2.

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The Company recognizes the deferred tax assets based on assessment of uncertainty over income tax treatments in the context of applicable tax laws, as well as projections of future taxable profits in a ten-year perspective supported by the Business and Management Plan, which is revised annually.

b) Timing of reversal of deferred income taxes

Deferred tax assets were recognized based on projections of taxable profit in future periods supported by the Company s 2019-2023 Business and Management Plan (BMP). The main goals and objectives outlined in its business plan include business restructuring, a divestment plan, demobilization of assets and reducing operating expenses.

Management considers that the deferred tax assets will be realized to the extent the deferred tax liabilities are reversed and expected taxable events occur based on its 2019-2023 BMP.

The estimated schedule of recovery/reversal of net deferred tax assets (liabilities) recoverable (payable) as of December 31, 2018 is set out in the following table:

	Assets	Liabilities
2019	268	(89)
2020	386	(63)
2021	464	(21)
2022	495	27
2023	521	322
2024 and thereafter	546	478
Recognized deferred tax assets	2,680	654
Brazil	3	
Abroad	1,472	
Unrecognized deferred tax assets	1,475	
Total	4,155	654

At December 31, 2018, the Company had tax loss carryforwards arising from offshore subsidiaries, for which no deferred tax assets had been recognized. These tax losses totaling US$1,472 (US$ 2,660 as of December 31, 2017) arose mainly from oil and gas exploration and production and refining activities in the United States of US$1,398 (US$ 2,370 as of December 31, 2017), as well as activities in Spain in the amount of US$69 (US$ 290 as December 31, 2017).

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An aging of the unrecognized tax carryforwards, from companies abroad is set out below:

	Unrecognized deferred tax assets
2020	14
2021	36
2022	1
2023	13
2024	9
2025	4
2026	68
2027	78
2028	88
2029	97
2030 and thereafter	1,064
Total	1,472

21.6. Reconciliation between statutory tax rate and effective tax expense rate

The following table provides the reconciliation of Brazilian statutory tax rate to the Company s effective rate on income before income taxes:

	2018	2017	2016
Net income before income taxes	12,098	1,997	(3,665)
Nominal income taxes computed based on Brazilian statutory corporate tax rates (34%)	(4,114)	(679)	1,247
· Tax benefits from the deduction of interest on capital distribution (*)	604	16	
· Different jurisdictional tax rates for companies abroad	355	669	(157)
	(41)	(70)	(320)

. Brazilian income taxes on income of companies incorporated outside Brazil (**)			
· Tax incentives	75	169	51
· Tax loss carryforwards (unrecognized tax losses)	(484)	(146)	(265)
· Non-taxable income (non-deductible expenses), net (***)	(824)	(488)	(1,080)
· Tax settlement programs (****)		(1,373)	
· Agreement with US authorities	(293)		
· Others	38	74	(160)
Income taxes expense	(4,684)	(1,828)	(684)
Deferred income taxes	(764)	(467)	913
Current income taxes	(3,920)	(1,361)	(1,597)
Total	(4,684)	(1,828)	(684)
Effective tax rate of income taxes	38.7%	91.5%	(18.7)%

(*) It includes amounts received from non-consolidated companies, as well as paid to non-controlling interests.
(**) It relates to Brazilian income taxes on earnings of offshore investees, as established by Law No. 12,973/2014.
(***) It includes results in equity-accounted investments and expenses relating to health care plan.
(****) Income taxes in the scope of PRT and PERT and reversals of losses carry forwards from 2012 to 2017.

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22. Short-term benefits

	2018	2017
Accrued vacation pay	781	845
Profit sharing	355	138
Employees variable compensation program	269	0
Voluntary Separation Incentive Plan	36	34
Salaries and related charges	217	292
Total	1,658	1,309

22.1. Profit sharing

Changes in the provision for profit sharing are presented below:

	2018
Opening balance	138
Adjustment to provision	7
Payments	(135)
Additions	462
Advances	(68)
CTA	(49)
Closing balance	355

The Company s profit sharing benefits comply with Brazilian legal requirements and those of the Brazilian Secretariat of Coordination and Governance of State-Owned Enterprises (SEST), of the Ministry of Planning, Budget and Management, and of the Ministry of Mines and Energy and the current Collective bargaining agreement. This compensation is computed based on the consolidated net income attributable to the shareholders of Petrobras.

The computation of the amount of profit sharing benefits takes into account the results of six corporate indicators, for which annual goals are defined by the Executive Board and approved by the Board of Directors pursuant to the review of the Annual Business Plan (PAN). The annual goals are based on the results of the following corporate indicators:

Total volume of crude oil and oil products spill;

Lifting cost excluding production taxes in Brazil;

Crude oil and NGL production in Brazil;

Feedstock processed - excluding NGL - in Brazil,

Vessel operating efficiency; and

Percentage of compliance with natural gas delivery schedules.

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The results of the six individual goals are factored into a consolidated result that will determine the percentage of the profit to be distributed as a profit sharing benefit to employees. At December 31, 2018, the consolidated result reach 100%, which represents a percentage of 6.25% to be applied in the distribution computation.

The subsidiary Liquigás and the joint operations Fábrica Carioca de Catalizadores (FCC) and Ibiritermo have their specific methodology for profit sharing computation pursuant to their own collective bargaining agreement, apart from other entities of the group.

For 2018, the Company recognized a provision of US$ 462 as other income and expenses regarding profit sharing benefits in accordance with clauses of the collective bargaining agreement, including US$ 3 as complement of the profit sharing for 2017.

In 2017, as the Company recorded a net loss for the year and all the annual goals were achieved, the profit sharing benefit was the half a month salary for each employee added to half of the lowest amount of profit sharing paid in the prior year. Based on these terms, the Company recognized a provision of US$ 151 in 2017 as other income and expenses.

22.2. Employees variable compensation program

The Company has an active variable compensation program for its employees (PRVE), focusing on meritocracy and encouraging employees to achieve better results.

The employees are entitled to the variable compensation whenever the Company recognizes a net income for the year and reaches at least 90% of the top metrics outlined in the BMP. The amount granted is a combination of this achievement and the employee performance during the year. The variable compensation does not affect the amounting of profit sharing to be distributed to each employee. However, in case of a profit sharing higher than a variable compensation, the employee is only entitled to receive its profit sharing.

On December 31, 2018, the Company reached the top metrics and provisioned US$ 289 as other operating income and expenses. Due to the loss in 2017, there was no provision pertaining to this program.

22.3. New Employee Career and Compensation Plan

On July 2, 2018, the Company released to its workforce the Employee Career and Compensation Plan (*Plano de Carreiras e Remuneração* PCR), an upgrade of the remuneration and career model, with the goal of matching the new

initiatives of personnel management to the current and future business needs, besides meeting the demands of the employees for recognition and more innovative work models.

The new plan enhances the Company s personnel management model by means of a number of criteria that enables higher rewards based on skills and performance, broader mobility and career development.

The PCR results in a greater alignment with practices suggested by the SEST. The employees were able to join the program until September 14, 2018, except for certain specific cases.

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The Company granted monetary incentive to employees joining the program in order to achieve a higher number of enrollments in the plan, and estimates that this cost will be offset in the mid-term through the application of the recognition and reward best practices.

Through December 31, 2018, the Company disbursed US$ 293 with respect to the 39,781 employees who joined the program until September 14, 2018 and accounted for this charge within other income and expenses.

23. Employee benefits (Post-Employment)

	2018	2017
Liabilities		
Petros Pension Plan		10,728
Petros Pension Plan - Renegotiated	7,152	
Petros Pension Plan - Non-renegotiated	2,880	
Petros 2 Pension Plan	411	260
AMS Medical Plan	12,236	10,802
Other plans	71	40
Total	22,750	21,830
Current	810	844
Non-current	21,940	20,986
Total	22,750	21,830

23.1. Pension Plans

The Company s post-retirement plans are managed by Fundação Petrobras de Seguridade Social (Petros Foundation), which was established by Petrobras as a nonprofit legal entity governed by private law with administrative and financial autonomy.

a) Petros Plan

The Petros Plan was established by Petrobras in July 1970 as a defined-benefit pension plan and currently provides post-retirement benefits for employees of Petrobras and Petrobras Distribuidora S.A., in order to complement government social security benefits. The Petros Plan has been closed to new participants since September 2002.

Petros Foundation performs an annual actuarial review of its costs using the capitalization method for most benefits. The employers (sponsors) make regular contributions in amounts equal to the contributions of the participants (active employees, assisted employees and retired employees), on a parity basis.

On February 15, 2018, the the Superintendency of Post-retirement Benefits (PREVIC) authorized the split of Petros Plan into two new separate plans: Petros Plan Renegotiated (PPR) and Petros Plan Non-renegotiated (PPNR). The Petros Plan split has been in place since April 1, 2018.

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As of December 31, 2018, the balance of the Terms of Financial Commitment (TFC), signed by Petrobras and Petros Foundation in 2008 is US$ 3,268. The TFC is a financial commitment agreement to cover obligations under the pension plans (PPR and PPNR), which amounts are due in 20 years, with 6% p.a. semiannual coupon payments based on the updated balance. The Company has provided crude oil and oil products pledged as security for the TFC totaling US$ 4,496.

The employers expected contributions to such plans for 2019 are US$ 197. Interest payments on TFC are expected to reach US$ 195. Estimated costs amounting to US$ 838 will be recognized within the income statement ratably over the year (increase in the present value of the defined benefit).

The average durations of the actuarial liability related to the plans, as of December 31, 2018, are 13.08 and 11.69 years, respectively (12.51 years as of December 31, 2017 for the former Petros Plan).

Deficit settlement plan Petros Plan

The Petros Plan has a deficit settlement plan (PED) in place due to its accumulated deficit until 2015. This deficit, updated by interest and inflation, reached US$ 8,253 at December 31, 2017. The PED was approved by the Executive Council of Petros Foundation on September 12, 2017 and assessed by the Company and the SEST.

Additional contributions from participants and sponsors commenced in March 2018. Certain participants appealed before the judiciary and have had their contributions suspended based on judicial injunctions. In these cases, the Company has not paid its parity contributions. In 2018, the Company made contributions amounting to US$ 166 with respect of contributions under the PED.

Pursuant to relevant regulation, the sponsors and participants will cover this deficit based on their respective proportions of regular contributions (parity basis).

The deficit of Petros Plan was transferred to PPR and PPNR on April 1, 2018.

Split of Petros Plan

This split arose from the renegotiation procedures held in 2006-2007 period and in 2012, when 75% of the participants accepted the option to change to a model that sets forth solely inflation indexation on the annual adjustment of their benefits. The other participants benefits remained adjusted by the same rate as the Petrobras workforce had their salaries adjusted.

Assets and actuarial liability of Petros plan were transferred to the new plans based on future commitments on a participant basis. As there were no changes in post-retirement benefits rules, the actuarial liabilities of these plans were reviewed only during the annual actuarial assumptions review carried out in December 2018.

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The movement of these events is shown below:

				Consolidated
		2018		
	Petros	Petros Renegotiated	Petros Non-renegotiated	Total
Changes in the present value of obligations				
Obligations at the beginning of 2018	25,081			25,081
Interest expense	591			591
Current service cost	23			23
Contributions paid by participants	86			86
Benefits paid	(500)			(500)
Cumulative Translation Adjustment	(124)			(124)
Balance at March 31, 2018	25,157			25,157
Transfer due to split of Petros plan	(25,157)	18,940	6,217	
Current interest cost		1,144	374	1,518
Current service cost		53	7	60
Contributions paid by participants		219	69	288
Benefits Paid		(881)	(788)	(1,669)
Remeasurement: Experience (gains) / losses *		(1,295)	(30)	(1,325)
Remeasurement: (gains) / losses - demographic assumptions		6	71	77
Remeasurement: (gains) / losses - financial assumptions		1,206	336	1,542
Cumulative Translation Adjustment		(2,704)	(883)	(3,587)
Obligations at the end of the year of December 31, 2018		16,688	5,373	22,061
Changes in the fair value of plan assets				
Fair value of plan assets at the beginning of the year	14,353			14,353
Interest income	336			336
Contributions paid by the sponsor (Company)	93			93
Contributions paid by participants	86			86

Benefits Paid	(500)			(500)
Cumulative Translation Adjustment	(69)			(69)
Balance at March 31, 2018	14,299			14,299
Transfer due to split of Petros plan	(14,299)	10,786	3,513	
Interest income		653	211	864
Contributions paid by the sponsor (Company)		229	74	303
Contributions paid by participants		219	69	288
Term of financial commitment (TFC) paid by the Company		141	54	195
Benefits Paid		(881)	(788)	(1,669)
Remeasurement: Return on plan assets due to lower interest income		(71)	(153)	(224)
Cumulative Translation Adjustment		(1,539)	(488)	(2,027)

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				Consolidated
		2018		
	Petros	Petros Renegotiated	Petros Non-renegotiated	Total
Fair value of plan assets at the end of the year of December 31, 2018		9,537	2,492	12,029
Amounts recognized in the Statement of Financial Position				
Present value of obligations		16,688	5,373	22,061
(-) Fair value of plan assets		(9,537)	(2,492)	(12,029)
Net actuarial liability as of December 31,		7,151	2,881	10,032
Changes in the net actuarial liability				
Balance as of January 1,	10,728			10,728
Remeasurement effects recognized in OCI **		(12)	531	519
Current service cost	23	53	7	83
Net interest on liabilities / (assets)	255	1,144	374	1,773
Contributions paid	(93)	(229)	(74)	(396)
Payments related to Term of financial commitment (TFC)		(141)	(54)	(195)
Transfer due to spin-off	(10,858)	8,155	2,703	
Cumulative Translation Adjustment	(55)	(1,818)	(607)	(2,480)
Balance at December 31, 2018		7,152	2,880	10,032

(*) It includes the effect of the extraordinary contributions of the participants related to the deficit with the Petros plan, as set out in note 23.
(**) Other Comprehensive Income

b) Petros 2 Plan

Petros 2 Plan was established in July 2007 by Petrobras and certain subsidiaries as a variable contribution plan recognizing past service costs for contributions for the period from August 2002 to August 29, 2007. The Petros 2

Plan currently provides post-retirement benefits for employees of Petrobras, Petrobras Distribuidora S.A., Stratura Asfaltos, Termobahia, Termomacaé, Transportadora Brasileira Gasoduto Brasil-Bolívia S.A. TBG, Petrobras Transporte S.A. Transpetro, Petrobras Biocombustível and Araucária Nitrogenados. The plan is open to new participants although there will no longer be payments relating to past service costs.

Certain elements of the Petros 2 Plan have defined benefit characteristics, primarily the coverage of disability and death risks and the guarantee of minimum defined benefit and lifetime income. These actuarial commitments are treated as defined benefit components of the plan and are accounted for by applying the projected unit credit method. Contributions paid for actuarial commitments that have defined contribution characteristics are accrued monthly in the statement of income and are intended to constitute a reserve for programmed retirement. The contributions for the portion of the plan with defined contribution characteristics were US$ 260 in 2018.

The defined benefit portion of the contributions was suspended from July 1, 2012 to June 30, 2019, as determined by the Executive Council of Petros Foundation, based on advice of the actuarial consultants from Petros Foundation. Therefore, the entire contributions are being applied to the individual accounts of plan participants.

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For 2019, the employers expected contributions to the defined contribution portion of the plan are US$255. Estimated costs amounting to US$ 80 will be recognized within the income statement ratably over the year (increase in the present value of the defined benefit).

The average duration of the actuarial liability related to the plan, as of December 31, 2018 is 42.48 years (43.53 at December 31, 2017).

c) Petros 3 Plan

On December 18, 2018, the Board of Directors approved a proposal for a new pension plan with defined contribution characteristics to be offered. Its adhesion is voluntary to the participants of Petros Plan Renegotiated and Petros Plan Non-renegotiated.

The migration to this new plan will only be possible after the proposal review and approval by all relevant bodies. The proposal has already been approved by the Petros Deliberative Council and the Petrobras Board of Directors and is awaiting approval from PREVIC and SEST.

The participants new benefit will be recalculated based on future commitments on a participant basis at the time of migration. Therefore, each participant will have an individual account, and the amount of the retirement benefit will depend on the accumulated balance, being recalculated annually in connection with the return on plan assets.

23.2. Other plans

The Company also sponsors other pension and health care plans of certain of its Brazilian and international subsidiaries. Most of these plans are unfunded and their assets are held in trusts, foundations or similar entities governed by local regulations.

23.3. Pension Plans assets

Pension plans assets follow a long term investment strategy based on the risks assessed for each different class of assets and provide for diversification, in order to lower portfolio risk. The portfolio profile must comply with the Brazilian National Monetary Council (*Conselho Monetário Nacional* CMN) regulations.

Petros Foundation establishes investment policies for 5-year periods, reviewed annually. Petros uses an asset liability management model (ALM) to address net cash flow mismatches of the benefit plans, based on liquidity and solvency parameters, simulating a 30-year period.

	PPR		PPNR		Petros plan 2	
	Minimum	**Maximum**	**Minimum**	**Maximum**	**Minimum**	**Maximum**
Fixed-income	50%	100%	45%	100%	55%	70%
Variable-income		25%		30%	5%	12%
Structured investments		4%		4%		6%
Real estate properties		12%		12%		2%
Loans to participants		8%		8%	2%	5%
Investments abroad						5%

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The pension plan assets by type of asset are set out as follows:

	2018				2017	
Type of asset	**Quoted prices in active markets**	**Unquoted prices**	**Total fair value**	**%**	**Total fair value(*)**	**%**
Receivables		1,087	1,087	9%	1,139	8%
Fixed income	6,522	1,239	7,761	61%	8,686	58%
Government bonds	6,522		6,522		6,744	
Fixed income funds		940	940		1,815	
Other investments		299	299		9	
Variable income	2,081	127	2,208	17%	3,162	21%
Common and preferred shares	2,081		2,081		2,877	
Other investments		127	127		285	
Structured investments		237	237	2%	373	2%
Real estate properties		829	829	7%	1,045	7%
	8,603	3,519	12,122	96%	14,405	96%
Loans to participants		533	533	4%	620	4%
Total	8,603	4,052	12,655	100%	15,025	100%

(*) Amounts reclassified for comparative purposes.
As of December 31, 2018, the investment portfolio included debentures of US$ 11, Company s common shares in the amount of US$ 3 and real estate properties leased by the Company in the amount of US$ 344.

Loans to participants are measured at amortized cost, which is considered to be an appropriate estimate of fair value.

The Company has improved its monitoring model over Petros Foundation, mainly through the enhancement on internal controls over investment portfolio and the establishment of specific committees to provide technical advisory for the members indicated by the Company to the Executive and Fiscal Councils of Petros Foundation, in accordance with relevant regulation establishing practices to be performed by the Board of Directors and Executive Officers of the sponsors.

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23.4. Medical Benefits: Health Care Plan - *Assistência Multidisciplinar de Saúde* (AMS)

Petrobras, Petrobras Distribuidora S.A., Petrobras Transporte S.A. Transpetro, Petrobras Biocombustível, Transportadora Brasileira Gasoduto Brasil-Bolívia TBG and Termobahia operate a medical benefit plan for their employees in Brazil (active and retired) and their dependents: the AMS health care plan. The plan is managed by the Company based on a self-supporting benefit assumption and includes health prevention and health care programs. The plan is mainly exposed to the risk of an increase in medical costs due to new technologies, new types of coverage and to a higher level of usage of medical benefits. The Company continuously improves the quality of its technical and administrative processes, as well as the health programs offered to beneficiaries in order to mitigate such risks.

The employees make fixed monthly contributions to cover high-risk procedures and variable contributions for a portion of the cost of the other procedures, both based on the contribution tables of the plan, which are determined based on certain parameters, such as salary and age levels. The plan also includes assistance towards the purchase of certain medicines in registered drugstores throughout Brazil. There are no health care plan assets.

Benefits are paid and recognized by the Company based on the costs incurred by the participants, of which the Company satisfies 70% of these costs as governed by the collective bargaining agreement.

The average duration of the actuarial liability related to this health care plan, as of December 31, 2018, is 22.24 years (22.08 as of December 31, 2017).

CGPAR resolutions

On January 18, 2018, the Inter-ministerial Commission for Corporate Governance and Administration of Participations of the Union (CGPAR), through CGPAR Resolutions 22 and 23, established guidelines and parameters of governance and cost limits to health care plans operated by state-owned companies.

The main objective of the resolutions is to make feasible the sustainability and the economic, financial and actuarial balance of the health plans operated by state-owned companies.

The company has up to 48 months to adjust the AMS health plan to this new regulation provisions and is assessing the financial impacts it may cause, including among others, a possible decrease in its actuarial liability following the parity basis of contribution, between the Company and the participants, determined by this rule.

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23.5. Net actuarial liabilities and expenses calculated by independent actuaries and fair value of plans assets

a) Changes in the actuarial liabilities, in the fair value of the assets and in the amounts recognized in the statement of financial position

	Pension Plans		2018 Medical Plan		
	Petros plans (*)	Petros 2	AMS	Other plans	Total
Changes in the present value of obligations					
Obligations at the beginning of the year	25,081	887	10,802	85	36,855
Interest expense	2,111	77	927	4	3,119
Current service cost	83	33	155	7	278
Contributions paid by participants	374				374
Benefits paid	(2,173)	(35)	(456)	(3)	(2,667)
Remeasurement: Experience (gains) / losses (**)	(1,373)	8	(115)		(1,480)
Remeasurement: (gains) / losses - demographic assumptions	80		176		256
Remeasurement: (gains) / losses - financial assumptions	1,577	165	2,412	(2)	4,152
Others				34	34
Cumulative Translation Adjustment	(3,699)	(139)	(1,665)	(13)	(5,516)
Obligations at the end of the year	22,061	996	12,236	112	35,405
Changes in the fair value of plan assets					
Fair value of plan assets at the beginning of the year	14,353	627		45	15,025
Interest income	1,203	54			1,257
Contributions paid by the sponsor (Company)	278		321		599
Contributions paid by participants	374				374
Term of financial commitment (TFC) paid by the Company	223				223
Benefits Paid	(2,401)	(38)	(504)	(3)	(2,946)
Remeasurement: Return on plan assets due to lower interest income	(233)	35		(4)	(202)
Others				3	3
Cumulative Translation Adjustment	(1,768)	(93)	183		(1,678)

Fair value of plan assets at the end of the year	12,029	585		41	12,655
Amounts recognized in the Statement of Financial Position					
Present value of obligations	22,061	996	12,236	112	35,405
(-) Fair value of plan assets	(12,029)	(585)		(41)	(12,655)
Net actuarial liability as of December 31,	10,032	411	12,236	71	22,750
Changes in the net actuarial liability					
Balance as of January 1,	10,728	260	10,802	40	21,830
Remeasurement effects recognized in other comprehensive income	517	138	2,473	2	3,130
Costs incurred in the period	991	56	1,082	11	2,140
Current service cost	908	23	927	4	1,862
Contributions paid	(278)		(321)		(599)
Payments related to Term of financial commitment (TFC)	(223)				(223)
Others				31	31
Cumulative Translation Adjustment	(2,611)	(66)	(2,727)	(17)	(5,421)
Balance as of December 31,	10,032	411	12,236	71	22,750

(*) It includes the changes in Petros plan, PPR and PPNR plans.
(**) It includes additional constribuitons of participants regarding the deficit settlement plan as set out in note 23.1.

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	Pension Plan		2017 Medical Plan		
	Petros	**Petros 2**	**AMS**	**Other plans**	**Total**
Changes in the present value of obligations					
Obligations at the beginning of the year	25,872	678	11,214	78	37,842
Interest expense:	2,776	72	1,222	10	4,080
Term of financial commitment (TFC)	325				325
Actuarial	2,451	72	1,222	10	3,755
Current service cost	89	44	161	4	298
Contributions paid by participants	68				68
Benefits paid	(1,905)	(34)	(466)	(3)	(2,408)
Remeasurement: Experience (gains) / losses (*)	(2,755)	61	(520)	7	(3,207)
Remeasurement: (gains) / losses - demographic assumptions	22	(30)	(63)	(9)	(80)
Remeasurement: (gains) / losses - financial assumptions	1,293	113	(567)	7	846
Others				(6)	(6)
Cumulative Translation Adjustment	(379)	(17)	(179)	(3)	(578)
Obligations at the end of the year	25,081	887	10,802	85	36,855
Changes in the fair value of plan assets					
Fair value of plan assets at the beginning of the year	15,120	385		40	15,545
Interest income	1,609	40		3	1,652
Contributions paid by the sponsor (Company)	230		467	2	699
Contributions paid by participants	68				68
Term of financial commitment (TFC) paid by the Company	223				223
Benefits Paid	(1,905)	(34)	(466)	(3)	(2,408)
Remeasurement: Return on plan assets due to lower interest income	(786)	249		4	(533)
Others					
Cumulative Translation Adjustment	(206)	(13)	(1)	(1)	(221)
Fair value of plan assets at the end of the year	14,353	627		45	15,025
Amounts recognized in the Statement of Financial Position					
Present value of obligations	25,081	887	10,802	85	36,855

(-) Fair value of plan assets	(14,353)	(627)		(45)	(15,025)
Net actuarial liability as of December 31,	10,728	260	10,802	40	21,830
Changes in the net actuarial liability					
Balance as of January 1,	10,752	293	11,214	38	22,297
Remeasurement effects recognized in other comprehensive income	(654)	(105)	(1,150)	1	(1,908)
Costs incurred in the period	1,256	76	1,383	11	2,726
Contributions paid	(230)		(467)	(2)	(699)
Payments related to Term of financial commitment (TFC)	(223)				(223)
Others				(6)	(6)
Cumulative Translation Adjustment	(173)	(4)	(178)	(2)	(357)
Balance as of December 31,	10,728	260	10,802	40	21,830

(*) It includes additional constribuitons of participants regarding the deficit settlement plan as set out in note 23.1.

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b) Defined benefit costs

	2018						
	Pension Plans				Medical Plan		
	Petros plan	PPR	PPNR	Petros 2	AMS	Other Plans	Total
Service cost	23	54	6	33	155	7	278
Interest on net liabilities (assets)	254	492	162	23	927	4	1,862
Net expenses for the year	277	546	168	56	1,082	11	2,140
Related to active employees:							
Included in the cost of sales	46	94	23	29	235		427
Operating expenses in statement of income	19	46	11	17	122	9	224
Related to retirees	212	406	134	10	725	2	1,489
Net expenses for the year	277	546	168	56	1,082	11	2,140

	2017				
	Pension Plans		Medical Plan		
	Petros Plans	Petros 2	AMS	Other Plans	Total
Service cost	89	44	161	4	298
Interest on net liabilities (assets)	1,167	32	1,222	7	2,428
Net expenses for the year	1,256	76	1,383	11	2,726
Related to active employees:					
Included in the cost of sales	236	40	263		539
Operating expenses in statement of income	103	24	136	10	273
Related to retirees	917	12	984	1	1,914

Net expenses for the year	1,256	76	1,383	11	2,726

	Pension Plans		2016 Medical Plan		
	Petros Plans	**Petros 2**	**AMS**	**Other Plans**	**Total**
Service cost	83	21	128	18	250
Interest on net liabilities (assets)	945	12	1,093	4	2,054
Net expenses for the year	1,028	33	1,221	22	2,304
Related to active employees:					
Included in the cost of sales	257	18	287	2	564
Operating expenses in statement of income	128	11	154	19	312
Related to retirees	643	4	780	1	1,428
Net expenses for the year	1,028	33	1,221	22	2,304

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c) Sensitivity analysis of the defined benefit plans

The effect of a 100 basis points (bps) change in the assumed discount rate and medical cost trend rate is as set out below:

	Discount Rate				Medical Cost	
	Pension Benefits		Medical Benefits		Medical Benefits	
	+100 bps	-100 bps	+100 bps	-100 bps	+100 bps	-100 bps
Pension Obligation	(1,714)	3,889	(1,498)	1,869	1,994	(1,005)
Current Service cost and interest cost	13	140	(74)	89	248	(117)

d) Actuarial assumptions

	2018			
Assumptions	**PPR**	**PPNR**	**Petros 2**	**AMS**
Discount rate - (real rate)(1)	9.11%	9.08%	9.22%	9.16%
Nominal discount rate (real rate + inflation) (2)	For 2019: 5.55% As of 2020: 5.33%	For 2019: 5.40% As of 2020: 5.24%	For 2019: 7.28% As of 2020: 6.84%	according to security plan
Expected changes in medical and hospital costs (3)	n/a	n/a	n/a	12.03% to 4% p.a.
Mortality table	EX-PETROS 2013 (bidecremental)	EX-PETROS 2017 (bidecremental)	AT-2000 female, smoothed in a 10%	EX-PETROS 2013 (bidecremental)
Disability table	American group	American group	American group reduced by 40%	American group
Mortality table for disabled participants	AT-49 male	AT-49 male	IAPB 1957 strong	AT-49 male
Age of retirement	Male, 56 years / Female, 55 years	Male, 58 years / Female, 56 years	1st eligibility	Male, 56 years / Female, 55 years

	2017		
Assumptions	**Petros plan**	**Petros 2**	**AMS**

Discount rate - (real rate)(1)	9.52%	9.63%	9.59%
Nominal discount rate (real rate + inflation) (2)	5.19%	6.59%	according to security plan
Expected changes in medical and hospital costs (3)	n/a	n/a	11.3% to 4.5% p.a.
Mortality table	EX-PETROS 2013 (bidecremental)	AT-2000 female, smoothed in a 10%	EX-PETROS 2013 (bidecremental)
Disability table	American group	American group reduced by 40%	American group
Mortality table for disabled participants	AT-49 male	IAPB 1957 strong	AT-49 male
Age of retirement	Male, 57 years / Female, 56 years	1st eligibility	Male, 57 years / Female, 56 years

(1) Inflation reflects market projections: 4.01% for 2019 and converging to 4% in 2026 onwards.
(2) Expected salary growth only of Petrobras, the sponsor, based on the Salaries and Benefits Plan.
(3) Decreasing rate, converging in 30 years to the long-term expected inflation. Refers only to Petrobras (sponsor) rate.

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e) Expected maturity analysis of pension and medical benefits

	2018					
	Pension Plan			Medical Plan		
	PPR	PPNR	Petros 2	AMS	Other plans	Total
Up to 1 Year	1,278	476	34	417	4	2,209
1 To 2 Years	1,163	409	33	439	3	2,047
2 To 3 Years	1,137	390	32	458	3	2,020
3 To 4 Years	1,108	372	32	476	3	1,991
Over 4 Years	12,002	3,726	865	10,446	99	27,138
Total	16,688	5,373	996	12,236	112	35,405

23.6. Other defined contribution plans

Petrobras, through its subsidiaries in Brazil and abroad, also sponsors other defined contribution pension plans for employees. Contributions paid amounting to US$ 3 in 2018 were recognized in the statement of income.

24. Equity

24.1. Share capital (net of share issuance costs)

As of December 31, 2018, subscribed and fully paid share capital, net of issuance costs, was US$ 107,101, represented by 7,442,454,142 outstanding common shares and 5,602,042,788 outstanding preferred shares, all of which are registered, book-entry shares with no par value. Preferred shares have priority on returns of capital, do not grant any voting rights and are non-convertible into common shares.

24.2. Capital reserve

Capital reserve comprises treasury shares owned by Petrobras, in the amount of US$ 2, held in the Brazilian depositary bank at December 31, 2018.

24.3. Capital transactions

24.3.1. Incremental costs directly attributable to the issue of shares

It includes any transaction costs directly attributable to the issue of new shares, net of taxes.

24.3.2. Change in interest in subsidiaries

It includes any excess of amounts paid/received over the carrying value of the interest acquired/disposed. Changes in interests in subsidiaries that do not result in loss of control of the subsidiary are equity transactions, such as the change in BR Distribuidora, in 2017.

24.3.3. Treasury shares

Shares held in treasury in the amount of US$ 2, represented by 222,760 common shares and 72,909 preferred shares.

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24.4. Profit reserves

24.4.1. Legal reserve

It represents 5% of the net income for the year, calculated pursuant to article 193 of the Brazilian Corporation Law.

24.4.2. Statutory reserve

Appropriated by applying a minimum of 0.5% of the year-end share capital and is retained to fund technology research and development programs. The balance of this reserve may not exceed 5% of the share capital, pursuant to article 55 of the Company s bylaws.

24.4.3. Tax incentives reserve

Government grants are recognized in the statement of income and are appropriated from retained earnings to the tax incentive reserve in the shareholders equity pursuant to article 195-A of Brazilian Corporation Law. This reserve may only be used to offset losses or increase share capital.

In 2018, US$ 203 was appropriated to this reserve relating to the subvention of investments, of which US$ 169 arising from the result of 2018 and US$ 34 from the results of 2014 to 2017.

The effect of the tax incentives granted from 2014 to 2017 by *Superintendência de Desenvolvimento do Nordeste* (SUDENE) and *Superintendência de Desenvolvimento da Amazônia* (SUDAM), in the north and northeast regions of Brazil, were not allocated to the tax incentives reserve, due to the absence of income in those years. From the US$ 203 abovementioned, US$ 191 relates to this incentive, of which US$ 29 is destined for reinvestments with own resources.

24.4.4. Profit retention reserve

It Includes funds intended for capital expenditures, primarily in oil and gas exploration and development activities, as per the capital budget of the Company, pursuant to article 196 of the Brazilian Corporation Law.

The Board of Directors proposes to retain in the shareholder s equity, within the profit retention reserve, the amount of US$ 4,294 in order to partially fund the annual investment program determined in the capital budget for 2019, to be approved at the Shareholder s General Meeting.

24.5. Other comprehensive income

In 2018, the Company primarily recognized as other comprehensive income the following effects:

Cumulative translation adjustment loss of US$ 6,409 primarily reflecting translations from the main functional currency of Petrobras group (Brazilian real) into the presentation currency (U.S. dollar);

Actuarial loss on defined benefit plans in the amount of US$ 3,249, after taxes.

Foreign exchange rate variation loss of US$ 3,719 after taxes and amounts reclassified to the statement of income, recognized in the Company s equity, as a result of its cash flow hedge accounting policy. In 2018, the cumulative balance of foreign exchange variation losses, net of tax effects, was US$ 13,292 (see note 34.2).

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24.6. Distributions to shareholders

Pursuant to Brazilian Corporation Law, the Company s shareholders are entitled to receive minimum mandatory dividends (and/or interest on capital) of 25% of the adjusted net income for the year in proportion to the number of common and preferred shares held by them.

To the extent the Company proposes dividend distributions, preferred shares have priority in dividend distribution, which is based on the highest of 3% of the preferred shares net book value or 5% of the preferred share capital. Preferred shares participate under the same terms as common shares in capital increases resulting from the capitalization of profit reserves or retained earnings. However, this priority does not necessarily grant dividend distributions to the preferred shareholders in the event of loss for a year.

The General Shareholders Meeting held on April 26, 2018 amended provisions in the Company s bylaws governing distribution to shareholders (dividends and interest on capital) on a quarterly basis. The quarterly distributions were included in the Company s minimum mandatory distribution for 2018 and were updated by Selic rate from the date of the payments to the end of the fiscal year.

Distributions to shareholders for 2018 amounting to US$ 1,850, most of it proposed as interest on capital, to be approved at the 2019 Shareholder s General Meeting, are consistent with the minimum mandatory dividend of 25% of the adjusted income and withholding income tax rate of 15%, and include a complement to common shareholders as the distributions during 2018 were higher than the minimum mandatory dividend for this year. This proposal meets the priority rights of the preferred shareholders, whose criteria of 5% on the part of the capital represented by this class of shares prevailed for 2019.

			Common Shares		Preferred Shares		
Payment	**Date of approval by the Board of Directors**	**Date of Payment**	**Amount (*)**	**Amount per Share**	**Amount (*)**	**Amount per Share**	**Total Amount**
1 st payment of interest on capital	05.07.2018	05.29.2018	105	0.0141	79	0.0141	184
2 nd payment of interest on capital	08.02.2018	08.23.2018	99	0.0133	74	0.0133	173
3 rd payment of interest on capital	11.05.2018	12.03.2018	201	0.0270	151	0.0270	352
4 th payment of interest on capital	12.18.2018	(**)	95	0.0128	1,006	0.1795	1,101
	02.27.2019	(**)	7	0.0009	33	0.0058	40

Complement of minimum mandatory dividends					
Total	507	0.0681	1,343	0.2397	1,850

(*) Amounts translated into U.S. dollar based on the exchange rate prevailing at the date of the approval, except for the complement of minimum mandatory dividends, based on the closing exchange rate at the date of the financial statements.

(**) To be settled within 60 days after the Shareholder s General Meeting.

Dividends payable attributable to shareholders of Petrobras amounts to US$ 1,005 as of December 31, 2018, and comprise the minimum mandatory dividend of 25% of the adjusted income, including indexation charges based on Selic rate, net of the advances made during the year.

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In addition to the dividends payable to Petrobras shareholders, there are dividends payable to non-controlling shareholders of BR Distribuidora (US$ 58), Logigás (US$ 37), Gaspetro (US$ 7) and other subsidiaries, totaling US$ 1,109 accounted for in the statement of financial position as of December 31, 2018.

Due to the loss recorded in 2017 and 2016, the Board of Directors did not propose dividend distributions for those years.

24.7. Earnings per share

2018			2017			2016	
mmon	Preferred	Total	Common	Preferred	Total	Common	Preferred
4,093	3,080	7,173	(52)	(39)	(91)	(2,760)	(2,078)
2,454,142	5,602,042,788	13,044,496,930	7,442,454,142	5,602,042,788	13,044,496,930	7,442,454,142	5,602,042,788
0.55	0.55	0.55	(0.01)	(0.01)	(0.01)	(0.37)	(0.37)
1.10	1.10	1.10	(0.02)	(0.02)	(0.02)	(0.74)	(0.74)

(*) Petrobras ADSs are equivalent to two shares.

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Basic earnings per share are calculated by dividing the net income (loss) attributable to shareholders of Petrobras by the weighted average number of outstanding shares during the period.

Diluted earnings (losses) per share are calculated by adjusting the net income (loss) attributable to shareholders of Petrobras and the weighted average number of outstanding shares during the period taking into account the effects of all dilutive potential shares (equity instrument or contractual arrangements that are convertible into shares).

Basic and diluted earnings (losses) are identical as the Company has no potential share in issue.

25. Sales revenues

25.1. Revenues from contracts with customers

As an integrated energy company, revenues from contracts with customers derive from different products sold according to our operating segments, taking into consideration specific characteristics of the markets where it operates. For additional information about the operating segments of the Company, its activities and its respective products sold, see notes 4.2 and 30.

The determination of transaction prices derives from methodologies and policies based on the parameters of these markets, reflecting operating risks, level of market share, changes in exchange rates and international commodity prices, including Brent oil prices, oil products such as diesel and gasoline, and the Henry Hub Index.

As described in note 4.21, revenues from sales are recognized at the moment the control is transferred to the client, that occurs upon delivery at the contractual agreed place or when the service is provided. Generally, prices for products and services are fixed prior to or shortly after delivery. Therefore, no significant changes in transactions prices are expected to be recognized in periods after the satisfaction of the performance obligations, except for some exports in which final prices are linked to changes in commodity price after their transfer of control (note 7.1). Sales proceeds are generally collected in the short-term, thus there are no significant financing components.

In addition, the company acts as an agent in the biofuel segment, where there is no control of the biodiesel sold to distributors at any time during the sale operation. Those revenues totaled US$ 26 in 2018.

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25.2. Disaggregation of revenues

	2018	2017	2016
Diesel	28,076	25,049	25,524
Diesel subsidy (note 19.1.1)	1,415		
Gasoline	15,757	16,765	16,263
Liquefied petroleum gas	4,490	3,999	3,083
Jet fuel	3,985	3,131	2,573
Naphtha	2,455	2,637	2,472
Fuel oil (including bunker fuel)	1,267	1,392	1,167
Other oil products	4,247	3,775	3,372
Subtotal oil products	61,692	56,748	54,454
Natural gas	5,613	5,174	3,952
Ethanol, nitrogen products and renewables	2,137	3,878	3,743
Breakage	687		
Electricity	2,028	3,620	1,942
Services and others	862	913	811
Domestic market	73,019	70,333	64,902
Exports	15,925	13,075	8,439
Sales abroad (*)	6,640	5,419	8,064
Foreign market	22,565	18,494	16,503
Sales revenues (**)	95,584	88,827	81,405

(*) Sales revenues from operations outside of Brazil, including trading and excluding exports.
(**) Sales revenues by business segment are set out in note 30.

For the years ended December 31, 2018, 2017 and 2016 there was no customer whose sales revenues totaled 10% or more of the Company s sales revenues.

As set out in note 19.1, the revenue recognition of the diesel subsidy occurs when the diesel is sold and delivered to distributors.

The impacts of the adoption of IFRS 15 for the year ended December 31, 2018 are presented in note 2.3.2.

25.3. Remaining performance obligations

The company has current sales contracts with original expected duration of more than 1 year, in which volumes of goods or services for future sales are determined with their respective payment terms.

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The estimated remaining values of these contracts at the end of 2018 presented below are based on volumes of goods and services for future sales, as well as prices prevailing at December 31, 2018 or practiced in recent sales when they reflect the more directly observable information:

	Total	Expected recognition within 1 year
Domestic market		
Gasoline	60,589	10,128
Diesel	44,452	10,292
Natural gas	27,370	7,470
Services and others	9,226	1,470
Ethanol, nitrogen products and renewables	8,507	1,071
Naphtha	6,732	3,366
Electricity	5,255	1,021
Other oil products	4,881	453
Jet fuel	936	935
Foreign market		
Exports	33,745	4,118
Sales abroad	313	26
Total	202,006	40,350

The revenues will be recognized once goods are transferred and services are provided to the customers and their measurement and timing of recognition will be subject to future demands, changes in commodities prices, exchange rates and other market factors.

The table above does not include information on contracts with original expected duration of one year or less, such as spot-market contracts, variable considerations which are constrained, and information on contracts only establishing general terms and conditions (Master Agreements), for which volumes and prices will only be defined in subsequent contracts.

In addition, electricity sales are manly driven by demands to generate electricity from thermoelectric power plants, according the Brazilian National Electric System Operator (ONS) requests. These requests are substantially affected by Brazilian hydrological conditions, thus, the table above presents fixed amounts representing sales of certified

capacity in accordance with the installed capacity of the Company.

25.4. Contract liabilities

The balance of contract liabilities carried on the statement of financial position at December 31, 2018 amounted to US$ 245 (US$ 336 at December 31, 2017). This amount is classified as other current liabilities and primarily comprises advances from customers in take and ship or pay contracts, that, will be recognized as revenue based on future sales of natural gas or following the non-exercise of the right by the customer.

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26. Other income and expenses

	2018	2017	2016
Gains / (losses) related to legal, administrative and arbitration proceedings (*)	(2,040)	(898)	(1,393)
Pension and medical benefits - retirees	(1,489)	(1,914)	(1,428)
Unscheduled stoppages and pre-operating expenses	(1,282)	(1,598)	(1,859)
Agreement with US Authorities	(895)		
Profit sharing	(462)	(151)	
Gains/(losses) with Commodities Derivatives	(409)		
Variable compensation program (**)	(289)		
Employee Career and Compensation Plan - PCR	(293)		
Equalization of expenses - Production Individualization Agreements	(279)		
Institutional relations and cultural projects	(223)	(258)	(253)
Operating expenses with thermoelectric power plants	(107)	(67)	(96)
Health, safety and environment	(77)	(70)	(80)
Allowance for impairment of other receivables	(59)	(432)	(671)
Gains / (losses) on decommissioning of returned/abandoned areas	621	337	1,491
Amounts recovered from Lava Jato investigation	457	252	131
Gains / (losses) on disposal/write-offs of assets (***)	419	1,498	293
Expenses/Reimbursements from E&P partnership operations	332	372	569
Government grants	248	91	173
Ship/Take or Pay agreements	126	543	282
Provision for the class action agreement		(3,449)	
Reclassification of cumulative translation adjustments - CTA		(37)	(1,457)
Gain on remeasurement of investment retained with loss of control		217	
Provision for debt assumed from suppliers with subcontractors			(105)
Others	75	(35)	(804)
Total	(5,626)	(5,599)	(5,207)

(*) In 2018, it includP:\Compliance\2018\CP-00561_Algar_Telecom_FR\fr_empresas_net\VERSÃO_1.01_PRE\Provas\Prova de estágio\Reversoes foreign exchange losses relating to the Class Action Settlement provision, in the amount of US$ 452, as set out in note 31.4.1.

(**) It includes US$ 13 of the variable compensation program of Petrobras Distribuidora, as well as US$ 1 relating to the key management personnel of Petrobras.

(***) In 2018, it primarily comprises gains with divestments, as set out in note 10. In 2017, it includes returned areas and cancelled projects, as well as the divestment in NTS.

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27. Costs and expenses by nature

	2018	2017	2016
Materials, third-party services, freight, rent and other related costs	(18,938)	(19,049)	(14,920)
Raw material and products for resale	(22,068)	(20,053)	(18,870)
Depreciation, depletion and amortization	(12,028)	(13,307)	(13,965)
Production taxes	(10,892)	(7,900)	(4,879)
Employee compensation	(8,839)	(9,045)	(9,984)
(Losses) /Gains on legal, administrative and arbitration proceedings	(2,040)	(898)	(1,393)
Agreement with US Authorities	(895)		
Gains/(losses) with Commodities Derivatives	(409)		
Unscheduled stoppages and pre-operating expenses	(1,282)	(1,598)	(1,859)
Other taxes (*)	(752)	(1,843)	(714)
Allowance for expected credit losses	(102)	(708)	(1,131)
Institutional relations and cultural projects	(223)	(258)	(253)
Exploration expenditures written off (includes dry wells and signature bonuses)	(87)	(279)	(1,281)
Health, safety and environment	(77)	(70)	(80)
Impairment (losses)/reversals	(2,005)	(1,191)	(6,193)
Provision for debt acknowledgments of suppliers with subcontractors			(105)
Provision for the class action agreement		(3,449)	
Reclassification of cumulative translation adjustment		(37)	(1,457)
Gain on remeasurement of investment retained with loss of control		217	
Amounts recovered from Lava Jato investigation	457	252	131
Equalization of expenses - AIP	(279)		
Gains and losses on disposal/write-offs of assets (**)	419	1,498	293
Changes in inventories	1,888	110	(437)
Total	(78,152)	(77,608)	(77,097)
In the Statement of income			

Cost of sales	(61,517)	(60,147)	(55,417)
Selling expenses	(4,631)	(4,538)	(3,963)
General and administrative expenses	(2,455)	(2,918)	(3,319)
Other taxes (*)	(752)	(1,843)	(714)
Exploration costs	(524)	(800)	(1,761)
Research and development expenses	(642)	(572)	(523)
Impairment	(2,005)	(1,191)	(6,193)
Other income and expenses	(5,626)	(5,599)	(5,207)
Total	(78,152)	(77,608)	(77,097)

(*) In 2017, it includes the impact of tax settlement programs in the amount of US$ 883.

(**) In 2018, it includes gains with divestments, as set out in note 10.1. In 2017, it includes returned areas and cancelled projects, as well as the divestment in NTS.

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28. Net finance income (expense)

	2018	2017	2016
Debt interest and charges	(6,020)	(7,181)	(7,714)
Foreign exchange gains (losses) and indexation charges on net debt (*)	(3,054)	(4,129)	(2,507)
Discount and premium on repurchase of debt securities	(328)	(337)	(50)
Income from investments and marketable securities (Government Bonds)	563	580	547
Financial result on net debt	(8,839)	(11,067)	(9,724)
Capitalized borrowing costs	1,814	1,976	1,729
Gains (losses) on derivatives	(366)	(64)	(111)
Unwinding of discount on the provision for decommissioning costs	(652)	(762)	(662)
Other finance expenses and income, net (**)	1,987	(468)	291
Other foreign exchange gains (losses) and indexation charges, net	199	490	722
Net finance income (expenses)	(5,857)	(9,895)	(7,755)
Income	3,155	1,047	1,053
Expenses	(5,790)	(7,395)	(6,958)
Foreign exchange gains (losses) and indexation charges	(3,222)	(3,547)	(1,850)
Total	(5,857)	(9,895)	(7,755)

(*) Includes debt raised in Brazil (in Brazilian reais) indexed to the U.S. dollar.
(**) It includes US$ 1,418 related to electricity sector as described in note 8.4.

29. Supplemental information on statement of cash flows

	2018	2017	2016

Additional information on cash flows:			
Amounts paid/received during the period:			
Withholding income tax paid on behalf of third-parties	839	857	932
Capital expenditures and financing activities not involving cash			
Purchase of property, plant and equipment on credit	137	133	123
Finance leases		86	90
Provision/(reversals) for decommissioning costs	4,777	4,503	937
Use of deferred tax and judicial deposit for the payment of contingency	60	314	138

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30. Segment information

The operating segment information is reported in the manner in which the Company s senior management assesses business performance and makes decisions regarding investments and resource allocation.

	Exploration and Production	Refining, Transportation & Marketing	Gas & Power	Biofuels	Distribution	Corporate	Eliminations	Total
Consolidated assets by operating segment-12.31.2018								
Current assets	5,324	11,964	2,027	79	2,575	18,750	(3,657)	37,062
Non-current assets	126,989	32,119	13,582	137	2,565	9,418	196	185,006
Long-term receivables	8,115	3,286	1,525	2	837	8,059	235	22,059
Investments	650	1,303	757	45		4		2,759
Property, plant and equipment	116,153	27,356	11,057	90	1,529	1,237	(39)	157,383
Operating assets	93,172	24,347	8,517	89	1,313	1,058	(39)	128,457
Under construction	22,981	3,009	2,540	1	216	179		28,926
Intangible assets	2,071	174	243		199	118		2,805
Total Assets	132,313	44,083	15,609	216	5,140	28,168	(3,461)	222,068
Consolidated assets by operating segment-12.31.2017								
Current assets	7,575	12,670	1,811	64	2,961	27,472	(5,422)	47,131
Non-current assets	137,044	38,396	16,744	126	3,160	9,274	(509)	204,235
Long-term receivables	7,619	3,330	2,395	4	1,074	7,489	(461)	21,450
Investments	1,429	1,492	830	33	5	6		3,795
Property, plant and equipment	126,487	33,400	13,231	89	1,862	1,629	(48)	176,650
Operating assets	91,386	29,217	10,580	85	1,603	1,306	(48)	134,129

Under construction	35,101	4,183	2,651	4	259	323		42,521
Intangible assets	1,509	174	288		219	150		2,340
Total Assets	144,619	51,066	18,555	190	6,121	36,746	(5,931)	251,366

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Consolidated Statement of Income by operating segment

	2018							
	Exploration and Production	Refining, Transportation & Marketing	Gas & Power	Biofuels	Distribution	Corporate	Eliminations	Total
Sales revenues	52,382	73,448	12,269	255	27,960		(70,730)	95,584
Intersegments	50,052	16,655	3,427	240	356		(70,730)	
Third parties	2,330	56,793	8,842	15	27,604			95,584
Cost of sales	(28,968)	(67,011)	(9,013)	(240)	(26,281)		69,996	(61,517)
Gross profit (loss)	23,414	6,437	3,256	15	1,679		(734)	34,067
Income (expenses)	(5,068)	(3,437)	(2,477)	(5)	(955)	(4,657)	(36)	(16,635)
Selling	(80)	(1,777)	(1,883)	(3)	(877)	15	(26)	(4,631)
General and administrative	(257)	(376)	(152)	(19)	(228)	(1,422)	(1)	(2,455)
Exploration costs	(524)							(524)
Research and development	(443)	(11)	(21)		(1)	(166)		(642)
Other taxes	(115)	(207)	(65)	(4)	(69)	(292)		(752)
Impairment of assets	(1,391)	(442)	(190)	18				(2,005)
Other income and expenses	(2,258)	(624)	(166)	3	220	(2,792)	(9)	(5,626)
Net income / (loss) before financial results and income taxes	18,346	3,000	779	10	724	(4,657)	(770)	17,432
Net finance income (expenses)						(5,857)		(5,857)
Results in equity-accounted investments	75	362	95	(7)	(2)			523
	18,421	3,362	874	3	722	(10,514)	(770)	12,098

Net income / (loss) before income taxes								
Income taxes	(6,236)	(1,020)	(266)	(4)	(248)	2,828	262	(4,684)
Net income (loss) for the period	12,185	2,342	608	(1)	474	(7,686)	(508)	7,414
Non-controlling interests	(5)	(51)	128		130	39		241
Net income attributable to shareholders of Petrobras	12,190	2,393	480	(1)	344	(7,725)	(508)	7,173

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Consolidated Statement of Income by operating segment

	2017							
	Exploration and Production	Refining, Transportation & Marketing	Gas & Power	Biofuels	Distribution	Corporate	Eliminations	Total
Sales revenues	42,184	67,037	12,374	213	27,567		(60,548)	88,827
Intersegments	40,762	16,142	3,027	201	416		(60,548)	
Third parties	1,422	50,895	9,347	12	27,151			88,827
Cost of sales	(27,937)	(57,778)	(8,797)	(222)	(25,501)		60,088	(60,147)
Gross profit (loss)	14,247	9,259	3,577	(9)	2,066		(460)	28,680
Income (expenses)	(3,750)	(3,603)	(676)	(22)	(1,266)	(8,217)	73	(17,461)
Selling	(125)	(1,731)	(1,793)	(2)	(995)	27	81	(4,538)
General and administrative	(331)	(457)	(165)	(22)	(274)	(1,669)		(2,918)
Exploration costs	(800)							(800)
Research and development	(333)	(13)	(26)			(200)		(572)
Other taxes	(503)	(203)	(258)	(7)	(42)	(830)		(1,843)
Impairment of assets	43	(781)	(446)	(7)				(1,191)
Other income and expenses	(1,701)	(418)	2,012	16	45	(5,545)	(8)	(5,599)
Net income / (loss) before financial results and income taxes	10,497	5,656	2,901	(31)	800	(8,217)	(387)	11,219
Net finance income (expenses)						(9,895)		(9,895)
Results in equity-accounted investments	136	443	117	(26)	2	1		673
	10,633	6,099	3,018	(57)	802	(18,111)	(387)	1,997

Net income / (loss) before income taxes								
Income taxes	(3,571)	(1,922)	(985)	10	(272)	4,780	132	(1,828)
Net income (loss) for the period	7,062	4,177	2,033	(47)	530	(13,331)	(255)	169
Non-controlling interests	41	(58)	118		9	150		260
Net income attributable to shareholders of Petrobras	7,021	4,235	1,915	(47)	521	(13,481)	(255)	(91)

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Consolidated Statement of Income by operating segment

	2016							
	Exploration and Production	Refining, Transportation & Marketing	Gas & Power	Biofuels	Distribution	Corporate	Eliminations	Total
Sales revenues	33,675	62,588	9,401	240	27,927		(52,426)	81,405
Intersegments	32,195	17,090	2,490	231	420		(52,426)	
Third parties	1,480	45,498	6,911	9	27,507			81,405
Cost of sales	(24,863)	(48,444)	(6,790)	(264)	(25,757)		50,701	(55,417)
Gross profit (loss)	8,812	14,144	2,611	(24)	2,170		(1,725)	25,988
Income (expenses)	(6,789)	(5,425)	(1,439)	(62)	(2,084)	(5,968)	87	(21,680)
Selling	(143)	(1,846)	(768)	(2)	(1,309)	10	95	(3,963)
General and administrative	(346)	(442)	(206)	(25)	(271)	(2,029)		(3,319)
Exploration costs	(1,761)							(1,761)
Research and development	(198)	(57)	(17)	(1)		(250)		(523)
Other taxes	(85)	(98)	(220)	(4)	(29)	(278)		(714)
Impairment of assets	(3,272)	(2,457)	(375)	(7)	(82)			(6,193)
Other income and expenses	(984)	(525)	147	(23)	(393)	(3,421)	(8)	(5,207)
Net income / (loss) before financial results and income taxes	2,023	8,719	1,172	(86)	86	(5,968)	(1,638)	4,308
Net finance income (expenses)						(7,755)		(7,755)
Results in equity-accounted investments	32	(75)	80	(265)	10			(218)
	2,055	8,644	1,252	(351)	96	(13,723)	(1,638)	(3,665)

Net income / (loss) before income taxes								
Income taxes	(687)	(2,964)	(397)	28	(29)	2,809	556	(684)
Net income (loss) for the period	1,368	5,680	855	(323)	67	(10,914)	(1,082)	(4,349)
Non-controlling interests	(57)	(66)	123			489		489
Net income attributable to shareholders of Petrobras	1,425	5,746	732	(323)	67	(11,403)	(1,082)	(4,838)

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31. Provisions for legal proceedings

31.1. Provisions for legal proceedings, judicial deposits and contingent liabilities

The Company recognizes provisions based on the best estimate of the costs of proceedings for which it is probable that an outflow of resources embodying economic benefits will be required and that can be reliably estimated. These proceedings mainly include:

Labor claims, in particular: (i) opt-out claims related to a review of the methodology by which the minimum compensation based on an employee s position and work schedule (*Remuneração Mínima por Nível e Regime* - RMNR) is calculated; (ii) lawsuits relating to overtime pay and (iii) actions of outsourced employees;

Tax claims including: (i) claims relating to Brazilian federal tax credits applied that were disallowed; and (ii) alleged misappropriation of VAT (ICMS) tax credits on import of platforms;

Civil claims relating to: (i) agreement to settle the Consolidated Securities Class Action before the United States District Court for the Southern District of New York; (ii) collection of royalties over the shale extraction; (iii) non-compliance with contractual terms relating to oil platform construction; (iv) compensation relating to an easement over a property; (v) collection of production taxes over natural gas production; (vi) penalties applied by ANP relating to measurement systems; (vii) termination of the drilling service contract tied to ship-probe Titanium Explorer; and (viii) differences in production taxes (special participation) relating to the unification of oil fields in the Parque das Baleias complex.

Provisions for legal proceedings are set out as follows:

	12.31.2018	12.31.2017
Current and Non-current liabilities		
Labor claims	1,093	1,364
Tax claims	491	1,229
Civil claims	5,710	4,342
Environmental claims	111	91

Total	7,405	7,026
Current liabilities	3,482	2,256
Non-current liabilities	3,923	4,770

	Jan-Dec/2018	**Jan-Dec/2017**
Opening Balance	7,026	3,391
Additions, net of reversals	1,325	3,937
Use of provision	(650)	(454)
Accruals and charges	736	285
Others	95	
Cumulative translation adjustment	(1,127)	(133)
Closing Balance	7,405	7,026

In preparing its consolidated financial statements for the year ended December 31, 2018 , the Company considered all available information concerning legal proceedings in which the Company is a defendant, in order to estimate the amounts of obligations and probability that outflows of resources will be required.

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The main additions to the provision for legal proceedings in 2018 were primarily attributable to differences in special participation relating to the unification of oil fields in the Parque das Baleias complex, termination service contract tied to drilling rig Titanium Explorer, unfavorable court rulings that changed the probabilities of outflows of resources relating to certain claims to probable, as well as changes in the assessment of civil claim for compensation. These additions were partially offset by reversal of provisions relating to the class action requiring a review of the RMNR following a favorable decision of the Brazilian Supreme Court, to an extrajudicial settlement of BR Distribuidora relating to tax debts with the state of Mato Grosso, as well as the tax relief of VAT (ICMS) on jet fuel sales and on imports of platforms, granted by state amnesty programs.

Foreign exchange losses over the provision for the Class Action in the USA, as well as withholding income tax disbursed on the installments of the class action settlement (see note 31.4), also affected the balance of provisions for legal proceedings during the year ended December 31,2018.

31.2. Judicial deposits

Judicial deposits made in connection with legal proceedings are set out in the table below according to the nature of the corresponding lawsuits:

	12.31.2018	12.31.2017
Non-current assets		
Tax	4,563	3,302
Labor	1,161	1,209
Civil	823	891
Environmental	160	176
Others	4	4
Total	6,711	5,582

	12.31.2018	12.31.2017
Opening Balance	5,582	3,999
Additions	1,883	1,601
Use	(86)	(138)
Accruals and charges	294	226

Others	26	
Cumulative translation adjustment	(988)	(106)
Closing Balance	6,711	5,582

For the year ended December 31, 2018, the Company made judicial deposits in the amount of US$ 1,883, mainly resulting from an unfavorable decision issued by the Regional Federal Court of Rio de Janeiro (*Tribunal Regional Federal* TRT/RJ) in October 2017, with respect to withholding income tax on remittances for payments of vessel charters from 1999 to 2002, as well as judicial deposits related to tax claim alleging taxable income from foreign subsidiaries and associates located outside Brazil, as set out in note 31.3.

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31.3. Contingent liabilities

Contingent liabilities for which either the Company is unable to make a reliable estimate of the expected financial effect that might result from resolution of the proceeding, or a cash outflow is not probable, are not recognized as liabilities in the financial statements but are disclosed in the notes to the financial statements, unless the likelihood of any outflow of resources embodying economic benefits is considered remote.

The estimates of contingent liabilities for legal proceedings are indexed to inflation and updated by applicable interest rates. As of December 31, 2018, estimated contingent liabilities for which the possibility of loss is not considered remote are set out in the following table:

Nature	12.31.2018	12.31.2017
Tax	37,290	39,137
Labor	8,619	7,202
Civil - General	6,539	9,621
Civil - Environmental	4,221	2,354
Total	56,669	58,314

A brief description of the nature of the main contingent liabilities (tax, civil, environmental and labor) is set out in the following table:

	Estimate	
Description of tax matters	**12.31.2018**	**12.31.2017**
Plaintiff: Secretariat of the Federal Revenue of Brazil		
1) Withholding income tax (IRRF), Contribution of Intervention in the Economic Domain (CIDE), Social Integration Program (PIS) and Contribution to Social Security Financing (COFINS) on remittances for payments of vessel charters.		
Current status: The claim about the incidence of withholding income tax (Imposto de Renda Retido na Fonte- IRRF) on remittances for payments of vessel charters, occurred from 1999 to 2002, involves the legality of the normative rule issued by the Federal Revenue of Brazil, which ensured no taxation over those remittances. The Company considers the likelihood of loss as possible, since there are decisions from Superior Courts	11,568	13,041

favorable to the understanding of the Company, and will continue to defend its opinion.

The other claims, concerning CIDE and PIS/COFINS, involve lawsuits in different administrative and judicial stages, for which the Company understands there is a possible likelihood of loss, since there are legal predictions in line with the position of the Company.

2) Income from foreign subsidiaries and associates located outside Brazil not included in the computation of taxable income (IRPJ and CSLL).

Current status: This claim involves lawsuits in different administrative and judicial stages. The Company considers the likelihood of loss as possible, since there are decisions from Superior Courts favorable to the understanding of the Company. There is a notice issued for one more year. 5,208 3,988

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Description of tax matters	Estimate 12.31.2018	12.31.2017
3) Requests to compensate federal taxes disallowed by the Brazilian Federal Tax Authority.		
Current status: This claim involves lawsuits in different administrative and judicial stages.	3,156	3,621
4) Incidence of social security contributions over contingent bonuses paid to employees.		
Current status: A definitive favorable decision was rendered for some cases, and the remaining claims involve lawsuits in different administrative and judicial stages.	929	1,541
5) Collection of Contribution of Intervention in the Economic Domain (CIDE) on transactions with fuel retailers and service stations protected by judicial injunctions determining that fuel sales were made without gross-up of such tax. Current status: This claim involves lawsuits in different judicial stages.	588	672
6) Deduction from the basis of calculation of taxable income (income tax - IRPJ and social contribution - CSLL) of several expenses related to employee benefits.		
Current status: The court ruled on this matter in the second quarter of 2017 granting the deduction of these expenses from the taxable profit computation, but limited it to 20% of the payroll and compensation of key management participants in the plan. In 2017, after assessing the fundamentals of this court ruling, the Company considered as probable the likelihood of outflow of resources with respect to the portion of the deduction that exceeds the 20% limit, and as remote the portion within the 20% limit.		
The other claims of this item, which have different legal basis, remain with their likelihood of loss as possible and are in different administrative and judicial stages.	542	613
Plaintiff: States of SP, CE, PB, RJ, BA, PA, AL and SE Finance Departments		
7) VAT (ICMS) and VAT credits on internal consumption of bunker fuel and marine diesel, destined to chartered vessels.		
Current status: This claim involves several tax notices from the states, including two	1,323	578

new material notices applied in the third quarter of 2018, which are in different administrative and judicial stages.

Plaintiff: States of RJ, BA and AL Finance Departments

8) VAT (ICMS) on dispatch of liquid natural gas (LNG) and C5+ (tax document not accepted by the tax authority), as well as challenges on the rights to this VAT tax credit.		
Current status: This claim involves lawsuits in different administrative and judicial stages.	1,198	1,366

Plaintiff: Municipal governments of the cities of Anchieta, Aracruz, Guarapari, Itapemirim, Marataízes, Linhares, Vila Velha and Vitória

9) Alleged failure to withhold and pay tax on services provided offshore (ISSQN) in favor of some municipalities in the State of Espírito Santo, under the allegation that the service was performed in their respective coastal waters .		
Current status: This claim involves lawsuits in different administrative and judicial stages.	1,123	1,224

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Description of tax matters	Estimate 12.31.2018	12.31.2017
Plaintiff: States of RJ, SP, PR, RO and MG Finance Departments		
10) Additional VAT (ICMS) due to differences in rates on jet fuel sales to airlines in the domestic market, among other questions relating to the use of tax benefits.		
Current status: This claim involves lawsuits in different administrative and judicial stages.	965	1,087
Plaintiff: States of RJ, AL, AM, PA, BA, GO, MA, SP and PE Finance Departments		
11) Alleged failure to write-down VAT (ICMS) credits related to zero tax rated or non-taxable sales made by the Company and its customers.		
Current status: This claim involves lawsuits in different administrative and judicial stages.	942	1,029
Plaintiff: States of RJ, SP, ES, BA, PE, MG, RS, AL, SE and CE Finance Departments		
12) Misappropriation of VAT tax credit (ICMS) that, per the tax authorities, are not related to property, plant and equipment.		
Current status: This claim involves lawsuits in different administrative and judicial stages.	900	994
Plaintiff: States of PR, AM, BA, ES, PA, PE, SP, PB and AL Finance Departments		
13) Incidence of VAT (ICMS) over alleged differences in the control of physical and fiscal inventories.		
Current status: This claim involves lawsuits in different administrative and judicial levels.	890	976
Plaintiff: States of RJ Finance Departments		
14) The plaintiff alegges that the transfers without segregating VAT (ICMS), under the special regime, reduced the total credits of the central department.		
Current status: The Company presented administrative defense from the notices issued, pending court assessment.	800	

Plaintiff: States of SP, RS and SC Finance Departments		
15) Collection of VAT (ICMS) related to natural gas imports from Bolivia, alleging that these states were the final destination (consumers) of the imported gas. Current status: This claim involves lawsuits in different administrative and judicial stages, as well as three civil lawsuits in the Federal Supreme Court.	740	852

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Description of tax matters	Estimate 12.31.2018	12.31.2017
Plaintiff: State of São Paulo Finance Department		
16) Deferral of payment of VAT (ICMS) taxes on B100 Biodiesel sales and the charge of a 7% VAT rate on B100 on Biodiesel interstate sales, including states in the Midwest, North and Northeast regions of Brazil and the State of Espírito Santo.		
Current status: This claim involves lawsuits in different administrative and judicial stages. In the third quarter of 2018, the company obtained final favorable decisions in proceedings in administrative stages, contributing to the partial reduction of the exposure.	659	887
17) Charge of VAT (ICMS), as a result of the temporary admission being unauthorized, since the customs clearance regarding the import of the rig has been done in Rio de Janeiro instead of São Paulo.		
Current status: This claim involves lawsuits in different judicial stages. The State of São Paulo Finance Department appeal was denied, thus the likelihood of loss became remote in the third quarter of 2018.		761
Plaintiff: States of MG, MT, GO, RJ, PA, CE, BA, PR, SE, AL, RN, SP and PR Finance Departments		
18) Misappropriation of VAT tax credit (ICMS) on the acquisitions of goods that, per the tax authorities, are not related to inventories.		
Current status: There are notices issued by these states. This claim involves lawsuits in different administrative and judicial stages.	589	284
Plaintiff: States of RJ, SP, SE and BA Finance Departments		
19) Misappropriation of VAT tax credit (ICMS) on the acquisitions of goods that, per the tax authorities, are not related to property, plant and equipment.	567	513

Current status: This claim involves lawsuits in different administrative and judicial stages. New lawsuits during the third quarter of 2018 contributed to the increase of the balance.		
Plaintiff: States of GO, PA, RJ, RR, SC, SP and TO.		
20) Charge of VAT (ICMS) on remittance and symbolic return of jet fuel to retail establishment which, in the understanding of the tax authority, should have retention and collection of the ICMS for the subsequent operations, since it is considered a remittance to a retail taxpayer established in the State.		
Current status: This claim involves lawsuits in different administrative and judicial stages.	373	416
Plaintiff: States of PE and BA Finance Departments.		
21) Alleged incorrect application of VAT (ICMS) tax base with respect to interstate sales of natural gas transport through city-gates in the State of Pernambuco destined to the distributors in that State. The Finance Department of the State of Pernambuco understands that activity as being an industrial activity which could not be characterized as an interstate sale transaction (considering that the Company has facilities located in Pernambuco), consequently charging the difference on the tax levied on the sale and transfer transactions.		
Current status: This claim involves lawsuits in different judicial stages.	304	335

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Description of tax matters	Estimate 12.31.2018	12.31.2017
Plaintiff: States of AM, RS and RJ Finance Departments		
22) Disagreement about the basis of calculation of VAT (ICMS) on interstate sales and transfers between different stores from the same contributor.		
Current status: This claim involves lawsuits in different administrative and judicial stages.	174	448
23) Other tax matters	3,752	3,911
Total for tax matters	37,290	39,137

Description of labor matters	Estimate 12.31.2018	12.31.2017
Plaintiff: Employees and Sindipetro Union of ES, RJ, BA, MG, SP, PE, PB, RN, CE, PI, PR and SC.		
1) Actions requiring a review of the methodology by which the minimum compensation based on an employee s position and work schedule (Remuneração Mínima por Nível e Regime - RMNR) is calculated.		
Current status: The Superior Labor Court (Tribunal Superior do Trabalho - TST) denied the special appeal filed by the Company. Petrobras filed a Motion for Clarification on the decision, which was denied by the TST. The Company will file the appropriate appeal. On July 26, 2018, a minister of the Superior Federal Court (Superior Tribunal Federal - STF) granted Petrobras request to prevent the effects of the judgment of the TST, determining the suspension of individual and class actions on this subject, pending the deliberation on this matter in the Supreme Court or further deliberation of the rapporteur minister assigned to this case. On August 13, 2018, the rapporteur confirmed the decision of the minister and extended the decision to the ongoing actions on the matter, suspending all cases relating to this subject.	6,254	4,516
Plaintiff: Sindipetro of Norte Fluminense SINDIPETRO/NF		
2) The plaintiff claims Petrobras failed to pay overtime for standby work exceeding 12-hours per day. It also demands that the Company respects a 12-hour limit of standby work per workday, as well as an 11-hour period for rest between workdays, subject to a		

daily fine.

Current status: The claim was denied by the TST, but the plaintiff is still able to appeal.	352	389
3) Other labor matters	2,013	2,297
Total for labor matters	8,619	7,202

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Description of civil matters	Estimate 12.31.2018	12.31.2017
Plaintiff: Several plaintiffs in Brazil and EIG Management Company in USA		
1) Arbitration in Brazil and lawsuit in the USA regarding Sete Brasil. Current status: The Company litigates, confidentially, in several arbitrations on the case, one of them was given arbitration award favorable to Petrobras. The unsuccessful investor in this arbitration award filed an annulment requirement, which did not have the injunction granted even with appeal to the lower court. The lawsuit brought by EIG and its affiliates alleges that the Company has committed fraud by inducing the claimants to invest in Sete through communications that would have omitted an alleged corruption scheme involving Petrobras and Sete . The U.S. District Court for the District of Columbia upheld in part Petrobras preliminary defense (motion to dismiss).Petrobras appealed the court s decision to dismiss in part Petrobras preliminary defense. On January 19, 2018, oral argument on the appeal was held before the U.S. Court of Appeals for the District of Columbia Circuit. On July 3, 2018, a panel of the Court of Appeals rendered a decision, by a majority, rejecting Petrobras appeal. This ruling did not discuss the merits of EIG s allegations and examined only whether Petrobras would be exempt from prosecution in the US at the initial stage of the case. Petrobras presented a Petition for Rehearing on August 2, 2018 and on October 1st, 2018 the D.C. Circuit denied it.	2,082	2,127
Plaintiff: Agência Nacional de Petróleo, Gás Natural e Biocombustíveis - ANP		
2) Administrative proceedings challenging an ANP order requiring Petrobras to pay additional special participation fees and royalties (production taxes) with respect to several fields. It also includes contention about fines imposed by ANP due to alleged failure to comply with the minimum exploration activities program, as well as alleged irregularities relating to compliance with oil and gas industry regulation. Current status: The claims involve lawsuits in different administrative and judicial stages.	1,663	1,635
3) Proceedings challenging an ANP order requiring Petrobras to unite Lula and Cernambi fields on the BM-S-11 joint venture; to unite Baúna and Piracicaba fields; to unite Tartaruga Verde and Mestiça fields; and to unite Baleia Anã, Baleia Azul, Baleia Franca, Cachalote, Caxaréu, Jubarte and Pirambu, in the Parque das Baleias complex, which		

would cause changes in the payment of special participation charges.

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Description of civil matters	Estimate 12.31.2018	12.31.2017
	287	2,633

Current status: This list involves claims that are disputed in court and in arbitration proceedings, as follows:

a) Lula and Cernanbi: initially, the Company made judicial deposits for the alleged differences resulting from the special participation. However, with the reversal of the favorable injunction, the arbitration is stayed and currently the payment of these alleged differences have been made directly to ANP, until a final judicial decision is handed down.

b) Baúna and Piracicaba: the Court reassessed previous decision that disallowed judicial deposits, therefore the Company is currently depositing the controversial amounts. The arbitration is stayed.

c) Tartaruga Verde and Mestiça: The Company has authorization to make the judicial deposits relating to these fields. The Regional Federal Court of the Second Region has the opinion that the Chamber of Arbitration has jurisdiction on this claim and the arbitration is ongoing. On both parties initiative, the arbitration is stayed.

d) Parque das Baleias complex: the Judiciary stated decisions allowing the arbitration with ANP. Therefore, the Chamber of Arbitration disallowed ANP to charge for special participation, establishing that Petrobras should provide collateral on the debt to be negotiated. On both parties initiative, the arbitration is stayed, with the objective of seeking an alternative to solve this dispute, which amounts to US$ 2.8 billion at December 31, 2018. In December 2018, the ANP held a hearing presenting a draft of the preliminary agreement developed by the technical departments of Petrobras and

ANP, including the calculation of the updated amounts of special participation due up the last quarter of 2018, totaling US$ 0.9 billion. Therefore, the Company believes, as of December 31, 2018, that an outflow of resources in this amount is probable to settle the controversy with the ANP and, as a result, recognized a provision for this proceeding in 2018.

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Description of civil matters	Estimate 12.31.2018	12.31.2017
Plaintiff: Vantage Deepwater Company and Vantage Deepwater Drilling Inc.		
4) International litigations relating to the unilateral termination of the drilling service contract tied to Titanium Explorer drilling rig. Current status: An unfavorable arbitration award was rendered on July 2, 2018 in Texas, USA. The Arbitral Tribunal formed by three arbitrators decided by a majority vote that Vantage is entitled to receive US$ 622 million, bearing interests at a 15.2% annual rate, in compensation for early termination of the contract related to the drilling service provided by the Titanium Explorer drilling rig, and for services already billed. On August 31, 2018, the Company challenged the arbitral award, arguing that it has been denied the fundamental safeguards of due process, as expressed by the dissenting arbitrator. On August 27, 2018, the Dutch Judiciary granted an injunction in favor of Vantage, blocking any amounts and assets due to Petrobras, arising from obligations of some of its Netherlands-based subsidiaries until August 27, 2018, limited to US$ 684 million. The injunction also reaches the subsidiaries Petrobras Netherlands B.V. and Petrobras International Braspetro B.V. On November 15, 2018, Vantage filed a motion before the Dutch Judicial Branch for the recognition of the arbitration award. On December 19, 2018, the Federal Court of Texas denied the Company s request to collect the dissenting arbitrator s testimony. On March 08, 2019, the Federal Court of Texas will hold a final hearing on the request for confirmation of the arbitration award made by Vantage and the request for annulment made by Petrobras. Therefore, the Company understands the chance of loss is probable and made a provision for this proceeding in the last quarter of 2018.		400
5) Other civil matters	2,507	2,826
Total for civil matters	6,539	9,621

Description of environmental matters	Estimate 12.31.2018	12.31.2017
Plaintiff: Ministério Público do Estado do Rio de Janeiro.		
1) Five public civil actions filed by the Public Prosecutor s Office of the State of Rio de Janeiro against Petrobras, the State Environmental Institute - INEA and Rio de Janeiro State, requesting proof of compliance with regulation relating to the environmental		

licensing of COMPERJ, complementation of technical researchs, as well as compensation for collective material and moral damages.		
Current status: The five actions are currently stayed.	2,096	
Plaintiff: Ministério Público Federal, Ministério Público Estadual do Paraná, AMAR - Associação de Defesa do Meio Ambiente de Araucária, IAP - Instituto Ambiental do Paraná and IBAMA - Instituto Brasileiro de Meio Ambiente e Recursos Naturais Renováveis.		
2) Legal proceeding related to specific performance obligations, indemnification and compensation for damages related to an environmental accident that occurred in the State of Paraná on July 16, 2000.		
Current status: The court partially ruled in favor of the plaintiff. However, both parties (the plaintiff and the Company) filed an appeal.	901	942

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	Estimate	
Description of environmental matters	**12.31.2018**	**12.31.2017**
Plaintiff: Instituto Brasileiro de Meio Ambiente - IBAMA and Ministério Público Federal		
3) Administrative proceedings arising from environmental fines related to exploration and production operations (Upstream) contested because of disagreement over the interpretation and application of standards by IBAMA, as well as a public civil action filed by the Ministério Público Federal for alleged environmental damage due to the accidental sinking of P-36 Platform.		
Current status: A number of defense trials and the administrative appeal regarding the fines are pending, and others are under judicial discussion. With respect to the civil action, the Company appealed the ruling that was unfavorable in the lower court and monitors the use of the procedure that will be judged by the Regional Federal Court.	400	444
4) Other environmental matters	824	968
Total for environmental matters	4,221	2,354

31.4. Class action and related proceedings

31.4.1. Class action and related proceedings in the USA

At the end of 2017, the Company signed an agreement to settle the Consolidated Securities Class Action (the Class Action Settlement) that had been filed against it and certain other defendants. As previously reported, between December 8, 2014 and January 7, 2015, five putative securities class action complaints were filed against the Company, Petrobras International Finance Company S.A. (PifCo), which was merged into Petrobras Global Finance B.V. (PGF), PGF (collectively with the Company and PifCo, the Petrobras Defendants), certain underwriters of debt securities (the Underwriter Defendants), among other defendants (the Defendants), in the United States District Court for the Southern District of New York (SDNY or the District Court). These actions were consolidated on February 17, 2015 (the Consolidated Securities Class Action or Class Action). The Court appointed a lead plaintiff, Universities Superannuation Scheme Limited (USS), on March 4, 2015.

In sum and substance, the complaints in the Consolidated Securities Class Action asserted claims under the Securities Exchange Act of 1934, as amended (the Exchange Act) and Securities Act of 1933, as amended (the Securities Act), alleging that in the Company s press releases, filings with the SEC and other communications, the Company made materially false and misleading statements and omissions regarding the value of its assets, the amounts of the Company s expenses and net income, the effectiveness of the Company s internal controls over financial reporting, and the Company s anti-corruption policies.

On June 22, 2018, the District Court granted final approval of the Class Action Settlement, rejecting challenges that had been raised by objectors.

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The Class Action Settlement is intended to resolve all pending and prospective claims by purchasers of Petrobras securities, including debt securities issued by PifCo and/or PGF, in the United States, and by purchasers of Petrobras securities that are listed for trading on the New York Stock Exchange or pursuant to other covered transactions, or that clear or settle through the Depository Trust Company. Excluded from the definition of covered transaction are purchases of any Petrobras Security on the Brazilian Stock Exchange (B3).

The Class Action Settlement was entered into to eliminate the risk of an adverse judgment which, as Petrobras has previously reported, could have a material adverse effect on the Company and its financial situation, and puts an end to the uncertainties, burdens and costs of protracted litigation.

Under the Class Action Settlement, Petrobras (together with its subsidiary PGF) has agreed to pay US$ 2,950 to resolve claims in two installments of US$ 983 and a further installment of US$ 984. Accordingly, the Company charged US$ 3,449 to its statement of income for the last quarter of 2017 as other income and expenses, taking into account the gross up of tax related to the Petrobras s portion of the settlement. On March 1, 2018, Petrobras and PGF disbursed the first installment into an escrow account designated by the lead plaintiff and accounted for it as other current assets. The second installment was deposited on July 2, 2018, 10 days after the final approval of the Class Action Settlement. Foreign exchange losses on the provision amounted to US$ 452 at December 31, 2018 and were accounted for as other income and expenses. The third installment was deposited on January 15, 2019.

Certain objectors have appealed the District Court s final decision to approve the Class Action Settlement, and one such appeal remains pending. In the event that a higher court annuls the agreement, or if the agreement does not become final for other reasons, the Company will return to its position prior to the Class Action Settlement and, depending on the outcome of the subsequent litigation, the Company might be required to pay substantial amounts, which could have a material adverse effect on the Company s financial condition, its consolidated results of operations or its consolidated cash flows for an individual reporting period.

A petition for a writ of certiorari filed by Petrobras to the United States Supreme Court on August 30, 2017 remains under consideration by the United States Supreme Court pending final approval of the Class Action Settlement. If the Class Action Settlement becomes final, Petrobras will dismiss the petition for writ of certiorari.

Individuals are seeking measures against Petrobras in Brazil to annul and/or suspend the Class Action Settlement. No adverse measure has been granted to date against the settlement.

In addition to the Consolidated Securities Class Action, 33 lawsuits were filed by individual investors before the same judge in the SDNY, and one was filed in the United States District Court for the Eastern District of Pennsylvania (collectively, the Individual Actions), consisting of allegations similar to those in the Consolidated Securities Class Action. All of the Individual Actions have been resolved, either because the individual plaintiffs voluntarily

joined the Class Action, or through settlements. The terms of such settlements are confidential and Petrobras denies all allegations of wrongdoing. The settlements are aimed at eliminating the uncertainties, burdens and expense of ongoing litigation.

In connection with consummated settlements of Individual Actions, the Company charged US$ 456 to the statement of income as other income and expenses in previous years (US$ 8 in 2018, US$ 76 in 2017 and US$ 372 in 2016).

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31.4.2. Class action in the Netherlands

On January 23, 2017, the Stichting Petrobras Compensation Foundation (Foundation) filed a class action before the district court in Rotterdam, in the Netherlands, against Petrobras parent company and its subsidiaries Petrobras International Braspetro B.V. (PIBBV) and Petrobras Global Finance B.V. (PGF); joint venture Petrobras Oil & Gas B.V. (PO&G), and some former managers of Petrobras.

The Foundation allegedly represents the interests of an unidentified group of investors and alleges that as a result of the facts uncovered by the Lava Jato investigation the defendants acted unlawfully towards investors. Based on the allegations, the Foundation seeks a number of declaratory relieves from the Dutch court.

The Company filed their first response to the claim on May 3, 2017 (first docket date), presenting the law firms that will defend these companies and requesting a hearing to discuss some aspects of the case.

On August 23, 2017, a hearing was held at the District Court in Rotterdam to establish the timeframe for proceedings. Petrobras (and other defendants) presented preliminary defenses on November 29, 2017 and the Foundation presented its response on March 28, 2018. On June 28, 2018, a hearing was held for the parties to present oral arguments. On September 19, 2018, the District Court rendered its interim decision in the motion proceedings in which it accepted jurisdiction in most of 7 claims of the Foundation, without any assessment on the merits of the case.

On December 18, 2018, a hearing was held before the District Court and the schedule of the next phases of the collective action was defined. The next hearing shall be held on April 16, 2019.

This collective action involves complex issues that are subject to substantial uncertainties and depend on a number of factors such as the standing of the Foundation as the alleged representative of the investors interests, the applicable rules to this complaint, the information produced the evidentiary phase of the proceedings, analysis by experts, the timing of court decisions and rulings by the court on key issues, and the Foundation only seeks declaratory reliefs in this collective action. Currently, it is not possible to determine if the Company will be found responsible for the payment of compensation in subsequent individual complaints after this action as this assessment depends on the outcome of these complex issues. Moreover, it is uncertain which investors will be able to file subsequent individual complaints related to this matter against the Company.

In addition, the allegations asserted are broad, span a multi-year period and involve a wide range of activities, and, at the current stage, the impacts of such allegations are highly uncertain. The uncertainties inherent in all such matters affect the amount and timing of the ultimate resolution of these actions. As a result, the Company is unable to make a reliable estimate of eventual loss arising from this action. The company is victim of the corruption scheme uncovered by the Lava Jato investigation and aims to present and prove this before the Dutch Court.

The uncertainties inherent in all such matters do not enable the company to identify possible risks related to this action. Compensation for the alleged damages will only be determined by court rulings on complaints to be filed by individual investors. The Foundation is not able to demand compensation for damages.

The Company denies the allegations presented by the Foundation and intend to defend themselves vigorously.

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31.4.3. Arbitration in Brazil

Petrobras is also currently a party to 5 arbitration proceedings brought by Brazilian and foreign investors that purchased Petrobras shares traded in Brazilian Stock Exchange (B3), alleging financial losses caused by facts uncovered in the *Lava Jato* investigation.

These claims involve complex issues that are subject to substantial uncertainties and depend on a number of factors such as the novelty of the legal theories, the timing of the Chamber of Arbitration decisions, the information produced in discovery and analysis by retained experts.

Moreover, the claims asserted are broad and span a multi-year period. The uncertainties inherent in all such matters affect the amount and timing of their ultimate resolution. As a result, the Company is unable to make a reliable estimate of eventual loss arising from such arbitrations asserted. The Company denies the allegations presented by these investors and intends to defend these claims vigorously. Moreover, half of amount deposited in accordance with the Commitment Assumption Agreement executed with the Brazilian Federal Prosecutor s Office (see note 3.3.1) may be used in the event of any loss involving such arbitration proceedings.

Depending on the outcome of these complaints, the company may have to pay substantial amounts, which may cause a significant effect on its financial condition, its financial statements or consolidated cash flow in a certain period.

31.4.4. Arbitration in Argentina

On September 11, 2018, Petrobras was served of an arbitral claim filed by Consumidores Financieros Asociación Civil para su Defensa (Association) against the company and other individuals and legal entities, before the Tribunal de Arbitraje General de la Bolsa de Comercio de Buenos Aires . Among other issues, the Association alleges Petrobras liability for a supposed loss of market value of Petrobras shares in Argentina, due to proceedings related to *Lava Jato* investigation.

As a result of a preliminary analysis, Petrobras considers that the claim is without grounds. However, considering: (i) that Petrobras has not yet replied the complaint; (ii) that the proceeding is at an early stage and (iii) the uncertainties inherent in this kind of proceedings, it is not possible for the Company to identify possible risks related to this arbitration and to produce a reliable estimate of the potential loss in this arbitration, if any.

Petrobras denies the allegations presented by the Association and intends to defend itself vigorously.

31.5. Tax recoveries under dispute

31.5.1. Recovery of PIS and COFINS

The Company filed civil lawsuits against the Brazilian Federal Government claiming to recover PIS and COFINS paid over finance income and foreign exchange variation gains, from February 1999 to January 2004.

The court granted to the Company, in all the lawsuits, the definitive right to recover those taxes, but it requires previous examination and approval by the court of the settlement reports (court-ordered liquidation stage). In 2017, there were a settlement reports issued in favor of the Company relating to the most significant amount to be recovered. However, final approvals by the court are still pending.

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As of December 31, 2018, the Company had non-current receivables of US$ 810 (US$ 944 as of December 31, 2017) related to PIS and COFINS, which are indexed to inflation.

31.5.2. Deduction of VAT tax (ICMS) from the basis of calculation of PIS and COFINS

The Company filed complaints against Brazilian Federal Government challenging the constitutionality of the inclusion, from 2001 to 2017, of VAT tax within the calculation basis of PIS and COFINS.

The Brazilian Supreme Court ruled on this matter, on March 2017, determining that such tax must not be included in the computation. However, the Brazilian Federal Government filed a motion to clarification in October 2017, and its assessment by the court is still pending.

The Regional Federal Court ruled in favor to the Company in August 2018, reinforcing the decision of the Brazilian Supreme Court.

The Company is gathering all the amounts involved in this matter, which covers a long period of time, and is not yet able to reasonably estimate this contingent asset until the issuance of these financial statements.

32. Commitment to purchase natural gas

The Company has an active GSA agreement (Gas Supply Agreement) entered into with Yacimentos Petroliferos Fiscales Bolivianos YPFB 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.

As of December 31, 2018, the total amount of the GSA for 2019 is nearly 11 billion cubic meters of natural gas (equivalent to 30.08 million cubic meters per day) and corresponds to a total estimated value of US$ 2.09 billion. Based on the aforementioned extension clause, the Company foresees an extension of the GSA term to June 2022 on the same volume basis according to current indicators, representing an estimated additional amount of US$ 4.85 billion, for the period from January 1, 2020 to June 30, 2022.

33. Collateral for crude oil exploration concession agreements

The Company has granted collateral to the Brazilian Agency of Petroleum, Natural Gas and Biofuels (Agência Nacional de Petróleo, Gás Natural e Biocombustíveis - ANP) in connection with the performance of the Minimum Exploration Programs established in the concession agreements for petroleum exploration areas in the total amount of US$ 2,326 of which US$ 1,198 were still in force as of December 31, 2018 , net of commitments undertaken. The collateral comprises crude oil from previously identified producing fields, pledged as collateral, amounting to US$ 1,092 and bank guarantees of US$ 106.

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34. Risk management

The Company is exposed to a variety of risks arising from its operations, including price risk (related to crude oil and oil products prices), foreign exchange rates risk, interest rates risk, credit risk and liquidity risk. Corporate risk management is part of the Company s commitment to act ethically and comply with the legal and regulatory requirements of the countries where it operates. To manage market and financial risks the Company prefers structuring measures through adequate capital and leverage management. While managing risks, the Company considers its corporate governance and controls, involving the Executive Risk Committee, technical departments and statutory committees monitoring, under the guidance of the Board of Executive Officers and the Board of Directors. The Company takes account of risks in its business decisions and manages any such risk in an integrated manner in order to enjoy the benefits of diversification.

A summary of the positions of the derivative financial instruments held by the Company and recognized in other current assets and liabilities as of December 31, 2018 , as well as the amounts recognized in the statement of income and other comprehensive income and the guarantees given is set out as follows:

	Statement of Financial Position				
			Fair value		
	Notional value		Asset Position (Liability)		Maturity
	12.31.2018	12.31.2017	12.31.2018	12.31.2017	
Derivatives not designated for hedge accounting					
Future contracts - total (*)	(14,043)	(15,561)	108	(98)	
Long position/Crude oil and oil products	40,017	43,862			2019/2020
Short position/Crude oil and oil products	(54,060)	(59,423)			2019/2020
Forward contracts - total					
Long position/Foreign currency forwards (BRL/USD) (**)	US$ 137	US$ 55	(2)	0.3	2019
Short position/Foreign currency forwards (BRL/USD) (**)	US$ 92	US$ 78	(1)	(0.3)	2019
Long position/Foreign currency forwards (EUR/USD) (**)	EUR 3000		(123)		2019
Long position/Foreign currency forwards (GBP/USD) (**)	GBP 419		(11)		
Swap					

Foreign currency / Cross-currency Swap (**)	GBP	700	GBP	700	0.5	92	2026
Foreign currency / Cross-currency Swap (**)	GBP	600	GBP	600	(70.5)	13	2034
Total recognized in the Statement of Financial Position					(99)	7	

(*) Notional value in thousands of bbl.
(**) Amounts in US$, GBP and EUR are presented in million.

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	Gains/(losses) recognized in the statement of income (*)			Gains/(losses) recognized in the Shareholders Equity (**)		
	2018	2017	2016	2018	2017	2016
Commodity derivatives	(409)	(144)	(48)		(9)	
Foreign currency derivatives	(366)	89	(55)		1	7
Interest rate derivatives		(9)	(8)		6	4
	(775)	(64)	(111)		(2)	11
Cash flow hedge on exports (***)	(3,315)	(3,154)	(2,841)	(5,635)	2,611	13,620
Total	(4,090)	(3,218)	(2,952)	(5,635)	2,609	13,631

(*) Amounts recognized in finance income in the period.
(**) Amounts recognized as other comprehensive income in the period.
(***) Using non-derivative financial instruments as designated hedging instruments, as set out in note 34.2.

	Guarantees given as collateral	
	12.31.2018	12.31.2017
Commodity derivatives	(48)	205
Foreign currency derivatives	70	(50)
Total	22	155

A sensitivity analysis of the derivative financial instruments for the different types of market risks as of December 31, 2018 is set out as follows:

Financial Instruments	Risk	Probable Scenario (*)	Reasonably possible scenario (*)	Remote Scenario (*)
Derivatives not designated for hedge accounting				

Future contracts	Crude oil and oil products - price changes		(134)	(268)
Forward contracts	Foreign currency - depreciation BRL x USD	1	(11)	(23)
		1	(145)	(291)

(*) The probable scenario was computed based on the following risks: oil and oil products prices: fair value on December 31, 2018 / R$ x U.S. Dollar - a 2.7% appreciation of the Real.Source: Focus and Bloomberg. Reasonably possible and remote scenarios consider 25% and 50% deterioration in the associated risk variables, respectively.

34.1. Risk management of crude oil and oil products prices

The Company is usually exposed to commodity price cycles, although it may use derivative instruments to hedge exposures related to prices of products purchased and sold to fulfill operational needs and in specific circumstances depending on business environment analysis and assessment of whether the Business and Management targets are being met.

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Accordingly, Petrobras executed a hedge strategy for part of its oil exports foreseen for 2018. The transaction was carried out during February and March, in a volume equivalent to 128 million barrels of oil. Over-the-Counter Put Options (OTC Put Options) were purchased with an average cost of US$ 3.48 per barrel and an average strike price of US $ 65 / barrel. These options expired at the end of 2018.

This transaction aimed to hedge a portion of the cash flow from operating activities for 2018, guaranteed a minimum price level for the volume under this transaction without limiting the sales price if the average Brent price in the year had exceeded the reference value, thereby protecting the Company in case of oil prices downturn while enabling it to take advantage of higher prices. The goal was to reduce negative impacts on the Company s cash generation in the most adverse price scenarios, increasing the confidence in the strategy of reducing its leverage.

As of December 31, 2018, the Company accounted for a US$ 401 loss as other income and expenses within corporate business segments, due to the decrease in the fair value of these put options driven by the increase in the commodity price in the international market.

From September 2018, the Company also has executed a hedge strategy related to gasoline prices and foreign exchange rates by using commodity derivatives and non-deliverable forwards (NDF), in order to improve flexibility of its pricing policy for this oil product. It allows the Company to hold constant gasoline prices in the domestic market for periods of up to 15 days, which represents a better alignment between the Company interest and demands from customers and market players in general.

The Company may apply this strategy in periods of high volatility of prices in order to meet the aforementioned alignment and generate results equivalent to those that would be generated if prices were adjusted on a daily basis. The Company recognized a US$ 34 loss in 2018 arising from this strategy.

34.2. Foreign exchange risk management

The Company s Risk Management Policy provides for, as an assumption, an integrated risk management that extends to the whole corporation, pursuing the benefit from the diversification of its businesses.

By managing its foreign exchange risk, the Company takes into account the group of cash flows derived from its operations. This concept is especially applicable to the risk relating to the exposure of the Brazilian Real against the U.S. dollar, in which future cash flows in U.S. dollar, as well as cash flows in Brazilian Real affected by the fluctuation between both currencies, such as cash flows derived from diesel and gasoline sales in the domestic market, are assessed in an integrated manner.

Accordingly, the financial risk management mainly involves structured actions encompassing the business of the Company.

Changes in the Real/U.S. dollar spot rate, as well as foreign exchange variation of the Real against other foreign currencies, may affect net income and the statement of financial position due to the exposures in foreign currencies, such as:

- High probable future transactions;
- Monetary items; and
- Firm commitments.

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The Company seeks to mitigate the effect of potential variations in the Real/U.S. dollar spot rates mainly raising funds denominated in US dollars, aiming at reducing the net exposure between obligations and receipts in this currency, thus representing a form of structural protection that takes into account criteria of liquidity and cost competitiveness.

Foreign exchange variation on future exports denominated in U.S. Dollar in a given period are efficiently hedged by the US dollar debt portfolio taking into account changes in such portfolio over time.

The foreign exchange risk management strategy may involve the use of derivative financial instruments to hedge certain liabilities, mitigating foreign exchange rate risk exposure, especially when the Company is exposed to a foreign currency in which no cash inflows are expected, for example, the Pound Sterling.

In the short-term, the foreign exchange risk is managed by applying resources in cash or cash equivalent denominated in Brazilian Real, U.S. Dollar or in another currency.

a) Cash Flow Hedge involving the Company s future exports

Considering the natural hedge and the risk management strategy, the Company designates hedging relationships to account for the effects of the existing hedge between a foreign exchange gain or loss from proportions of its long-term debt obligations (denominated in U.S. dollars) and foreign exchange gain or loss of its highly probable U.S. dollar denominated future export revenues, so that gains or losses associated with the hedged transaction (the highly probable future exports) and the hedging instrument (debt obligations) are recognized in the statement of income in the same periods.

Foreign exchange gains and losses on proportions of debt obligations (non-derivative financial instruments), as well as foreign exchange rate forward contracts (derivative financial instruments) have been designated as hedging instruments. Derivative financial instruments expired during the year were replaced by debts in the hedging relationships for which they had been designated.

Only a portion of the Company s forecast exports are considered highly probable. The highly probable future exports for each month are hedged by a proportion of the debt obligations with an equal US dollar nominal amount.

The Company s future exports are exposed to the risk of variation in the Brazilian Real/U.S. dollar spot rate, which is offset by the converse exposure to the same type of risk with respect to its debt denominated in US dollar.

The hedge relationships are assessed on a monthly basis and they may cease and may be re-designated in order to achieve the risk management strategy.

Whenever a portion of future exports for a certain period, for which their foreign exchange gains and losses hedging relationship has been designated is no longer highly probable, the Company revokes the designation and the cumulative foreign exchange gains or losses that have been recognized in other comprehensive income remain separately in equity until the forecast exports occur.

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If future exports for which foreign exchange gains and losses hedging relationship has been designated is no longer expected to occur, any related cumulative foreign exchange gains or losses that have been recognized in other comprehensive income from the date the hedging relationship was designated to the date the Company revoked the designation is immediately recycled from equity to the statement of income.

In addition, when a financial instrument designated as a hedging instrument expires or settles, the Company may replace it with another financial instrument in a manner in which the hedge relationship continues to occur. Likewise, whenever a hedged transaction effectively occurs, its financial instrument previously designated as a hedging instrument may be designated for a new hedge relationship.

Ineffectiveness may occur as hedged items and hedge instruments have different maturity dates and due to discount rate used to determine their present value. Accordingly, the Company recognized a US$ 50 loss as foreign exchange gains (losses) due to ineffectiveness.

The carrying amounts, the fair value as of December 31, 2018, and a schedule of expected reclassifications to the statement of income of cumulative losses recognized in other comprehensive income (shareholders equity) based on a US$ 1.00 / R$ 3.8748 exchange rate are set out below:

			Present value of hedging instrument notional value at 12.31.2018		
Hedging Instrument	**Hedged Transactions**	**Nature of the Risk**	**Maturity Date (US$ million)**	**(US$ million)**	**(R$ million)**
Foreign exchange gains and losses on proportion of non-derivative financial instruments cash flows	Foreign exchange gains and losses on a portion of highly probable future monthly exports revenues	Foreign Currency Real vs U.S. Dollar Spot Rate	January 2019 to December 2028	66,168	256,390

Changes in the present value of hedging instrument notional value	US$	R$ million
Amounts designated as of December 31, 2017	58,400	193,189
Additional hedging relationships designated, designations revoked and hedging instruments re-designated	31,521	116,927
Exports affecting the statement of income	(6,881)	(25,151)
Principal repayments / amortization	(16,872)	(61,277)
Foreign exchange variation		32,702
Amounts designated as of December 31, 2018	66,168	256,390
Nominal value of of hedging instrument at December 31, 2018	75,223	291,476

The average ratio of future exports for which cash flow hedge accounting was designed to the highly probable future exports is 57.7%.

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A roll-forward schedule of cumulative foreign exchange losses recognized in other comprehensive income as of December 31, 2018 is set out below:

	Exchange rate	Tax effect	Total
Balance at January 1,2017	(17,119)	5,822	(11,297)
Recognized in shareholders equity	(543)	185	(358)
Reclassified to the statement of income - occurred exports	3,151	(1,071)	2,080
Reclassified to the statement of income - exports no longer expected or not occurred	3	(1)	2
Balance at December 31, 2017	(14,508)	4,935	(9,573)
Recognized in shareholders equity	(8,950)	3,043	(5,907)
Reclassified to the statement of income - occurred exports	3,315	(1,127)	2,188
Balance at December 31, 2018	(20,143)	6,851	(13,292)

Additional hedging relationships may be revoked or additional reclassification adjustments from equity to the statement of income may occur as a result of changes in forecast export prices and export volumes following a review of the Company s business plan. Based on a sensitivity analysis considering a US$ 10/barrel decrease in Brent prices stress scenario, when compared to the Brent price projections in our BMP-2019-2023, would not indicate a reclassification adjustment from equity to the statement of income.

A schedule of expected reclassification of cumulative foreign exchange losses recognized in other comprehensive income to the statement of income as of December 31, 2018 is set out below:

	2019	2020	2021	2022	2023	2025	20252026 to 2028		Total
Expected realization	(4,670)	(4,085)	(3,875)	(4,230)	(2,543)	(1,353)	152	461	(20,143)

IFRS 9 is effective from January 1, 2018 and provides for new requirements for hedge accounting. See note 2.3.1 for additional information on impacts of this new accounting standard on the Company s financial statements.

b) Cross currency swap Pounds Sterling x Dollar

In 2017, the Company, through its wholly owned subsidiary Petrobras Global Trading B.V. (PGT), entered into cross currency swaps maturing in 2026 and 2034, with notional amounts of £ 700 million and £ 600 million, respectively, in order to hedge its Pounds/U.S. Dollar exposure arising from bonds issued amounting to £ 1,300. During 2018, changes in the fair value of these derivatives resulted in a US$ 265 loss recognized within finance income and expenses (a US$ 96 gain in 2017). The Company does not expect to settle these swaps before their expiration dates.

c) Non Deliverable Forward (NDF) Euro x Dollar

In 2018, the Company, also through PGT, entered into non deliverable forwards with notional amounts of Euro 3,000 million and £ 419 million, and maturing in 2019, in other to reduce its euro x dollar exposure raised by bonds issued. During 2018, changes in the fair value of these derivatives resulted in a US$ 139 loss recognized within finance income and expenses. The Company does not intend to settle such derivatives before their expiration dates.

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d) Sensitivity analysis for foreign exchange risk on financial instruments

A sensitivity analysis is set out below, showing the probable scenario for foreign exchange risk on financial instruments, computed based on external data along with stressed scenarios (a 25% and a 50% change in the foreign exchange rates), except for assets and liabilities of foreign subsidiaries, when transacted in a currency equivalent to their respective functional currencies.

Financial Instruments	Exposure at 12.31.2018	Risk	Probable Scenario (*)	Reasonably possible scenario	Remote Scenario
Assets	7,182		(194)	1,795	3,591
Liabilities (**)	(73,199)	Dollar/Real	1,980	(18,300)	(36,600)
Cash flow hedge on exports	66,169		(1,790)	16,542	33,084
	152		(4)	37	75
Liabilities		Yen/Dollar			
Assets	8			2	4
Liabilities	(20)	Euro/Real	1	(5)	(10)
	(12)		1	(3)	(6)
Assets	3,520	Euro/Dollar	13	880	1,760
Liabilities	(6,738)		(25)	(1,684)	(3,369)
Non Deliverable Forward (NDF)	3,437		13	859	1,718
	219		1	55	109
Assets	1	Pound			1
Liabilities	(20)	Sterling/Real		(5)	(10)
	(19)			(5)	(9)
Assets	2,337	Pound Sterling	35	584	1,169
Liabilities	(4,031)	/Dollar	(60)	(1,008)	(2,016)
Derivative - cross currency swap	1,665		25	416	832

Non Deliverable Forward (NDF)	537	8	134	268
	508	8	126	253
Total	848	6	210	422

(*) On December 31, 2018, the probable scenario was computed based on the following risks: R$ x U.S. Dollar - a 2.7% appreciation of the Real / Japanese Yen x U.S. Dollar - a 1% depreciation of the Japanese Yen/ Euro x U.S. Dollar: a 0.4% appreciation of the Euro / Pound Sterling x U.S. Dollar: a 1.5% appreciation of the Pound Sterling / Real x Euro - a 2.3% appreciation of the Real / Real x Pound Sterling - a 1.2% appreciation of the Real. Source: Focus and Bloomberg.

(**) It includes the Class Action provision as set out note 31.4.

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34.3. Interest rate risk management

The Company considers that interest rate risk does not create a significant exposure and therefore, preferably does not use derivative financial instruments to manage interest rate risk, except for specific situations faced by certain subsidiaries of Petrobras.

34.4. Capital management

The Company s objectives in its capital management is to achieve an adequate level of return on its capital structure in order to safeguard its ability to continue as a going concern, adding value to its shareholders and investors. Its main sources of funding have been cash provided by its operating activities and divestments.

In line with the assumptions in the 2019-2023 Business and Management Plan, the Company does not foresee net proceeds from financing over the next five years. However, the Company has continually assessed options of funding following its liability management strategy, aiming at improving its debt repayment profile and achieving a lower cost of its debt along with an indebtedness level matching the capital expenditures. Currently, the average repayment term is 9.14 years (8.62 years as of December 31, 2017).

As a part of the financing planning, the Company expects to raise funds by means of its partnership and divestment program outlined by its portfolio management. However, this divestment portfolio is dynamic and the occurrence of the transactions depends on business conditions, market conditions and the Company s continuing assessment of its businesses.

34.5. Credit risk

Credit risk management in Petrobras aims to mitigate risk of not collecting receivables, financial deposits or collateral from third parties or financial institutions through efficient credit analysis, granting and management based on quantitative and qualitative parameters that are appropriate for each market segment in which the Company operates.

The commercial credit portfolio is broad and diversified and comprises clients from the domestic and foreign markets. Credit granted to financial institutions is related to collaterals received, cash surplus invested and derivative financial instruments. It is spread among investment grade international banks rated by international rating agencies and Brazilian banks with low credit risk.

34.5.1. Credit quality of financial assets

a) Trade and other receivables

The Company has internal credit commissions that assess creditworthiness and define credit limits, which are regularly monitored, based on the customer s main activity, commercial relationship and credit history with Petrobras, solvency, financial situation and external market assessment of the customer.

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b) Other financial assets

Credit quality of cash and cash equivalents, as well as marketable securities is based on external credit ratings provided by Standard & Poor s, Moody s and Fitch. The credit quality of those financial assets, that are neither past due nor have been impaired, are set out below:

	Cash and cash equivalents		Marketable securities (*)	
	2018	**2017**	**2018**	**2017**
AAA			1	
AA	811	752		609
A	8,421	14,864		
BBB	51	801		
BB	2,599	3,566		
B	2	4		
AAA.br	706	126	1,077	
AA.br	1,299	818	58	
A.br		1,239		
BB.br		317		1,162
Other ratings	10	32		
	13,899	22,519	1,136	1,771

(*) In 2017, it does not include the former investiment in São Martinho shares as described in note 10.

34.6. Liquidity risk

Liquidity risk is represented by the possibility of a shortage of cash or other financial assets in order to settle the Company s obligations on the agreed dates and is managed by the Company based on policies such as: centralization of cash management, optimization of the level of cash and cash equivalents held and reduction of working capital; maintenance of an adequate cash balance to ensure that cash need for investments and short-term obligations is met even in adverse market conditions; increase in the average debt maturity, increase in funding sources from domestic and international markets (new markets and financial products), as well as funds under the partnership and divestment program.

Following its liability management strategy, the Company regularly evaluates market conditions and may enter into transactions to repurchase its own securities or those of its affiliates, through a variety of means, including tender offers, make whole exercises and open market repurchases, in order to improve its debt repayment profile and cost of debt.

A maturity schedule of the Company s finance debt (undiscounted), including face value and interest payments is set out as follows:

Maturity	2019	2020	2021	2022	2023	2024 and thereafter	Balance at December 31, 2018	Balance at December 31, 2017
Principal	2,408	4,069	7,148	10,441	12,118	49,095	85,279	110,530
Interest	4,952	4,839	4,574	4,148	3,516	29,330	51,359	60,728
Total	7,360	8,908	11,722	14,589	15,634	78,425	136,638	171,258

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34.7. Insurance

The Company s insurance strategy involves acquiring insurance to cover risks that may produce material impacts and to cover risks that are subject to compulsory insurance coverage (pursuant to legal or contractual requirements). The remaining risks are self-insured and Petrobras intentionally assumes the entire risk by abstaining from contracting insurance. The Company assumes a significant portion of its risk, by entering into insurance policies that have deductible clauses up to the equivalent to US$180.

The main information concerning the insurance coverage outstanding at December 31, 2018 is set out below:

Assets	Types of coverage	Amount insured
Facilities, equipment inventory and products inventory	Fire, operational risks and engineering risks	145,891
Tankers and auxiliary vessels	Hulls	3,341
Fixed platforms, floating production systems and offshore drilling units	Oil risks	28,611
Total		177,843

Petrobras does not have loss of earnings insurance or insurance related to automobiles and pipeline networks in Brazil.

35. Fair value of financial assets and liabilities

Fair values are determined based on market prices, when available, or, in the absence thereof, on the present value of expected future cash flows.

The hierarchy of the financial assets and liabilities recorded at fair value is set out below:

Level 1: inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date.

Level 2: inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.

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Level 3: inputs are unobservable inputs for the asset or liability.

	Fair value measured based on			
	Level I	Level II	Level III	Total fair value recorded
Assets				
Marketable securities	1,091			1,091
Foreign currency derivatives		1		1
Balance at December 31, 2018	1,091	1		1,092
Balance at December 31, 2017	1,829	105		1,934
Liabilities				
Foreign currency derivatives		(208)		(208)
Commodity derivatives	108			108
Balance at December 31, 2018	108	(208)		(100)
Balance at December 31, 2017	(98)			(98)

The estimated fair value for the Company s long term debt, computed based on the prevailing market rates, is set out in note17.3.

The fair values of cash and cash equivalents, short-term debt and other financial assets and liabilities are equivalent or do not differ significantly from their carrying amounts.

36. Subsequent events

36.1. Sale of Pasadena Refinery

On January 30, 2019, Petrobras America Inc. (PAI) entered into a Share Purchase Agreement (SPA) with Chevron USA Inc. (Chevron) for the sale of the shares held by PAI on Pasadena Refining System Inc. (PRSI) and PRSI Trading LLC (PRST), which make up the Pasadena refining system in the United States.

The value for this transaction is US$ 562, of which US$ 350 refers to shares of Pasadena and US$ 212 relates to its working capital in October 2018. The final value is subject to working capital adjustments up to the transaction closing.

The conclusion of this transaction is subject to the fulfillment usual conditions precedent, such as approvals from the antitrust agencies of the United States and Brazil.

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36.2. Public Offering of Debentures

On January 31, 2019, the Company finalized the bookbuilding of issuance of simple, non-convertible, unsecured debentures amounting to US$ 929 (R$ 3,600 million).

The Debentures of the 1st and 2nd series will count on the incentive pursuant to Law 12,431/2011 and other relevant regulations, with respective proceeds being used in exploration and production operations. The Company will use 90% of proceeds from the 3rd series to prepay a bank financing maturing in 2023, and the remainder for general corporate purposes.

The nominal amount of the 1st and 2nd series will be updated by the Brazilian price index rate (IPCA), mature in seven years and ten years, respectively. The 1st one will bear interest at IPCA rate plus 4.0460% p.a, while the second will be updated by IPCA rate plus 4.2186% p.a. The Debentures of the third series, whose nominal unit value will not be updated, will mature in seven years and bear interest at 106.25% of the Brazilian interbank offering rate (CDI).

37. Information related to guaranteed securities issued by subsidiaries

37.1. Petrobras Global Finance B.V. (PGF)

Petróleo Brasileiro S.A. - Petrobras fully and unconditionally guarantees the debt securities issued by Petrobras Global Finance B.V. (PGF), a 100-percent-owned finance subsidiary of Petrobras. There are no significant restrictions on the ability of Petrobras to obtain funds from PGF.

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Supplementary information

Supplementary information on Oil and Gas Exploration and Production (unaudited)

This section provides supplemental information on oil and gas exploration and production activities of the Company. The information included in items (i) through (iii) provides historical cost information pertaining to costs incurred in exploration, property acquisition and development, capitalized costs and results of operations. The information included in items (iv) and (v) presents information on Petrobras estimated net proved reserve quantities, standardized measure of estimated discounted future net cash flows related to proven reserves, and changes in estimated discounted future net cash flows.

The Company, on December 31, 2018, maintains activities in Brazil; South America, which includes Argentina, Colombia and Bolivia; and North America, in Mexico. The equity-accounted investments are comprised of the operations of Petrobras Oil and Gas B.V. (PO&G) in Africa, in Nigeria, and the joint venture company of which Murphy Exploration & Production Company (Murphy) has 80% stake and Petrobras America Inc (PAI) 20% stake in North America, in United States of America. However, the Company only reports reserves in Brazil, United States of America, Nigeria and Argentina. Bolivian reserves are not included due to restrictions determined by Bolivian Constitution.

i) Capitalized costs relating to oil and gas producing activities

As set out in note 4.7, the Company uses the successful efforts method of accounting for appraisal and development costs of crude oil and natural gas production. In addition, notes 4.8 and 4.9 presents the accounting policies applied by the Company for recognition, measurement and disclosure of property, plant and equipment and intangible assets.

The following table summarizes capitalized costs for oil and gas exploration and production activities with the related accumulated depreciation, depletion and amortization, and asset retirement obligations:

	Consolidated entities						
		Abroad					Equity Method
	Brazil	South America	North America	Others	Total	Total	Investees
December 31, 2018							
Unproved oil and gas properties	5,999	112			112	6,111	
Proved oil and gas properties	88,572	144			144	88,716	4,091
Support Equipment	83,822	649		389	1,038	84,860	6

Gross Capitalized costs	178,393	905		389	1,294	179,687	4,097
Depreciation, depletion and amortization	(60,890)	(544)		(29)	(573)	(61,463)	(1,410)
Net capitalized costs	117,503	361		360	721	118,224	2,687
December 31, 2017							
Unproved oil and gas properties	5,803	109			109	5,912	
Proved oil and gas properties	96,195	111	4,656		4,767	100,962	3,134
Support Equipment	86,021	606	81	392	1,079	87,100	6
Gross Capitalized costs	188,019	826	4,737	392	5,955	193,974	3,140
Depreciation, depletion and amortization	(63,245)	(504)	(2,217)	(12)	(2,733)	(65,978)	(1,287)
Net capitalized costs	124,774	322	2,520	380	3,222	127,996	1,853
December 31, 2016							
Unproved oil and gas properties	6,978	115	276		391	7,369	
Proved oil and gas properties	87,925	88	4,264		4,352	92,277	2,811
Support Equipment	84,549	473	70	4	547	85,096	6
Gross Capitalized costs	179,452	676	4,610	4	5,290	184,742	2,817
Depreciation, depletion and amortization	(55,580)	(348)	(1,917)	(4)	(2,269)	(57,849)	(1,165)
Net capitalized costs	123,872	328	2,693		3,021	126,893	1,652

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ii) Costs incurred in oil and gas property acquisition, exploration and development activities

Costs incurred are summarized below and include both amounts expensed and capitalized:

	Consolidated entities						
		Abroad					Equity
	Brazil	South America	North America	Others	Total	Total	Method Investees
December 31, 2018							
Acquisition costs:							
Proved							
Unproved	832					832	
Exploration costs	776	10	1		11	787	5
Development costs	9,685	32	229		261	9,946	252
Total	11,293	43	230		272	11,565	257
December 31, 2017							
Acquisition costs:							
Proved							
Unproved	903					903	
Exploration costs	1,223	33	4		37	1,260	4
Development costs	11,553	23	230		253	11,806	294
Total	13,679	56	234		290	13,969	298
December 31, 2016							
Acquisition costs:							
Proved		98			98	98	
Unproved							
Exploration costs	1,459	44	6	1	51	1,510	5
Development costs	12,429	176	148		324	12,753	389

Total	13,888	318	154	1	473	14,361	394

(iii) Results of operations for oil and gas producing activities

The Company s results of operations from oil and gas producing activities for the years ended December 31, 2018, 2017 and 2016 are shown in the following table. The Company transfers substantially all of its Brazilian crude oil and gas production to the Refining, Transportation & Marketing segment in Brazil. The internal transfer prices calculated by the Company s model may not be indicative of the price the Company would have realized had this production been sold in an unregulated spot market. Additionally, the prices calculated by the Company s model may not be indicative of the future prices to be realized by the Company. Gas prices used are those set out in contracts with third parties.

Production costs are lifting costs incurred to operate and maintain productive wells and related equipment and facilities, including operating employees compensation, materials, supplies, fuel consumed in operations and operating costs related to natural gas processing plants.

Exploration expenses include the costs of geological and geophysical activities and projects without economic feasibility. Depreciation and amortization expenses relate to assets employed in exploration and development activities. In accordance with Codification Topic 932 Extractive Activities Oil and Gas, income taxes are based on statutory tax rates, reflecting allowable deductions. Interest income and expense are excluded from the results reported in this table.

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(iii) Results of operations for oil and gas producing activities

	Consolidated entities						
		Abroad					
	Brazil	South America	North America	Others	Total	Total	Equity Method Investees
December 31, 2018							
Net operation revenues:							
Sales to third parties	1,142	190	998		1,188	2,330	375
Intersegment	50,052					50,052	
	51,194	190	998		1,188	52,382	375
Production costs	(19,741)	(77)	(152)		(229)	(19,970)	(40)
Exploration expenses	(516)	(7)	(1)		(8)	(524)	(2)
Depreciation, depletion and amortization	(8,716)	(40)	(221)	(21)	(282)	(8,998)	(109)
Impairment of oil and gas properties	(686)		(705)		(705)	(1,391)	
Other operating expenses	(2,188)	(839)	(88)	(38)	(965)	(3,153)	(12)
Results before income tax expenses	19,347	(773)	(169)	(59)	(1,001)	18,346	212
Income tax expenses	(6,576)	263	57	20	340	(6,236)	-162
Results of operations (excluding corporate overhead and interest costs)	12,771	(510)	(112)	(39)	(661)	12,110	50
December 31, 2017							
Net operation revenues:							
Sales to third parties	482	215	725		940	1,422	443
Intersegment	40,762					40,762	
	41,244	215	725		940	42,184	443
Production costs	(17,894)	(71)	(163)		(234)	(18,128)	(51)

Exploration expenses	(686)	(37)	(77)		(114)	(800)	1
Depreciation, depletion and amortization	9,466	(44)	(302)	(8)	(354)	(9,820)	(123)
Impairment of oil and gas properties	169	(13)	(113)		(126)	43	
Other operating expenses	(2,571)	(12)	(125)	(274)	(411)	(2,982)	(19)
Results before income tax expenses	10,796	38	(55)	(282)	(299)	10,497	251
Income tax expenses	3,672	(13)	18	96	101	(3,571)	(98)
Results of operations (excluding corporate overhead and interest costs)	7,124	25	(37)	(186)	(198)	6,926	153
December 31, 2016							
Net operation revenues:							
Sales to third parties	693	224	563		787	1,480	381
Intersegment	31,689	506			506	32,195	31
	32,382	730	563		1,293	33,675	412
Production costs	(13,939)	(315)	(132)		(447)	(14,386)	(56)
Exploration expenses	(1,603)	(35)	(122)	(1)	(158)	(1,761)	(4)
Depreciation, depletion and amortization	(10,051)	(99)	(327)		(426)	(10,477)	(170)
Impairment of oil and gas properties	(3,102)	(126)	(44)		(170)	(3,272)	
Other operating expenses	(1,497)	(97)	(184)	22	(259)	(1,756)	(28)
Income before income tax expenses	2,190	58	(246)	21	(167)	2,023	154
Income tax expenses	(745)	(44)		12	(32)	(777)	(108)
Results of operations (excluding corporate overhead and interest costs)	1,445	14	(246)	33	(199)	1,246	46

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(iv) Reserve quantities information

As presented in note 5.1, 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 prior to the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain. The project to extract the hydrocarbons must have commenced or the operator must be reasonably certain that it will commence within a reasonable time. Reserves estimate involves a high degree of judgment and complexity and its application affects different items of these Financial Statements.

The Company s estimated net proved oil and gas reserves and changes thereto for the years 2018, 2017 and 2016 are shown in the following table. Proved reserves are estimated in accordance with the reserve definitions prescribed by the Securities and Exchange Commission.

Developed oil and gas reserves are reserves of any category that can be expected to be recovered: (i) through existing wells with existing equipment and operating methods or in 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 reserves estimate if the extraction is done by means not involving a well.

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In some cases, substantial new investments in additional wells and related facilities will be required to recover these proved reserves and are named proved undeveloped reserves. Due to the inherent uncertainties and the limited nature of reservoir data, estimates of reserves are subject to changes as additional information becomes available. A summary of the annual changes in the proved reserves of oil is as follows (in millions of barrels):

		Abroad				
Proved developed and undeveloped reserves - Consolidated Entities (*)	**Crude oil in Brazil**	**South America**	**North America**	**Africa**	**Total of crude oil abroad**	**Synthetic oil in Brazil**	**Total**
Reserves at December 31, 2015	8,544.1	52.3	90.6	142.9	6.9	8,693.9
Revisions of previous estimates	179.5	0.1	17.9	18.0	0.8	198.4
Extensions and discoveries	87.8					87.8
Improved Recovery						
Sales of reserves		(46.6)		(46.6)		(46.6)
Purchases of reserves		0.7		0.7		0.7
Production for the year	(748.5)	(5.7)	(12.1)	(17.8)	(0.9)	(767.2)
Reserves at December 31, 2016	8,063.0	0.8	96.4	97.3	6.8	8,167.1
Revisions of previous estimates	649.3	0.3	31.4	31.7	0.2	681.1
Extensions and discoveries	69.1	0.3		0.3		69.4
Improved Recovery	212.7					212.7
Sales of reserves						
Purchases of reserves						
Production for the year	(744.6)	(0.2)	(13.2)	(13.4)	(1.0)	(759.0)
Reserves at December 31, 2017 (1)	8,249.4	1.2	114.6	115.8	6.0	8,371.3
Transfers by loss of control (2)			(100.4)	(100.4)		(100.4)
Revisions of previous estimates	342.7				(0.3)	342.5
Extensions and discoveries	308.5	0.6		0.6		309.1
Improved Recovery	224.2					224.2

Sales of reserves	(254.8)					(254.8)
Purchases of reserves						
Production for the year	(701.3)	(0.3)	(14.3)	(14.5)	(0.9)	(716.8)
Reserves at December 31, 2018	8,168.7	1.6		1.6	4.8	8,175.1

(1) In 2017, total proved reserves includes 263.7 million barrels related to assets held for sale.
(2) Amounts transferred from consolidated entities to equity method investees, as the Company concluded the operation that has resulted in the formation of a joint venture company (JV), of which Murphy Exploration & Production Company (Murphy) has 80% stake and Petrobras America Inc (PAI) 20% stake.
(*) Apparent differences in the sum of the numbers are due to rounding off.

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		Abroad				
Proved developed and undeveloped reserves - Equity Method Investees (*)	**Crude oil in Brazil**	**South America**	**North America**	**Africa**	**Total of crude oil abroad**	**Brazil s Synthetic Oil**	**Total**
Reserves at December 31, 2015	14.6			65.8	80.4		80.4
Revisions of previous estimates				11.9	11.9		11.9
Extensions and discoveries							
Improved Recovery							
Sales of reserves	(14.1)				(14.1)		(14.1)
Purchases of reserves							
Production for the year	(0.5)			(8.7)	(9.2)		(9.2)
Reserves at December 31, 2016				69.0	69.0		69.0
Revisions of previous estimates				2.6	2.6		2.6
Extensions and discoveries							
Improved Recovery							
Sales of reserves							
Purchases of reserves							
Production for the year				(8.2)	(8.2)		(8.2)
Reserves at December 31, 2017				63.4	63.4		63.4
Transfers by loss of control (2)			100.4		100.4		100.4
Revisions of previous estimates			(0.9)	3.7	2.9		2.9
Extensions and discoveries							
Improved Recovery							
Sales of reserves			(80.4)		(80.4)		(80.4)
Purchases of reserves			7.9		7.9		7.9
Production for the year			(0.4)	(7.3)	(7.7)		(7.7)
Reserves at December 31, 2018 (1)			26.6	59.8	86.4		86.4

(1) In 2018, total proved reserves includes 59.8 million barrels related to PO&G assets held for sale.
(2) Amounts transferred from consolidated entities to equity method investees, as the Company concluded the operation that has resulted in the formation of a joint venture company (JV), of which Murphy Exploration & Production Company (Murphy) has 80% stake and Petrobras America Inc (PAI) 20% stake.
(*) Apparent differences in the sum of the numbers are due to rounding off.

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A summary of the annual changes in the proved reserves of natural gas is as follows (in billions of cubic feet):

		Abroad				
Proved developed and undeveloped reserves - Consolidated Entities (*)	**Natural Gas in Brazil**	**South America**	**North America**	**Africa**	**Total Natural Gas Abroad**	**Brazil s Synthetic Gas**	**Total**
Reserves at December 31, 2015	9,587.7	680.5	138.5	819.1	9.3	10,416.1
Revisions of previous estimates	(476.2)	22.9	(19.3)	3.6	1.2	(471.4)
Extensions and discoveries	92.1					92.1
Improved Recovery	0.1					0.1
Sales of reserves		(631.9)		(631.9)		(631.9)
Purchases of reserves		93.3		93.3		93.3
Production for the year	(809.7)	(50.9)	(32.1)	(82.9)	(1.4)	(894.0)
Reserves at December 31, 2016	8,394.0	113.9	87.2	201.1	9.2	8,604.3
Revisions of previous estimates	(81.5)	19.5	(24.9)	(5.5)	0.1	(86.9)
Extensions and discoveries	37.4	41.0		41.0		78.4
Improved Recovery	204.2					204.2
Sales of reserves						
Purchases of reserves						
Production for the year	(877.9)	(14.2)	(21.3)	(35.5)	(1.2)	(914.6)
Reserves at December 31, 2017 (1)	7,676.1	160.2	40.9	201.1	8.1	7,885.3
Transfers by loss of control (2)			(36.8)	(36.8)		(36.8)
Revisions of previous estimates	737.2				(1.0)	736.2
Extensions and discoveries	136.8	70.1		70.1		206.9
Improved Recovery	207.6					207.6
Sales of reserves	(165.5)					(165.5)
Purchases of reserves						

Production for the year	(801.8)	(16.2)	(4.1)	(20.3)	(1.3)	(823.5)
Reserves at December 31, 2018	7,790.5	214.1		214.1	5.7	8,010.3

(1) In 2017, total proved reserves includes 173.7 billion cubic feet related to assets held for sale.
(2) Amounts transferred from consolidated entities to equity method investees, as the Company concluded the operation that has resulted in the formation of a joint venture company (JV), of which Murphy Exploration & Production Company (Murphy) has 80% stake and Petrobras America Inc (PAI) 20% stake.
(*) Apparent differences in the sum of the numbers are due to rounding off.

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		Abroad				
Proved developed and undeveloped reserves - Equity Method Investees (*)	**Natural Gas in Brazil**	**South America**	**North America**	**Africa (1)**	**Total Natural Gas Abroad**	**Brazil s Synthetic Gas**	**Total**
Reserves at December 31, 2015		16.9		16.6	33.5		33.5
Revisions of previous estimates				(4.1)	(4.1)		(4.1)
Extensions and discoveries							
Improved Recovery							
Sales of reserves		(16.8)			(16.8)		(16.8)
Purchases of reserves							
Production for the year		(0.1)			(0.1)		(0.1)
Reserves at December 31, 2016				12.5	12.5		12.5
Revisions of previous estimates				5.7	5.7		5.7
Extensions and discoveries							
Improved Recovery							
Sales of reserves							
Purchases of reserves							
Production for the year				(0.9)	(0.9)		(0.9)
Reserves at December 31, 2017				17.3	17.3		17.3
Transfers by loss of control (2)			36.8		36.8		36.8
Revisions of previous estimates			(3.1)	34.8	31.8		31.8
Extensions and discoveries							
Improved Recovery							
Sales of reserves			(29.7)		(29.7)		(29.7)
Purchases of reserves			6.9		6.9		6.9
Production for the year			(0.1)	(4.8)	(4.9)		(4.9)
Reserves at December 31, 2018 (1)			10.8	47.3	58.1		58.1

(1) In 2018, total proved reserves includes 47.3 billion cubic feet related to PO&G assets held for sale.
(2) Amounts transferred from consolidated entities to equity method investees, as the Company concluded the operation that has resulted in the formation of a joint venture company (JV), of which Murphy Exploration & Production Company (Murphy) has 80% stake and Petrobras America Inc (PAI) 20% stake.
(*) Apparent differences in the sum of the numbers are due to rounding off.

Natural gas production volumes used in these tables are the net volumes withdrawn from our proved reserves, including fuel gas consumed in operations and excluding reinjected gas. Our disclosure of proved gas reserves also includes fuel gas volumes, which represent 32% of our total proved reserves of natural gas at December, 2018.

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The tables below summarizes information about the changes in total proved reserves of crude oil and natural gas, in millions of barrels of oil equivalent, in our consolidated entities and equity method investees for 2018, 2017 and 2016:

		Abroad				
Proved developed and undeveloped reserves (*)	**Oil equivalent in Brazil**	**South America**	**North America**	**Africa**	**Total oil equivalent abroad**	**Total synthetic oil equivalent in Brazil**	**Total for all products**
Reserves at December 31, 2015	10,142.1	165.7	113.7		279.4	8.5	10,430.0
Revisions of previous estimates	100.2	3.9	14.7		18.6	1.0	119.8
Extensions and discoveries	103.2						103.2
Improved Recovery							
Sales of reserves		(151.9)			(151.9)		(151.9)
Purchases of reserves		16.3			16.3		16.3
Production for the year	(883.4)	(14.2)	(17.4)		(31.6)	(1.2)	(916.2)
Reserves at December 31, 2016	9,462.0	19.8	111.0		130.8	8.3	9,601.1
Revisions of previous estimates	635.7	3.5	27.2		30.7	0.2	666.6
Extensions and discoveries	75.4	7.1			7.1		82.5
Improved Recovery	246.7						246.7
Sales of reserves							
Purchases of reserves							
Production for the year	(891.0)	(2.6)	(16.7)		(19.3)	(1.2)	(911.4)
Reserves at December 31, 2017 (1)	9,528.8	27.9	121.5		149.3	7.4	9,685.5
Transfers by loss of control (2)			(106.5)		(106.5)		(106.5)
Revisions of previous estimates	465.6					(0.4)	465.2
Extensions and discoveries	331.3	12.3			12.3		343.6
Improved Recovery	258.8						258.8
Sales of reserves	(282.4)						(282.4)

Purchases of reserves						
Production for the year	(834.9)	(3.0)	(15.0)	(17.9)	(1.2)	(854.0)
Reserves at December 31, 2018	9,467.1	37.2		37.2	5.8	9,510.1

(1) In 2017, total proved reserves includes 292.7 million barrels of oil equivalent related to assets held for sale.
(2) Amounts transferred from consolidated entities to equity method investees, as the Company concluded the operation that has resulted in the formation of a joint venture company (JV), of which Murphy Exploration & Production Company (Murphy) has 80% stake and Petrobras America Inc (PAI) 20% stake.
(*) Apparent differences in the sum of the numbers are due to rouding off.

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		Abroad				
Proved developed and undeveloped reserves - Equity Method Investees (*)	**Oil equivalent in Brazil**	**South America**	**North America**	**Africa**	**Total oil equivalent abroad**	**Total synthetic oil equivalent in Brazil**	**Total for all products**
Reserves at December 31, 2015		17.4		68.6	86.0		86.0
Revisions of previous estimates				11.2	11.2		11.2
Extensions and discoveries							
Improved Recovery							
Sales of reserves		(16.9)			(16.9)		(16.9)
Purchases of reserves							
Production for the year		(0.5)		(8.7)	(9.2)		(9.2)
Reserves at December 31, 2016		0.0		71.1	71.1		71.1
Revisions of previous estimates				3.5	3.5		3.5
Extensions and discoveries							
Improved Recovery							
Sales of reserves							
Purchases of reserves							
Production for the year				(8.3)	(8.3)		(8.3)
Reserves at December 31, 2017				66.3	66.3		66.3
Transfers by loss of control (2)			106.5		106.5		106.5
Revisions of previous estimates			(1.4)	9.6	8.2		8.2
Extensions and discoveries							
Improved Recovery							
Sales of reserves			(85.4)		(85.4)		(85.4)
Purchases of reserves			9.1		9.1		9.1
Production for the year			(0.5)	(8.1)	(8.6)		(8.6)
Reserves at December 31, 2018 (1)			28.4	67.7	96.1		96.1

(1) In 2018, total proved reserves includes 67.7 million barrels of oil equivalent related to PO&G assets held for sale.
(2) Amounts transferred from consolidated entities to equity method investees, as the Company concluded the operation that has resulted in the formation of a joint venture company (JV), of which Murphy Exploration & Production Company (Murphy) has 80% stake and Petrobras America Inc (PAI) 20% stake.
(*) Apparent differences in the sum of the numbers are due to rounding off.

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Proved developed and undeveloped reserves - Consolidated and Equity Method Investees (*)	**Oil equivalent in Brazil**	**South America**	**North America**	**Africa**	**Total oil equivalent abroad**	**Total synthetic oil equivalent in Brazil**	**Total for all products**
Reserves at December 31, 2015	10,142.1	183.1	113.7	68.6	365.4	8.5	10,516.0
Revisions of previous estimates	100.2	3.9	14.7	11.2	29.8	1.0	131.0
Extensions and discoveries	103.2						103.2
Sales of reserves		(168.8)			(168.8)		(168.8)
Purchases of reserves		16.3			16.3		16.3
Production for the year	(883.4)	(14.7)	(17.4)	(8.7)	(40.8)	(1.2)	(925.4)
Reserves at December 31, 2016	9,462.0	19.8	111.0	71.1	201.8	8.3	9,672.2
Revisions of previous estimates	635.7	3.5	27.2	3.5	34.3	0.2	670.1
Extensions and discoveries	75.4	7.1			7.1		82.5
Improved Recovery	246.7						246.7
Sales of reserves							
Purchases of reserves							
Production for the year	(891.0)	(2.6)	(16.7)	(8.3)	(27.7)	(1.2)	(919.8)
Reserves at December 31, 2017 (1)	9,528.8	27.9	121.5	66.3	215.6	7.4	9,751.7
Revisions of previous estimates	465.6		(1.4)	9.6	8.2	(0.4)	473.3
Extensions and discoveries	331.3	12.3			12.3		343.6
Improved Recovery	258.8						258.8
Sales of reserves	(282.4)		(85.4)		(85.4)		(367.8)
Purchases of reserves			9.1		9.1		9.1
Production for the year	(834.9)	(3.0)	(15.4)	(8.1)	(26.5)	(1.2)	(862.6)
Reserves at December 31, 2018 (1)	9,467.1	37.2	28.4	67.7	133.3	5.8	9,606.2

(1) In 2017, total proved reserves includes 292.7 million barrels of oil equivalent related to assets held for sale in Brazil; and in 2018, includes 67.7 million barrels of oil equivalent related to PO&G assets held for sale in Africa.

(2) Amounts transferred from consolidated entities to equity method investees, as the Company concluded the operation that has resulted in the formation of a joint venture company (JV), of which Murphy Exploration & Production Company (Murphy) has 80% stake and Petrobras America Inc (PAI) 20% stake.

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In 2018, we incorporated 473.3 million boe of proved reserves by revising of previous estimates, including 233.5 million boe due to economic revisions, mainly due to the increase in prices, and 239.9 million boe due to technical revisions, mainly due to the good performance of reservoirs in the pre-salt layer of Santos and Campos basins, both in Brazil. In addition, we added 258.8 million boe in our proved reserves resulting from positive responses from improved recovery (water injection), and added 343.6 million boe in our proved reserves due to extensions and discoveries, mainly in the pre-salt of Santos basin.

We reduced 367.8 million boe of our proved reserves due to sales of reserves and increased 9.1 million boe in our proved reserves due to purchases of reserves, resulting in a net effect of a decrease of 358.7 million boe in our proved reserves.

Considering a production of 862.6 million boe in 2018 and changes above, the company total proved reserves resulted in 9,606.2 million boe. This 862.6 million boe production volume is the net volume withdrawn from our proved reserves. Therefore, exclude NGL (except for North America), as we estimate our oil and gas reserves at a reference point prior to the gas processing plants, and 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.

In 2017, we incorporated 670.1 million boe of proved reserves by revising 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 behavior from reservoirs, in the pre-salt layer 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 basin.

Considering a production of 919.8 million boe in 2017, the company total proved reserves resulted in 9,751.7 million boe. 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.

In 2016, we incorporated 103 million boe of proved reserves from extensions and discoveries in Brazil (Santos Basin), and we added 131 million boe to our proved reserves due to revisions of previous estimates, as a result of drilling of new production development wells and better reservoir response in onshore and offshore post-salt fields, in Brazil and the USA, and as result of positive answers from the reservoirs, recovery mechanisms (water injection) and operating efficiency of production systems in operation, as well as the growing drilling activities and tie-back activities, in the

pre-salt layer of Santos and Campos Basins.

We reduced 169 million boe of our proved reserves due to sales of minerals in situ and increased 16 million boe in our proved reserves due to purchases of minerals in situ, resulting in a net effect of a decrease of 153 million boe in our proved reserves. The net result of these additions and disposals, excluding production, was an increase of 81 million boe to our proved reserves in 2016. Considering a production of 925 million boe in 2016, our decrease of proved reserves was 844 million boe.

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(Expressed in millions of US Dollars, unless otherwise indicated)

	2018				2017				2016			
	Crude Oil (millions of barrels)	Synthetic Oil	Natural Gas (billions cubic feet)	Synthetic Gas	Crude Oil (millions of barrels)	Synthetic Oil	Natural Gas (billions cubic feet)	Synthetic Gas	Crude Oil (millions of barrels)	Synthetic Oil	Natural Gas (billions cub feet)	Synt G
t proved developed reserves (*):												
nsolidated Entities												
zil	4,339.5	4.8	4,807.0	5.7	4,282.2	6.0	4,515.9	8.1	4,250.1	6.8	5,034.2	9
uth America	1.0		83.5		0.7		56.7		0.5		33.7	
rth America					72.1		24.2		79.6		83.6	
rica												
road	1.0		83.5		72.8		80.9		80.1		117.3	
al Consolidated Entities	4,340.5	4.8	4,890.5	5.7	4,355.0	6.0	4,596.8	8.1	4,330.2	6.8	5,151.5	9
uity Method Investees												
zil												
uth America												
rth America (2)	20.0		8.3									
rica	30.9		27.6		29.6		9.3		32.5		8.6	
road	51.0		35.9		29.6		9.3		32.5		8.6	
al Equity Method Investees	51.0		35.9		29.6		9.3		32.5		8.6	
al Consolidated and Equity thod Investees (1)	4,391.5	4.8	4,926.4	5.7	4,384.6	6.0	4,606.0	8.1	4,362.7	6.8	5,160.1	9
t proved undeveloped reserves :												
nsolidated Entities												
zil	3,829.2		2,983.5		3,967.2		3,160.2		3,812.9		3,359.7	
uth America	0.5		130.6		0.5		103.5		0.3		80.2	
rth America					42.6		16.7		16.8		3.6	
rica												

road	0.5	130.6	43.0	120.2	17.1	83.8
al Consolidated Entities	3,829.7	3,114.1	4,010.2	3,280.5	3,830.0	3,443.6
uity Method Investees						
zil						
uth America						
rth America (2)	6.5	2.5				
rica	28.9	19.7	33.8	8.0	36.5	3.9
road	35.4	22.2	33.8	8.0	36.5	3.9
al Equity Method Investees	35.4	22.2	33.8	8.0	36.5	3.9
al Consolidated and Equity thod Investees (1)	3,865.1	3,136.3	4,044.0	3,288.5	3,866.5	3,447.5

(1) It includes amounts related to assets held for sale in 2017 (191.9 million barrels of oil and 131.8 billion cubic feet of natural gas in net proved developed reserves and 71.9 million barrels of oil and 41.9 billion cubic feet of natural gas in net proved undeveloped reserves) in Brazil and in 2018 (30.9 million barrels of oil and 27.6 billion cubic feet of natural gas in net proved developed reserves and 28.9 million barrels of oil and 19.7 billion cubic feet of natural gas in net proved undeveloped reserves) in Africa (PO&G).

(2) In 2018, North America oil reserves includes 4.2% of natural gas liquid (NGL) in proved developed reserves and 3.6% of NGL in proved undeveloped reserves.

(*) Apparent differences in the sum of the numbers are due to rounding off.

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(v) Standardized measure of discounted future net cash flows relating to proved oil and gas quantities and changes therein

The standardized measure of discounted future net cash flows, related to the above proved oil and gas reserves, is calculated in accordance with the requirements of Codification Topic 932 Extractive Activities Oil and Gas.

Estimated future cash inflows from production in Brazil are computed by applying the average price during the 12-month period prior to the ending date of the period covered by the report, determined as an unweighted arithmetic average of the first-day-of-the-month price for each month within such period, unless prices are defined by contractual arrangements, excluding escalations based upon future conditions. Future price changes are limited to those provided by contractual arrangements existing at the end of each reporting year. Future development and production costs are those estimated future expenditures necessary to develop and produce year-end estimated proved reserves based on year-end cost, assuming continuing economic conditions. Estimated future income taxes (including future social contributions on net income - *CSLL*) are calculated by applying appropriate year-end statutory tax rates. The amounts presented as future income taxes expenses reflect allowable deductions considering statutory tax rates. Discounted future net cash flows are calculated using 10% mid-period discount factors. This discounting requires a year-by-year estimate of when the future expenditures will be incurred and when the reserves will be produced.

The valuation prescribed under Codification Topic 932 Extractive Activities Oil and Gas requires assumptions as to the timing and amount of future development and production costs. The calculations are made as of December 31 each year and should not be relied upon as an indication of Petrobras future cash flows or the value of its oil and gas reserves.

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(Expressed in millions of US Dollars, unless otherwise indicated)

	Consolidated entities					
		Abroad				
	Brazil (2)	South America	North America	Total	Total	Equity Method Investees (3)
December 31, 2018						
Future cash inflows	601,754	1,112		1,112	602,866	5,998
Future production costs	(269,942)	(425)		(425)	(270,367)	(1,570)
Future development costs	(34,119)	(218)		(218)	(34,337)	(520)
Future income tax expenses	(111,522)	(91)		(91)	(111,613)	(1,006)
Undiscounted future net cash flows	186,171	379		379	186,549	2,903
10 percent midyear annual discount for timing of estimated cash flows (1)	(75,050)	(194)		(194)	(75,244)	(613)
Standardized measure of discounted future net cash flows	111,121	185		185	111,305	2,290
December 31, 2017						
Future cash inflows	439,058	912	5,361	6,274	445,332	3,487
Future production costs	(213,037)	(412)	(2,291)	(2,703)	(215,740)	(857)
Future development costs	(46,731)	(147)	(649)	(796)	(47,527)	(524)
Future income tax expenses	(63,087)	(89)	(86)	(175)	(63,262)	(339)
Undiscounted future net cash flows	116,204	265	2,335	2,600	118,803	1,768
10 percent midyear annual discount for timing of estimated cash flows (1)	(52,516)	(138)	(707)	(845)	(53,361)	(474)
Standardized measure of discounted future net cash flows	63,687	126	1,628	1,755	65,442	1,294
December 31, 2016						
Future cash inflows	357,374	600	3,809	4,408	361,783	2,950
Future production costs	(209,413)	(239)	(2,153)	(2,392)	(211,806)	(1,088)
Future development costs	(42,357)	(120)	(531)	(652)	(43,009)	(703)
Future income tax expenses	(46,234)	(65)	(40)	(105)	(46,338)	(229)

Undiscounted future net cash flows	59,370	175	1,084	1,259	60,630	929
10 percent midyear annual discount for timing of estimated cash flows(1)	(24,946)	(78)	(255)	(332)	(25,279)	(346)
Standardized measure of discounted future net cash flows	34,424	98	830	927	35,351	584

(1) Semiannual capitalization
(2) Includes the amount of US$ 1,770 million related to assets classified as held for sale in 2017.
(3) Includes the amount of US$ 1,675 million related to PO&G assets classified as held for sale in 2018.
Bolivian proved reserves are not included due to restrictions determined by Bolivian Constitution.

Apparent differences in the sum of the numbers are due to rounding off.

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(v) Standardized measure of discounted future net cash flows relating to proved oil and gas quantities and changes therein

	Consolidated entities					
		Abroad				Equity Method
	Brazil (1)	South America	North America	Total	Total	Investees (2)
Balance at January 1, 2018	63,687	126	1,628	1,755	65,442	1,294
Transfers by loss of control (3)			(1,428)	(1,428)	(1,428)	1,428
Sales and transfers of oil and gas, net of production cost	(31,429)	(76)	(844)	(921)	(32,350)	(369)
Development cost incurred	9,685	32	229	261	9,946	252
Net change due to purchases and sales of minerals in place	(4,773)				(4,773)	(1,770)
Net change due to extensions, discoveries and improved recovery related costs	11,284	123		123	11,407	
Revisions of previous quantity estimates	10,688				10,688	50
Net change in prices, transfer prices and in production costs	72,662	44	383	427	73,089	1,740
Changes in estimated future development costs	1,857	(76)	(118)	(194)	1,664	(93)
Accretion of discount	6,369	19	150	169	6,537	129
Net change in income taxes	(28,910)	(4)		(4)	(28,914)	(489)
Other - unspecified		(4)		(4)	(4)	119
Balance at December 31, 2018	111,121	185		185	111,305	2,290
Balance at January 1, 2017	34,424	98	830	927	35,351	583
Sales and transfers of oil and gas, net of production cost	(23,394)	(60)	(564)	(624)	(24,018)	(261)
Development cost incurred	11,553	23	230	253	11,806	294

Net change due to purchases and sales of minerals in place						
Net change due to extensions, discoveries and improved recovery related costs	4,187	69		69	4,256	
Revisions of previous quantity estimates	8,264	37	443	480	8,744	51
Net change in prices, transfer prices and in production costs	50,326	3	735	738	51,064	494
Changes in estimated future development costs	(15,878)	(31)	(144)	(175)	(16,053)	(25)
Accretion of discount	3,442	14	76	90	3,532	58
Net change in income taxes	(9,237)	(18)	(2)	(20)	(9,257)	(92)
Other - unspecified		(9)	25	16	16	190
Balance at December 31, 2017	63,687	126	1,628	1,755	65,442	1,294

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Notes to the financial statements - unaudited

(Expressed in millions of US Dollars, unless otherwise indicated)

	Consolidated entities					
		Abroad				
	Brazil (1)	South America	North America	Total	Total	Equity Method Investees (2)
Balance at January 1, 2016	42,770	1,205	873	2,078	44,848	511
Sales and transfers of oil and gas, net of production cost	(18,425)	(351)	(432)	(783)	(19,208)	(208)
Development cost incurred	12,429	176	148	324	12,753	389
Net change due to purchases and sales of minerals in place		(1,094)		(1,094)	(1,094)	(54)
Net change due to extensions, discoveries and improved recovery related costs	1,234		484	484	1,718	67
Revisions of previous quantity estimates	1,197		223	223	1,420	242
Net change in prices, transfer prices and in production costs	(27,031)		(760)	(760)	(27,791)	(477)
Changes in estimated future development costs	9,175		231	231	9,406	(18)
Accretion of discount	4,277	162	82	244	4,521	52
Net change in income taxes	8,799		(1)	(1)	8,798	62
Other - unspecified		(1)	(19)	(19)	(19)	17
Balance at December 31, 2016	34,424	98	830	927	35,351	583

(1) Includes the amount of US$ 1,770 million related to assets classified as held for sale in 2017.
(2) Includes the amount of US$ 1,675 million related to PO&G assets classified as held for sale in 2018.
(3) Amounts transferred from consolidated entities to equity method investees, as the Company concluded the operation that has resulted in the formation of a joint venture company (JV), of which Murphy Exploration & Production Company (Murphy) has 80% stake and Petrobras America Inc (PAI) 20% stake.

Apparent differences in the sum of the numbers are due to rounding off.

Additional information of general public concern Law 13.303/16 (unaudited)

In order to comply with rules of disclosure about the activities that, in accordance with the requirements of article 3 of Petrobras Bylaws, are related to the achievement of public interest purposes under conditions different from those of any other private sector company operating in the same market, we summarize below the commitments in effect in the year 2018.

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I Priority Thermoelectric Program (Programa Prioritário de Termeletricidade- PPT)

On February 24, 2000, the Brazilian federal government enacted the Decree No. 3.371 governing the implementation of thermoelectric power plants in Brazil through the Priority Thermoelectric Program (PPT). The thermoelectric power plants in the scope of this program were entitled to supply natural gas for up to 20 years with a pre-established price indexed to the U.S. inflation. The gas supply for the plants included in this program, in 2018, generated revenues of approximately US$ 229 and costs of US$ 587. As of December 31, 2018, the company had two plants in the scope of this program plus one plant, which supply of natural gas occurs by virtue of a court order.

II National Program for Rationalization of the Use of Oil and Gas Products (Programa Nacional de Racionalização do Uso dos Derivados do Petróleo e do Gás Natural CONPET)

On February 18, 1991, the Brazilian federal government established the National Program for Rationalization of the Use of Oil and Gas Products (CONPET), which was intended to develop an anti-waste culture in the use of non-renewable natural resources. The Company is also a member of the Brazilian Labeling Program (Programa Brasileiro de Etiquetagem- PBE) in partnership with the National Institute of Metrology, Quality and Technology (INMETRO), which goal is to stimulate the production and use of gas appliances and vehicles with lower carbon emission, in addition of taking part in other agreements for the elaboration of partnerships with entities for the purpose of monitoring and guidance on vehicular emissions. In 2018, the costs associated with CONPET were immaterial.