

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549
Form 20-F

(Mark One)

- ☐ REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR 12(g) OF THE SECURITIES EXCHANGE ACT OF 1934
or
☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018.
or
☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
or
☐ SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
Date of event requiring this shell company report _____
For the transition period from _____ to _____

Commission File Number 1-15006

中国石油天然气股份有限公司

(Exact name of Registrant as specified in its charter)

PetroChina Company Limited

(Translation of Registrant's name into English)

The People's Republic of China
(Jurisdiction of incorporation or organization)

9 Dongzhimen North Street
Dongcheng District, Beijing 100007
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(Name, telephone, e-mail and/or facsimile number and address of registrant's contact person)

Securities registered or to be registered pursuant to Section 12(b) of the Act.		Name of Each Exchange on Which Registered
Title of Each Class	Trading Symbol	
American Depositary Shares, each representing 100 H Shares, par value RMB1.00 per share *H Shares, par value RMB1.00 per share	PTR	New York Stock Exchange, Inc .New York Stock Exchange, Inc.**
Securities registered or to be registered pursuant to Section 12(g) of the Act.		
None (Title of Class)		
Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act.		
None (Title of Class)		

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report:

A Shares, par value RMB1.00 per share***	161,922,077.818 ⁽¹⁾
H Shares, par value RMB1.00 per share	21,098,900,000****

(1) Includes 148,010,665,536 A Shares held by CNPC and 13,911,412,282 A Shares held by the public shareholders.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐
If this is an annual or transition 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 ☒

Note — Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 from their obligations under those Sections.

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 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:

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. ☐

The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

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 ☒

(APPLICABLE ONLY TO ISSUERS INVOLVED IN BANKRUPTCY PROCEEDINGS DURING THE PRECEDING FIVE YEARS)

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court. Yes ☐ No ☐

* PetroChina's H Shares are listed and traded on The Stock Exchange of Hong Kong Limited.

** Not for trading, but only in connection with the registration of American Depositary Shares.

*** PetroChina's A Shares became listed on the Shanghai Stock Exchange on November 5, 2007.

**** Includes 778,325,000 H Shares represented by American Depositary Shares.

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CERTAIN TERMS AND CONVENTIONS

Conventions Which Apply to this Annual Report

Unless the context otherwise requires, references in this annual report to:

- “CNPC” or “CNPC group” are to our parent, China National Petroleum Corporation and its affiliates and subsidiaries, excluding PetroChina, its subsidiaries and its interests in long-term investments, and where the context refers to any time prior to the establishment of CNPC, those entities and businesses which were contributed to CNPC upon its establishment.
- “PetroChina”, “we”, “our”, “our company”, “the Company” and “us” are to: PetroChina Company Limited, a joint stock company incorporated in the People’s Republic of China with limited liability and its subsidiaries and branch companies.
- “PRC” or “China” are to the People’s Republic of China, but does not apply to its Hong Kong, Macau and Taiwan for purposes of this annual report.

We publish our consolidated financial statements in Renminbi or RMB. In this annual report, IFRS refers to International Financial Reporting Standards as issued by the International Accounting Standards Board.

Conversion Table

1 barrel-of-oil equivalent	= 1 barrel of crude oil	= 6,000 cubic feet of natural gas
1 cubic meter	= 35.315 cubic feet	
1 ton of crude oil	= 1 metric ton of crude oil	= 7.389 barrels of crude oil (assuming an API gravity of 34 degrees)

Certain Oil and Gas Terms

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

“acreage”	The total area, expressed in acres, over which an entity has interests in exploration or production. Net acreage is the entity’s interest, expressed in acres, in the relevant exploration or production area.
“condensate”	Light hydrocarbon substances produced with natural gas that condense into liquid at normal temperatures and pressures associated with surface production equipment.
“crude oil”	Crude oil, including condensate and natural gas liquids.
“developed reserves”	<p>Under the reserves rules of the Securities and Exchange Commission, or SEC, developed reserves are reserves of any category that can be expected to be recovered:</p> <p>(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</p> <p>(ii) through installed extraction equipment and infrastructure operational at the time of the reserves estimate if the extraction is by means not involving a well.</p>

“development cost”	For a given period, costs incurred to obtain access to proved reserves and to provide facilities for extracting, treating, gathering and storing the oil and gas.
“finding cost”	For a given period, costs incurred in identifying areas that may warrant examination and in examining specific areas that are considered to have prospects of containing oil and gas reserves, including costs of drilling exploratory wells and exploratory-type test wells. Finding cost is also known as exploration cost.
“lifting cost”	For a given period, costs incurred to operate and maintain wells and related equipment and facilities, including applicable operating costs of support equipment and facilities and other costs of operating and maintaining those wells and related equipment and facilities. Lifting cost is also known as production cost.
“natural gas liquids”	Hydrocarbons that can be extracted in liquid form during natural gas production. Ethane and pentanes are the predominant components, with other heavier hydrocarbons also present in limited quantities.
“offshore”	Areas under water with a depth of five meters or greater.
“onshore”	Areas of land and areas under water with a depth of less than five meters.
“primary distillation capacity”	At a given point in time, the maximum volume of crude oil a refinery is able to process in its basic distilling units.
“proved reserves”	<p>Under the SEC reserves rules, proved 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, regardless of whether deterministic or probabilistic methods are used for the estimation. The project to extract the hydrocarbons must have commenced or the operator must be reasonably certain that it will commence the project within a reasonable time.</p> <p>(i) The area of the reservoir considered as proved includes:</p> <p>(A) The area identified by drilling and limited by fluid contacts, if any, and (B) Adjacent undrilled portions of the reservoir that can, with reasonable certainty, be judged to be continuous with it and to contain economically producible oil or gas on the basis of available geoscience and engineering data.</p> <p>(ii) In the absence of data on fluid contacts, proved quantities in a reservoir are limited by the lowest known hydrocarbons (LKH) as seen in a well penetration unless geoscience, engineering, or</p>

performance data and reliable technology establishes a lower contact with reasonable certainty.

(iii) Where direct observation from well penetrations has defined a highest known oil (HKO) elevation and the potential exists for an associated gas cap, proved oil reserves may be assigned in the structurally higher portions of the reservoir only if geoscience, engineering, or performance data and reliable technology establish the higher contact with reasonable certainty.

(iv) Reserves which can be produced economically through application of improved recovery techniques (including, but not limited to, fluid injection) are included in the proved classification when:

(A) Successful testing by a pilot project in an area of the reservoir with properties no more favorable than in the reservoir as a whole, the operation of an installed program in the reservoir or an analogous reservoir, or other evidence using reliable technology establishes the reasonable certainty of the engineering analysis on which the project or program was based; and (B) The project has been approved for development by all necessary parties and entities, including governmental entities.

(v) Existing economic conditions include prices and costs at which economic producibility from a reservoir is to be determined. The price shall be 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.

“reserve-to-production ratio”

For any given well, field or country, the ratio of proved reserves to annual production of crude oil or, with respect to natural gas, to wellhead production excluding flared gas.

“sales gas”

Marketable production of gas on an “as sold” basis, excluding flared gas, injected gas and gas consumed in operations.

“undeveloped reserves”

Under the SEC reserves rules, undeveloped reserves are reserves of any category that are expected to be recovered from new wells on undrilled acreage, or from existing wells where a relatively major expenditure is required for recompletion.

(i) Reserves on undrilled acreage shall be 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.

(ii) Undrilled locations can be 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.

(iii) Under no circumstances shall estimates for undeveloped reserves be 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.

“water cut”

For a given oil region, the percentage that water constitutes of all fluids extracted from all wells in that region.

References to:

- BOE is to barrels-of-oil equivalent,
- Mcf is to thousand cubic feet, and
- Bcf is to billion cubic feet.

FORWARD-LOOKING STATEMENTS

This annual report contains “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities and Exchange Act of 1934, as amended. These forward-looking statements are, by their nature, subject to significant risks and uncertainties. These forward-looking statements include, without limitation, statements relating to:

- the amounts and nature of future exploration, development and other capital expenditures;
- future prices and demand for crude oil, natural gas, refined products and chemical products;
- development projects;
- exploration prospects;
- reserves potential;
- production of oil and gas and refined and chemical products;
- development and drilling potential;
- expansion and other development trends of the oil and gas industry;
- the planned development of our natural gas operations;
- the planned expansion of our refined product marketing network;
- the planned expansion of our natural gas infrastructure;
- the anticipated benefit from the acquisition of certain overseas assets from CNPC, our parent company;
- the plan to continue to pursue attractive business opportunities outside China;
- our future overall business development and economic performance;
- our anticipated financial and operating information regarding, and the future development and economic performance of, our business;
- our anticipated market risk exposure arising from future changes in interest rates, foreign exchange rates and commodity prices; and
- other prospects of our business and operations.

The words “anticipate”, “believe”, “could”, “estimate”, “expect”, “intend”, “may”, “plan”, “seek”, “will” and “would” and similar expressions, as they related to us, are intended to identify a number of these forward-looking statements.

By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that will occur in the future and are beyond our control. The forward-looking statements reflect our current views with respect to future events and are not a guarantee of future performance. Actual results may differ materially from information contained in the forward-looking statements as a result of a number of factors, including, without limitation, the risk factors set forth in this annual report and the following:

- fluctuations in crude oil and natural gas prices;
- failure to achieve continued exploration success;
- failures or delays in achieving production from development projects;
- continued availability of capital and financing;
- acquisitions and other business opportunities that we may pursue;

- general economic, market and business conditions, including volatility in interest rates, changes in foreign exchange rates and volatility in commodity markets;
- liability for remedial actions under environmental regulations;
- the actions of competitors;
- wars and acts of terrorism or sabotage;
- changes in policies, laws or regulations of the PRC, including changes in applicable tax rates;
- the other changes in global economic and political conditions affecting the production, supply and demand and pricing of crude oil, refined products, petrochemical products and natural gas; and
- the other risk factors discussed in this annual report, and other factors beyond our control.

You should not place undue reliance on any forward-looking statements.

PART I

Item 1 — *IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISORS*

Not applicable. However, see “Item 6 — Directors, Senior Management and Employees — Directors, Senior Management and Supervisors” and “Item 16C — Principal Accountant Fees and Services”.

Item 2 — *OFFER STATISTICS AND EXPECTED TIMETABLE*

Not applicable.

Item 3 — *KEY INFORMATION*

Selected Financial Data

Historical Financial Information

You should read the selected historical financial data set forth below in conjunction with our consolidated financial statements and the notes and “Item 5 — Operating and Financial Review and Prospects” included elsewhere in this annual report. The selected consolidated statement of comprehensive income (except for ADS data) and cash flow data for the years ended December 31, 2016, 2017 and 2018 and the selected consolidated statement of financial position data as of December 31, 2017 and 2018 set forth below are derived from our audited consolidated financial statements included elsewhere in this annual report. The selected consolidated statement of comprehensive income data (except for ADS data) and cash flow data for the years ended December 31, 2014 and 2015 and the selected consolidated statement of financial position data as of December 31, 2014, 2015 and 2016 set forth below are derived from our audited financial statements not included in this annual report. Our consolidated financial statements were prepared in accordance with IFRS as issued by the International Accounting Standards Board. The financial information included in this section may not necessarily reflect our results of operations, financial position and cash flows in the future.

	As of or for the Year Ended December 31,				
	2014	2015	2016	2017	2018
	RMB	RMB	RMB	RMB	RMB
(In millions, except for per share, per ADS data and percentages)					
Consolidated Statement of Comprehensive Income Data					
Revenue	2,282,962	1,725,428	1,616,903	2,015,890	2,353,588
Total operating expenses	(2,113,129)	(1,646,176)	(1,556,268)	(1,948,168)	(2,232,591)
Profit from operations	169,833	79,252	60,635	67,722	120,997
Profit before income tax expense	156,759	57,815	45,140	53,089	115,206
Income tax expense	(37,731)	(15,726)	(15,768)	(16,296)	(42,790)
Profit for the year	119,028	42,089	29,372	36,793	72,416
Attributable to:					
Owners of the Company	107,172	35,517	7,857	22,798	52,591
Non-controlling interests	11,856	6,572	21,515	13,995	19,825
Basic and diluted earnings per share attributable to owners of the Company ⁽¹⁾	0.59	0.19	0.04	0.12	0.29
Basic and diluted net earnings per ADS ⁽²⁾	58.56	19.41	4.29	12.46	28.73
Consolidated Statement of Financial Position Data					
Total current assets	391,308	349,344	381,665	425,162	433,128
Total non-current assets	2,014,165	2,044,500	2,014,986	1,979,450	1,999,138
Total assets	2,405,473	2,393,844	2,396,651	2,404,612	2,432,266
Total current liabilities	579,829	471,407	499,263	576,667	586,386
Total non-current liabilities	507,863	578,403	524,653	446,626	435,222
Total liabilities	1,087,692	1,049,810	1,023,916	1,023,293	1,021,608
Equity attributable to owners of the Company	1,175,894	1,179,716	1,189,024	1,193,520	1,214,286
Non-controlling interests	141,887	164,318	183,711	187,799	196,372
Total equity	1,317,781	1,344,034	1,372,735	1,381,319	1,410,658
Other Financial Data					
Dividend declared and proposed per share	0.26	0.09	0.06	0.13	0.18
Dividend declared and proposed per ADS	26.35	8.73	5.93	13.00	17.88
Capital expenditures	291,729	202,238	172,386	216,227	255,974
Return on net assets (%) ⁽³⁾	9.1	3.0	0.7	1.9	4.3
Consolidated Statement of Cash Flow Data					
Net cash flows from operating activities	356,477	261,312	265,179	366,655	351,565
Net cash flows used for investing activities	(290,838)	(215,879)	(175,887)	(243,546)	(267,732)
Net cash flows used for financing activities	(44,312)	(45,439)	(67,007)	(94,725)	(123,515)

-
- (1) As of December 31, 2014, 2015, 2016, 2017 and 2018, respectively, basic and diluted earnings per share were calculated by dividing the profit attributable to owners of the Company by 183,021 million, the total number of shares outstanding in each of these financial years.
 - (2) Each ADS represents 100 H Shares. The basic and diluted earnings per ADS were calculated with the same method as that used for the calculation of the basic and diluted earnings per share.
 - (3) Return on net assets is calculated as “Profit for the year attributable to owners of the Company” divided by “Equity attributable to owners of the Company”.

Risk Factors

Our business is primarily subject to various changing competitive, economic and social conditions. Such changing conditions entail certain risks, which are described below.

Risks Related to Macro Economic Conditions

Our operations may be adversely affected by international and domestic economic conditions. As the oil and gas industry is sensitive to macro-economic trends, oil and gas prices tend to fluctuate along with changes in macro-economic conditions. We may experience pricing pressure on our refined products in recessionary periods, which would have an adverse effect on our profitability. Changes in macro-economic conditions can affect the demand for certain of our products. These factors may also lead to intensified competition for market share, with consequential potential adverse effects on sales volumes. Inflation may lead to increase in our operating costs. Notwithstanding the measures taken by the PRC government to control inflation, China may experience an increase in inflation in the future and our operating costs may become higher than anticipated. The financial and economic situation may also have a negative impact on third parties with whom we do, or may do, business. Any of these factors may adversely affect our financial condition, results of operations and liquidity.

Risks Related to Competition

The oil, gas and petrochemicals industries are highly competitive. There is strong competition, both within the oil and gas industry and with other industries, in supplying the fuel needs of commercial, industrial and residential markets. In recent years, with the intensive reform of China's petroleum, refining and chemical, natural gas, LNG, pipelines and refined oils sales industries, we have been facing increasingly intense competition from privately-owned companies, foreign-invested enterprises and other state-owned enterprises that recently entered the refinery, chemical, sales, and oil and gas service sectors. In addition, the rapid development of unconventional oil and gas resources, new energy sources and new products also poses competition with the conventional energy and petrochemical industries. Competition puts pressure on product prices, affects oil products marketing and requires continuous management focus on identifying new trends, reducing unit costs and improving efficiency. The implementation of our growth strategy requires continued technological advances and innovation, including advances in exploration, production, refining, petrochemicals manufacturing technology and advances in technology related to energy usage. Our performance could be impeded if competitors developed or acquired intellectual property rights to technology that we required or if our innovation lagged the industry.

The Eastern and Southern regions of China have a higher demand for refined products and chemical products than the Western and Northern regions. Although we have strived to increase our refinery capacity in the Southern regions of China over recent years, most of our refineries and chemical plants are located in the Northeastern and Northwestern regions of China. We incur relatively higher transportation costs for delivery of our refined products and chemical products to certain areas of the Eastern and Southern regions from our refineries and chemical plants in Western and Northern China. We face strong competition from other traditional domestic oil companies, local independent refineries and other competitors. As a result, we expect that we will continue to encounter difficulty in increasing our sales of refined products and chemical products in these regions.

Risks Related to Outbound Investments and Trading

We are subject to various political, legal and regulatory environments in foreign developing countries where we operate, some of which are known to be unstable and differ in certain significant respects from those prevailing in developed countries. The main factors affecting our outbound investments include unstable political situations, unstable tax policies and unstable regulatory regimes. CNPC, our controlling

shareholder, and its affiliates and subsidiaries may choose to undertake, without our involvement, overseas investments, operations and trading in the oil and gas industry, including certain exploration and production of oil and gas, refining, transportation, trading, engineering construction and technical services, operations of pipelines and liquefied natural gas, or LNG projects, or other business activities in certain countries or with certain entities that are subject to U.S. sanctions, including Iran, Cuba, Myanmar, Russia and Venezuela.

In 2018, the United States withdrew from the Joint Comprehensive Plan of Action (“JCPOA”) and reimposed certain sanctions against Iran, which were conditionally lifted in 2015 following entry into the JCPOA. These reimposed sanctions have implications for non-U.S. companies, including requiring foreign companies to cease participation in projects in certain sectors of Iran (including the energy sector), and, except for eight countries and regions (including China) which were granted a Significant Reduction Exception (“SRE”), prohibiting or restricting oil imports from Iran. Pursuant to section 13(r) to the U.S. Securities Exchange Act of 1934, reporting issuers are required to disclose whether they or any of their affiliates have knowingly engaged in certain activities, transactions, or dealings related to Iran during the reporting period, including activities not prohibited by U.S. or other law. During the reporting period, our controlling shareholder, CNPC, held indirect interests in certain oil and gas development projects in Iran, namely, (i) the MIS oil fields in which CNPC obtained a 75% interest in 2005, (ii) the North Azadegan oilfield, in which CNPC obtained a 100% interest in 2009 and (iii) the South Pars gas field project, in which CNPC obtained a 100% interest in 2009. After temporarily ceasing participation in the South Pars gas field project in 2012, CNPC in July 2017 regained a 30% investment and operating interest in the project under a new Iran Petroleum Contract (the “IPC”), in which Total S.A. (“Total”) held a 50.01% interest. In November 2018, Total withdrew from the project, and CNPC took over its interest pursuant to the IPC. Operation with respect to the South Pars project is currently suspended. In 2018, the MIS oilfield and the North Azadgan oilfield were in production, and CNPC extracted oil in order to recover its investment as per the project agreements. After the U.S. reimposed the sanctions, CNPC has been providing minimum support and services to the two oilfields pursuant to the SRE issued to China. In 2018, CNPC transported back to China approximately 2.3 million tons of crude oil that it extracted from the two oilfields, of which approximately 1.1 million tons were resold to our company’s refineries. In 2018, crude oil that we processed from the foregoing source accounted for 0.7% of the total oil processed by our refineries and contributed 0.1% of our total revenue.

Since July 2014, the United States has adopted economic sanctions against certain Russian persons and entities, including various entities operating in the financial, energy and defense sectors, such as Rosneft, Gazprom, Transneft, OAO Novatek and Yamal LNG. These sanctions prohibit U.S. persons from transacting in, providing financing for or otherwise dealing in debt issuance by certain of these entities, or restrict exports and transfer of technologies to certain of these entities. CNPC had certain pre-existing trading and investment relationships with some of these sanctioned Russian entities. For example, CNPC entered into a long-term agreement with each of Rosneft and Transneft to import crude oil from Russia in 2009, a long-term agreement with Rosneft to import crude oil from Russia in June 2013 and a long-term agreement with Gazprom to import natural gas from Russia in May 2014. CNPC has resold, and will for the foreseeable future resell, all or a substantial portion of the imported crude oil from Rosneft and Transneft under the crude oil agreements to us. CNPC also indirectly holds 20% equity interest in OAO Yamal LNG, which is a subsidiary of OAO Novatek, another sanctioned Russian entity. In May 2014, we entered into a long-term LNG import agreement with a subsidiary of OAO Yamal LNG to import LNG from Russia.

In August 2017, the United States imposed economic sanctions against the Government of Venezuela and certain state-owned entities, including Petroleos de Venezuela, S.A. (“PdVSA”). These sanctions prohibit U.S. persons from transacting in, providing financing for or otherwise dealing in “new debt” issued by these entities on or after August 25, 2017, with certain exceptions for short-term debt. Neither CNPC nor PetroChina purchased such new debt securities issued by the Government of Venezuela or by PdVSA, nor did they provide any assistance to third parties in this regard. CNPC has longstanding trading and investment activities in Venezuela. In 2018, based on certain pre-existing contract obligations, we purchased

products from PdVSA for resale which contributed 0.06% of our total revenue in 2018. In 2008, CNPC Exploration and Development Company Limited (“CNPC E&D”), a joint venture held as to 50% by us and 50% by a wholly-owned subsidiary of CNPC, acquired 40% stake in the Sinovensa block located in Carabobo, Monagas State, Venezuela. The other 60% stake of the block is held by PdVSA, which also serves as the operator of the block. The block produces and sells heavy oil. For the year ended December 31, 2018, the share of profit generated from the block accounted for approximately 1.5% of our total profit. CNPC E&D currently does not plan to discontinue the business or dispose of the interest in this block.

We closely monitor the possible impacts of U.S. sanctions against the countries and entities which have trading or investment relationships with CNPC or us. We do not believe that our activities, nor those of CNPC, with these entities are in violation of applicable economic sanctions administered by the United States. However, we cannot assure you that current or future regulations or developments related to economic sanctions will not have a material adverse impact on our business or reputation. Certain U.S. based investors may not wish to invest and have proposed or adopted divestment or similar initiatives regarding investments in companies that do business with countries and entities that are subject to U.S. sanctions. These investors may not wish for CNPC or us to make investments or conduct activities in the countries or with the entities that are the subject of U.S. sanctions and may divest their investment in us because of our relationship with CNPC and its investments and activities in those countries or with those entities that are the subject of U.S. sanctions. As a result, the trading prices of our ADSs may be adversely affected.

In July 2012, the U.S. Treasury Department’s Office of Foreign Assets Control, OFAC, added Bank of Kunlun Co., Ltd., or Kunlun Bank, an affiliate of our company due to common control by CNPC, to its “List of Foreign Financial Institutions Subject to Part 561” pursuant to the Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010. OFAC reported that Kunlun Bank provided financial services to at least six Iranian banks that were on OFAC’s sanctions list during 2012. These financial services included holding accounts, making transfers and paying letters of credit on behalf of the designated banks. In 2018, Kunlun Bank has discontinued the business activities which are subject to U.S. sanctions. Our company has no involvement in or control over such activities of Kunlun Bank or CNPC and CNPC subsidiaries and affiliates, and we have never received any revenue or profit derived from these activities.

Risks Related to Government Regulation

Our operations, like those of other PRC oil and gas companies, are subject to extensive regulations and control by the PRC government. These regulations and control affect many material aspects of our operations, such as exploration and production licensing, industry-specific and product-specific taxes and fees and environmental and safety standards. As a result, we may face significant constraints on our ability to implement our business strategies, to develop or expand our business operations or to maximize our profitability. Our business may also be affected by future changes in certain policies of the PRC government with respect to the oil and gas industry.

Currently, the PRC government must approve the construction and major renovation of significant refining and petrochemical facilities as well as the construction of significant crude oil, natural gas and refined product pipelines and storage facilities. We presently have several significant projects pending approval from the relevant government authorities and will need approvals from the relevant government authorities in connection with several other significant projects. We do not have control over the timing and outcome of the final project approvals.

Because PRC laws, regulations and legal requirements dealing with economic matters continue to evolve, and because of the limited volume of published judicial interpretations and the non-binding nature of prior court decisions, the interpretation and enforcement of these laws, regulations and legal requirements involve some uncertainty. Because the PRC Company Law is different in certain important aspects from company laws in the United States, Hong Kong and other common law jurisdictions, and because the PRC securities

laws and regulations are still at a stage of development, you may not enjoy the shareholders' protections that you may be entitled to in other jurisdictions.

Risks Related to Controlling Shareholder

As of December 31, 2018, CNPC beneficially owned approximately 81.03% of our share capital. This ownership percentage enables CNPC to elect our entire board of directors without the concurrence of any of our other shareholders. Accordingly, CNPC is in a position to:

- control our policies and management affairs;
- subject to applicable PRC laws and regulations and provisions of our articles of association, affect the timing and amount of dividend payments and adopt amendments to certain of the provisions of our articles of association; and
- otherwise determine the outcome of most corporate actions and, subject to the regulatory requirements of the jurisdictions in which our shares are listed, cause our company to effect corporate transactions without the approval of minority shareholders.

CNPC's interests may sometimes conflict with those of some or all of our minority shareholders. We cannot assure you that CNPC, as our controlling shareholder, will always vote its shares in a way that benefits our minority shareholders.

In addition to its relationship with us as our controlling shareholder, CNPC by itself or through its affiliates also provides us with certain services and products necessary for our business activities, such as construction and technical services, production services, materials supply services, social services and financial services. The interests of CNPC and its affiliates as providers of these services and products to us may conflict with our interests.

Risks Related to Pricing and Exchange Rate

Our operations are affected by the volatility of prices for crude oil, refined products and natural gas. We set our crude oil median prices monthly based on the international trading prices for crude oil.

In recent years, international prices for crude oil have fluctuated substantially in response to changes in global and regional economy, politics and supply and demand for crude oil. We do not have, and will not have, control over factors affecting international prices for crude oil. Fluctuations in crude oil prices have a significant impact in our results of operations. A decline in crude oil prices may reduce revenues from, and may result in a loss in, our exploration and production segment. Further, if crude oil prices remain at a low level for a prolonged period, our company has to determine and estimate whether our oil and gas assets may suffer impairment and, if so, the amount of the impairment. An increase in crude oil prices may, however, increase the production costs of refined products, reduce demand for our products and affect our operating profits.

Since 2008, the PRC government has gradually improved its refined oil pricing mechanism. When there is a change in the average crude oil price in the international market during a given time period, the PRC government can adjust refined oil prices. When international crude oil price experiences sustained increases or becomes significantly volatile, the PRC government may increase its control over the refined oil prices. As a result, the regulation on refined product prices by the PRC government may reduce our profit and cause our refining assets to suffer impairment.

We negotiate the actual settlement price with natural gas users within the price range permitted by the PRC government. When the domestic price is lower than the international natural gas price, the cost of our imported natural gas will be higher than the sales price of our natural gas, which may reduce our revenues and profit, or result in losses, cause our natural gas assets to suffer impairment.

We receive most of our revenues in Renminbi. A portion of our Renminbi revenues must be converted into other currencies to meet our foreign currency obligations. The existing foreign exchange limitations under the PRC laws and regulations could affect our ability to obtain foreign exchange through debt financing, or to obtain foreign exchange for capital expenditures. The value of Renminbi against U.S. dollar and other currencies may fluctuate and is affected by, among other things, changes in China's political and economic conditions. The PRC government has implemented a floating exchange rate system to allow the value of the Renminbi to fluctuate within a regulated band based on market supply and demand and by reference to a basket of foreign currencies. Because most of our imports of crude oil, equipment and other materials and our outbound investments are settled in foreign currencies, the exchange rates between RMB and U.S. dollars and any other relevant foreign currencies may have an effect on our crude oil purchase costs and our investment costs.

Risks Related to Environmental Protection and Safety Production

Compliance with changes in laws, regulations and obligations relating to environmental protection and safety production could result in substantial expenditures and reduced profitability from increases in operating costs. In recent years, the PRC government has implemented environmental protection and safety production laws and regulations and has gradually improved refined oil standards which have stricter requirements for our business, and led to an increase in our operating costs. In the future, the PRC government will implement more stringent environmental protection and safety production regulations and impose higher standards on refined oil products. Compliance with these new regulations and standards will increase our costs and expenses.

Our oil and gas exploration and production activities shall comply with relevant PRC environment protection laws and regulations governing abandonment and disposal processes for oil and gas exploration and production activities. We have established standard abandonment procedures pursuant to these laws and regulations. We have included under our asset retirement obligations the costs for these abandonment activities and this asset retirement obligation is based on our best estimate of future abandonment expenditures. In addition, PRC national or local governments may enact stricter environmental protection regulations and our abandonment costs may increase as a result.

Exploring for, producing and transporting crude oil and natural gas and producing and transporting refined products and chemical products involve many hazards. These hazards may result in fires, explosions, spills, blow-outs and other unexpected or dangerous conditions causing personal injuries or death, property damage, environmental damage and interruption of operations.

Some of our oil and natural gas fields are surrounded by residential areas or located in areas where natural disasters, such as earthquakes, floods and sandstorms, tend to occur more frequently than in other areas. As with many other companies around the world that conduct similar businesses, we have experienced accidents that have caused property damage and personal injuries and death.

Significant operating hazards and natural disasters such as earthquake, tsunami and health epidemics may cause partial interruptions to our operations and property and environmental damage that could have an adverse impact on our financial condition.

Risks Related to Climate Change

In recent years, the oil industry has faced an increasingly severe challenge imposed by global climate change. Numerous international, domestic and regional treaties and agreements that restrict the emission of greenhouse gas have been executed and become effective. China and some other countries in which we operate have adopted, or are considering the adoption of, regulatory frameworks to reduce greenhouse gas emissions. These include adoption of carbon emission quota and trade regimes, carbon taxes, increased efficiency standards, and incentives or mandates for renewable energies. These requirements may lead to a substantial increase in our expenditures, make our products more expensive, lengthen our project time,

reduce the demand for hydrocarbons, and shift hydrocarbon demand toward relatively low carbon sources such as natural gas. Current and pending greenhouse gas regulations may also increase our compliance costs, such as those for monitoring or sequestering emissions. As a result, our results of operations and our strategic investment may be adversely affected.

China is a signatory country to the Paris Agreement which has taken effect since November 2016. China is expected to reach the peak level of carbon emissions by 2030. In 2017, the PRC government rolled out the national carbon quota trading system. Our subsidiaries operating in China are expected to be subject to mandatory requirement with respect to carbon emission quota and trading in the next few years, which could increase our costs of operations.

Risks Related to Insurance

Due to the fact that oil industry is susceptible to high and industry-specific risks in nature, the current ordinary commercial insurance cannot cover all the business areas in which we operate. We maintain insurance coverage against some, but not all, potential losses. We may suffer material losses resulting from uninsurable or uninsured risks or insufficient insurance coverage.

Risks Related to Oil and Gas Reserves

The crude oil and natural gas reserves data in this annual report are only estimates. The reliability of reserves estimates depends on a number of factors, assumptions and variables, such as the quality and quantity of our technical and economic data and the prevailing oil and gas prices applicable to our production, some of which are beyond our control and may prove to be incorrect over time. Results of drilling, testing and production after the date of estimates may require substantial upward or downward revisions in our reserves data. Our actual production, revenues and expenditures with respect to our reserves may differ materially from these estimates because of these revisions.

We are actively pursuing business opportunities outside China to improve our international operations. We cannot assure you, however, that we can successfully locate sufficient, if any, alternative sources of crude oil supply due to the complexity of the international political, economic and other conditions. If we fail to obtain sufficient alternative sources of crude oil supply, our results of operations and financial condition may be materially and adversely affected.

Risks Related to Liquidity

We have made best endeavors to ensure an appropriate level of liquidity and financing ability. However, as we are currently making our efforts to find high-quality large-scale reserves, strengthening capacity building in key areas, constructing new, and expanding some existing, refinery and petrochemical facilities and constructing several natural gas and oil pipelines, we may have to make substantial capital expenditures and investments. We cannot assure you that the cash generated by our operations will be sufficient to fund these development plans or that our actual future capital expenditures and investments will not significantly exceed our current planned amounts. If either of these conditions arises, we may have to seek external financing to satisfy our capital needs. Our inability to obtain sufficient funding for our development plans could adversely affect our business, financial condition and results of operations.

Risks Related to Effectiveness of Internal Control over Financial Reporting

The SEC, as required by Section 404 of the Sarbanes-Oxley Act of 2002, has adopted rules requiring every public company in the United States to include a management report on such company's internal control over financial reporting in its annual report, which contains management's assessment of the effectiveness of our internal control over financial reporting. In addition, an independent registered public accounting firm must attest to and report on the effectiveness of our internal control over financial reporting. Although our

management concluded that our internal control over our financial reporting for the fiscal year ended December 31, 2018 was effective, and our independent registered public accounting firm has issued an attestation report, which concluded that our internal control over financial reporting was effective in all material aspects as of December 31, 2018, we may discover other deficiencies in the course of our future evaluation of our internal control over our financial reporting and may be unable to remediate such deficiencies in a timely manner. If we fail to maintain the adequacy of our internal control over financial reporting, we may not be able to conclude that we have effective internal control over financial reporting on an ongoing basis, in accordance with the Sarbanes-Oxley Act. Moreover, effective internal control is necessary for us to produce reliable financial reports and is important to prevent fraud. As a result, our failure to maintain effective internal control over financial reporting could result in the loss of investor confidence in the reliability of our financial statements, which in turn could harm our business and negatively impact the trading prices of our ADSs, H Shares or A Shares.

Risks Related to Audit Reports Prepared by an Auditor who is not Inspected by the Public Company Accounting Oversight Board

As a company with shares registered with the U.S. Securities and Exchange Commission, or the SEC, and traded publicly in the United States, our independent registered public accounting firm is required under the laws of the United States to be registered with the Public Company Accounting Oversight Board, or the PCAOB, and undergo regular inspections by the PCAOB to assess its compliance with the laws of the United States and professional standards. The PCAOB, however, is currently unable to inspect a registered public accounting firm's audit work relating to a company's operations in China where the documentation of such audit work is located in China. Accordingly, our independent registered public accounting firm's audit of our operations in China is not subject to the PCAOB inspection.

The PCAOB has conducted inspections of independent registered public accounting firms outside of China and has at times identified deficiencies in the audit procedures and quality control procedures of those accounting firms. Such deficiencies may be addressed in those accounting firms' future inspection process to improve their audit quality. Due to the lack of PCAOB inspections of audit work undertaken in China, our investors do not have the benefit of the PCAOB inspection of our independent registered public accounting firm's audit work and audit quality control procedures.

Risks Related to SEC Litigation Against the "Big Four" PRC-based Accounting Firms

On January 22, 2014, Judge Cameron Elliot, an SEC administrative law judge, issued an initial decision suspending the Chinese member firms of the "Big Four" accounting firms, including our independent registered public accounting firm, from, among other things, practicing before the SEC for six months. In February 2014, the initial decision was appealed. While under appeal and in February 2015, the Chinese member firms of "Big Four" accounting firms reached a settlement with the SEC. As part of the settlement, each of the Chinese member firms of "Big Four" accounting firms agreed to settlement terms that include a censure, undertakings to make a payment to the SEC, procedures and undertakings as to future requests for documents by the SEC and possible additional proceedings and remedies should those undertakings not be adhered to.

If the settlement terms are not adhered to, the Chinese member firms of "Big Four" accounting firms may be suspended from practicing before the SEC, which could in turn delay the timely filing of our financial statements with the SEC. In addition, it could be difficult for us to timely identify and engage another registered public accounting firm to audit and issue an opinion on our financial statements and our internal control over financial reporting. A delinquency in our filing of the annual report with the SEC may result in the NYSE initiating delisting procedures, which could harm our reputation and have other material adverse effects on our overall growth and prospect.

Risks Related to Employee Misconduct

We may not be able to detect or prevent employee misconduct, including misconduct by senior management, and such misconduct may damage our reputation and could adversely affect the trading price of our ordinary shares and ADSs.

We have gradually reinforced and enhanced our internal control and corporate governance policies and procedures in order to strengthen our ability to detect and prevent employee misconduct. We cannot assure you, however, that we will be able to detect or prevent such misconduct in a timely fashion, or at all. If we fail to prevent employee misconduct, our reputation may be harmed, and the trading price of our ordinary shares and ADSs could be adversely affected.

Risks Related to Cyber Security

Our activities depend heavily on the reliability and security of our information technology (“IT”) systems. Our IT systems may suffer disruptions due to cyber-attack, computer intrusions and viruses, technical failure and disruptions, power and network outages or natural disasters. We have adopted multi-layer technological measures for prevention and detection of cybersecurity problems, and we also train our employees in order to improve their awareness and ability to detect and respond to cybersecurity situations. If our measures prove to be insufficient, the cybersecurity disruptions could damage or destroy assets, compromise business systems, result in proprietary information being altered, lost, or stolen; result in employee, customer, or third-party information or material intellectual property being compromised, cause physical harm to people or the environment, or otherwise disrupt our business operations. We could incur significant costs to remedy the effects of a major cybersecurity disruption in addition to costs in connection with resulting regulatory actions, litigation or reputational harm. As a result, we and our customers, employees, or third parties could be adversely affected, potentially having a material adverse effect on our business and financial conditions.

Item 4 — INFORMATION ON THE COMPANY

Introduction

History and Development of Our Company

Our legal name is “中国石油天然气股份有限公司” and its English translation is PetroChina Company Limited.

We are the largest oil and gas producer and seller occupying a leading position in the oil and gas industry in the PRC and one of the largest companies in the world. We are engaged in a broad range of petroleum and natural gas related activities, including the exploration, development, production and marketing of crude oil and natural gas; the refining of crude oil and petroleum products, as well as the production and marketing of basic petrochemical products, derivative chemical products and other chemical products; the marketing of refined oil products and trading; and the transmission of natural gas, crude oil and refined oil products as well as the sale of natural gas.

Currently, substantially all of our crude oil and natural gas reserves and production-related assets are located in China. Our exploration, development and production activities commenced in the early 1950s. Over more than six decades, we have conducted crude oil and natural gas exploration activities in many regions of China.

We commenced limited refining activities in the mid-1950s. Our chemicals operations commenced in the early 1950s. In the early 1960s, we began producing ethylene. Our natural gas transmission and marketing activities commenced in Sichuan in Southwestern China in the 1950s.

We have increased our efforts to pursue attractive business opportunities outside China as part of our business growth strategy to utilize both domestic and international resources to strengthen our competitiveness. Since 2005, we have acquired interests in various oil and natural gas assets in several countries, which significantly expanded our overseas operations and effectively increased our oil and gas reserves and production volumes. We are currently assessing the feasibility of making further investments in international oil and gas markets. At the same time, we have been maintaining certain proportion of imported crude oil and natural gas in accordance with our needs. In 2018, we imported approximately 622.3 million barrels of crude oil, as compared to 486.1 million barrels and 572.5 million barrels of crude oil in 2016 and 2017, respectively.

We were established as a joint stock company with limited liability under the Company Law of the PRC on November 5, 1999 as part of a restructuring in which CNPC transferred to us most of the assets and liabilities of CNPC relating to its exploration and production, refining and marketing, chemicals and natural gas businesses.

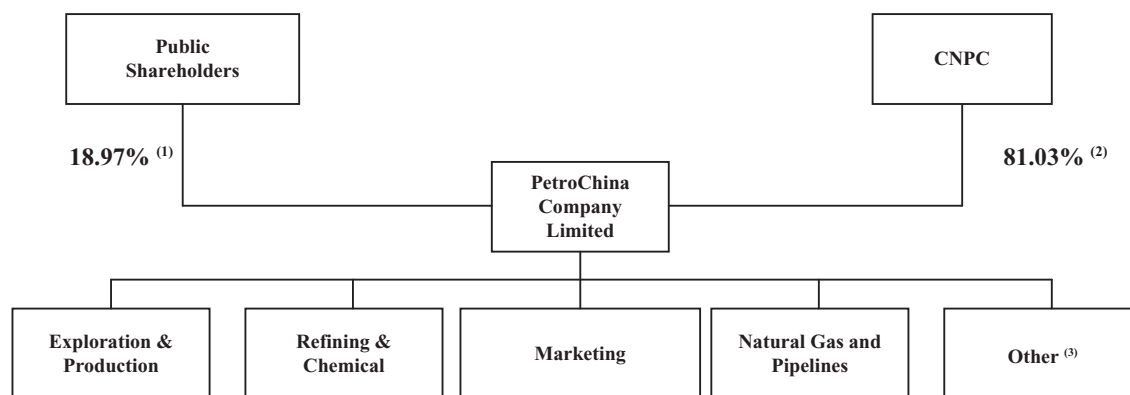
On April 7, 2000, we completed a global offering of H Shares and ADSs. In September 2005, we completed a follow-on offering of over 3 billion H Shares at the price of HK\$6.00 per share. In October 2007, we issued 4 billion A Shares at an issue price of RMB16.7 per share. The A Shares were listed on the Shanghai Stock Exchange on November 5, 2007. As of December 31, 2018, CNPC beneficially owned 148,010,665,536 A Shares and 291,518,000 H Shares in us, representing approximately 81.03% of our share capital in aggregate. The H Shares held by CNPC were through Fairy King Investments Limited, an overseas wholly owned subsidiary of CNPC.

For a description of our principal subsidiaries, see Note 19 to our consolidated financial statements.

Our headquarters are located at 9 Dongzhimen North Street, Dongcheng District, Beijing, China, 100007, and our telephone number at this address is (86-10) 5998-2622. Our website address is www.petrochina.com.cn. The information on our website is not part of this annual report. Our annual report on form 20-F and other reports filed electronically with the SEC can be found on the SEC's website www.sec.gov.

Our Corporate Organization Structure

The following chart illustrates our corporate organization structure as of December 31, 2018.



- (1) Indicates approximate shareholding.
- (2) Indicates approximate shareholding, including the 291,518,000 H Shares indirectly held by CNPC as of December 31, 2018 through Fairy King Investments Limited, a wholly owned overseas subsidiary of CNPC, and not including the 5,871,488,603 A Shares transferred to and held in a trust account as collaterals for the exchangeable bonds issued by CNPC.
- (3) Includes PetroChina Planning & Engineering Institute, PetroChina Exploration & Development Research Institute, IT Service Center, PetroChina Petrochemical Research Institute and several other companies.

Acquisitions and Divestment

On March 21, 2018, we entered into a concession agreement with Abu Dhabi National Oil Company, pursuant to which we were granted 10% equity interest in the Abu Dhabi Umm Shaif & Nasr Oilfield for a fee of US\$575 million and 10% equity interest in the Lower Zakum Oilfield for a fee of US\$600 million, both for a term of 40 years.

On September 27, 2018, we entered into an equity purchase agreement with Total S.A. to acquire the 22.407% equity interest held by Total S.A. in Dalian West Pacific Petrochemical Co., Ltd. (“Dalian West Pacific”). On December 6, 2018, we entered into an equity purchase agreement with each of Sinochem Group Co., Ltd. and Sinochem International Oil (Hong Kong) Co. Ltd., to acquire 8.424% and 25.208% equity interests in Dalian West Pacific, respectively. After the completion of the aforementioned equity purchase, together with our existing equity interest, we will hold a total equity interest of 84.475% equity in Dalian West Pacific and Dalian West Pacific will become one of our principal subsidiaries.

For information on capital expenditures, please see “Item 5 — Operating and Financial Review and Prospects — Liquidity and Capital Resources — Capital Expenditures and Investments.”

OUR EXPLORATION AND PRODUCTION SEGMENT



Exploration and Production

We engage in crude oil and natural gas exploration, development and production. Substantially all of our total estimated proved crude oil and natural gas reserves are located in China, principally in Northeastern, Northern, Southwestern and Northwestern China. Meanwhile, we have enhanced our overseas cooperation and expanded our strategic presence in five major overseas oil and gas cooperation regions by conducting new project development. In 2018, the crude oil and natural gas produced by us at overseas regions accounted for 17.6% and 7.8% of our total production of crude oil and natural gas, respectively.

We currently hold exploration and exploitation licenses for oil and gas (including coal seam gas) covering a total area of approximately 295.5 million acres, including the exploration licenses covering a total area of approximately 264.8 million acres and the exploitation licenses covering a total area of approximately 30.7 million acres.

The following table sets forth the financial and operating data of our exploration and production segment for each of the years ended December 31, 2016, 2017 and 2018:

	Year Ended December 31,		
	2016	2017	2018
Revenue (RMB in millions)	412,484	505,430	658,712
Profit from operations (RMB in millions)	3,148	15,475	73,519
Proved developed and undeveloped reserves			
Crude oil (million barrels)	7,437.8	7,481.3	7,640.8
Natural gas (Bcf)	78,711.8	76,887.6	76,467.0
Production			
Crude oil (million barrels)	920.7	887.0	890.3
Natural gas for sale (Bcf)	3,274.5	3,423.4	3,607.6

Reserves

As of December 31, 2018, our total estimated proved reserves of crude oil was approximately 7,640.8 million barrels and our total estimated proved reserves of natural gas was approximately 76,467.0 Bcf. As of December 31, 2018, proved developed reserves for crude oil and natural gas accounted for 76.5% and 52.5% of our total proved crude oil and natural gas reserves, respectively. Total proved hydrocarbon reserves, including our overseas crude oil reserves of 811.0 million barrels and overseas natural gas reserves of 1,986.9 Bcf, increased by 0.44% from approximately 20,295.9 million BOE as of December 31, 2017 to approximately 20,385.3 million BOE as of December 31, 2018. Natural gas as a percentage of total proved hydrocarbon reserves decreased from 63.1% as of December 31, 2017 to 62.5% as of December 31, 2018.

Approximately 33% of our estimated proved reserves as of December 31, 2018 was assessed by our internal assessment team and audited by our independent engineering consultant. The other part of our estimated proved reserves as of December 31, 2018 and the estimated proved reserves as of December 31, 2016 and 2017 were based on the assessment performed by our independent engineering consultants according to the reserves assessment methodology generally adopted in the U.S. Our independent engineering consultants for 2016, 2017 and 2018 were DeGolyer and MacNaughton, Ryder Scott Company L.P., GLJ Petroleum Consultants and McDaniel & Associates Consultants Ltd. Our reserves estimates include only crude oil and natural gas which we believe can be reasonably produced within the current terms of our production licenses or within the terms of the licenses which we are reasonably certain can be renewed. See “Regulatory Matters — Exploration Licenses and Production Licenses” for a discussion of our production licenses. Also see “Item 3 — Key Information — Risk Factors — Risks Related to Oil and Gas Reserves” for a discussion of the uncertainty inherent in the estimation of proved reserves.

Our reserves data in 2016, 2017 and 2018 were prepared in accordance with the SEC's final rules on "Modernization of Oil and Gas Reporting".

Internal Controls Over Reserves Estimates

We have appointed a Reserves Assessment Directing Team, or the RAD Team. The leader of the RAD Team is our president.

We have implemented a practicing professional certification regime to supervise our employees engaged in oil and gas reserves evaluation and auditing functions. We have set up a team of reserves auditors covering our headquarter office and regional companies to perform reserves evaluation and audits. Meanwhile, we have established a special reserves management department in our exploration and production segment. Each of the officers and employees of that department has over 20 years' experience in oil industry and over 10 years' experience in SEC-guided reserves evaluation. All of the members of that department have national-level registered qualifications in reserves expertise. Each regional company has established a reserves management committee and a multi-disciplinary reserves research office. Mr. Duan Xiaowen from the Reserves Administration Division of the exploration and production segment, is the person in charge of our reserves estimation. Mr. Duan holds a bachelor's degree in geology and a master's degree in business administration. He has over 25 years of work experience in oil and gas exploration and development industry and has been engaged in reserves estimate and management for a long time. Since 2008, Mr. Duan has been involved in the supervision of reserves estimation and management in our company. In 2016, Mr. Duan became the division head primarily responsible for overseeing the preparation of the reserves estimates, estimation technology and management. The reserves research offices of the regional companies are responsible for estimating newly discovered reserves and updating the estimates of existing reserves. The results of our oil and gas reserves assessment are subject to a two-level review by both the regional companies and our exploration and production company, with final examination and approval by the RAD Team.

In addition, we commissioned independent assessment firms to independently reassess or audit our annually assessed proved reserves in accordance with relevant SEC rules. We disclose the reserves in accordance with the SEC requirements.

Third-Party Reserves Reports

DeGolyer and MacNaughton, an independent petroleum engineering consulting firm based in the United States, carried out an independent assessment and audit of our reserves in China and certain other countries as of December 31, 2016, 2017 and 2018. Mr. Thomas C. Pence, a senior vice president of DeGolyer and MacNaughton, is primarily responsible for supervising the preparation of our reserves report. Mr. Pence is a Registered Professional Engineer in Texas, a member of the International Society of Petroleum Engineers, and has over 36 years of experience in oil and gas reservoir studies and reserves evaluations.

Ryder Scott Company, L.P. ("Ryder Scott"), an independent petroleum engineering consulting firm based in the United States, carried out an independent assessment of certain of our selected petroleum assets such as in Chad, West Qurna and Peru as of December 31, 2016, 2017 and 2018. Mr. Timour Baichev, a vice president of Ryder Scott, was responsible for overseeing the estimate of the reserves, future production and income as stated in the reserves report. Mr. Timour Baichev is a licensed professional engineer and has over 35 years of experience in the petroleum reserves estimation and evaluation.

GLJ Petroleum Consultants ("GLJ"), a petroleum consulting firm based in Canada, carried out an independent assessment of our reserves for certain gas and oil properties in Canada as of December 31, 2016, 2017 and 2018. Ms. Trisha MacDonald was the project manager for the evaluation. She is a senior engineer and has over 10 years of relevant experience.

McDaniel & Associates Consultants Ltd., a petroleum consulting firm with its headquarters in Canada, carried out an independent assessment of our reserves held through PetroKazakhstan Inc. as of December 31, 2016, 2017 and 2018. Mr. Cam Boulton, a vice president of McDaniel & Associates Consultants Ltd., was responsible for supervising the preparation of our reserves report. Mr. Boulton is a member of the Association of Professional Engineers and Geoscientists of Alberta and a member of Society of Petroleum Engineers. He has over 10 years' experience in oil and gas reservoir evaluation.

None of the above consulting firms or their partners, senior officers or employees has any direct or indirect financial interest in our company and the remunerations to the firms are not in any way contingent upon reported reserves estimates.

For detailed information about our net proved reserves estimates, please refer to the summary reports of reserves filed herewith as exhibits to this annual report on Form 20-F.

The following table sets forth our estimated proved reserves (including proved developed reserves and proved undeveloped reserves), proved developed reserves and proved undeveloped reserves of crude oil and natural gas as of December 31, 2016, 2017 and 2018.

	Crude Oil and Condensate	Natural Gas⁽¹⁾	Combined
	(Million barrels)	(Bcf)	(BOE, in millions)
Proved developed and undeveloped reserves			
Reserves as of December 31, 2015	8,521.1	77,524.7	21,441.9
Revisions of previous estimates	(810.9)	(863.2)	(954.7)
Extensions and discoveries	491.7	4,770.3	1,286.8
Improved recovery	93.0	—	93.0
Purchased	63.6	554.5	156.0
Production for the year	(920.7)	(3,274.5)	(1,466.6)
Reserves as of December 31, 2016	7,437.8	78,711.8	20,556.4
Revisions of previous estimates	486.2	(1,750.8)	194.6
Extensions and discoveries	346.3	3,350.0	904.6
Improved recovery	98.0	—	98.0
Purchased	—	—	—
Production for the year	(887.0)	(3,423.4)	(1,457.7)
Reserves as of December 31, 2017	7,481.3	76,887.6	20,295.9
Revisions of previous estimates	334.7	(1,377.9)	105.2
Extensions and discoveries	427.5	4,564.9	1,188.3
Improved recovery	95.9	—	95.9
Purchased	191.7	—	191.7
Production for the year	(890.3)	(3,607.6)	(1,491.7)
Reserves as of December 31, 2018	7,640.8	76,467.0	20,385.3
Proved developed reserves			
As of December 31, 2016	5,176.3	40,663.8	11,953.5
As of December 31, 2017	5,592.9	39,242.6	12,133.2
As of December 31, 2018	5,843.1	40,128.2	12,531.1
Proved undeveloped reserves			
As of December 31, 2016	2,261.5	38,048.0	8,602.9
As of December 31, 2017	1,888.4	37,645.0	8,162.7
As of December 31, 2018	1,797.7	36,338.8	7,854.2
Share of proved developed and undeveloped reserves in associates and joint ventures calculated by the equity method			
As of December 31, 2016	504.0	347.6	561.9
As of December 31, 2017	395.3	372.3	457.3
As of December 31, 2018	321.4	429.4	392.9

(1) Represents natural gas remaining after field separation for condensate removal and reduction for flared gas.

Our proved undeveloped reserves were 7,854.2 million BOE as of December 31, 2018. The main changes in our proved undeveloped reserves in 2018 included (i) an increase of 1,188.3 million BOE through extensions and discoveries; (ii) an increase of 95.9 million BOE through improved recovery; (iii) a decrease of 223.9 million BOE due to our optimization adjustment in the investment plans with respect to certain existing proved undeveloped reserves considering certain new discoveries; and (iv) the conversion of 1,368.8 million BOE of proved undeveloped reserves into proved developed reserves. In 2018, we spent RMB134,995 million on developing proved undeveloped reserves. The overwhelming majority of our proved undeveloped reserves were situated around the oil fields that are currently producing. The majority of our proved undeveloped reserves are already scheduled for development within five years after initial booking.

Some of our natural gas proved undeveloped reserves are being developed more than five years after their initial disclosure primarily due to the effect of long-term natural gas supply contracts. The sale of natural gas produced from our reserves located in China is subject to our long-term contractual obligations to provide a stable supply of natural gas to customers. We sell all of the natural gas through our pipelines and under long-term supply arrangements with customers.

There are mainly two types of long-term supply arrangements. The first is multi-year supply contracts with terms ranging from 20 to 30 years that can be extended upon mutual agreement. The second type is renewable annual contracts. The majority of the natural gas produced from our gas fields in China is put into our nationwide, long-range pipeline system and sold to customers who have entered into multi-year supply contracts with us in the areas where the long-range pipeline system covers. A small portion of the natural gas produced by our company is put into local or internal pipeline systems and sold to customers in the areas adjacent to our gas fields. These customers typically have formed de-facto long-term relationships with our company over the years and enter into supply contracts with us before the year end to determine the amount of gas to be purchased for the next year, with such contracts being renewed every year. In general, our supply relationships with customers under the annual contracts have existed for more than ten years.

Mainly as a result of our contractual obligations to ensure a long-term, stable supply of natural gas to customers, we must maintain a relatively large amount of proved undeveloped natural gas reserves and develop them over an extended period of time (in some cases, longer than five years).

The following tables set forth our crude oil and natural gas proved reserves and proved developed reserves by region as of December 31, 2016, 2017 and 2018.

	As of December 31,					
	2016		2017		2018	
	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed
	(Million barrels)					
Crude oil reserves						
Daqing	1,504.7	1,226.3	1,513.7	1,283.9	1,487.4	1,272.5
Changqing	1,917.8	1,319.1	2,049.2	1,413.9	2,095.2	1,423.6
Xinjiang	795.1	730.5	927.3	855.9	1,000.0	894.6
Other regions ⁽¹⁾	3,220.2	1,900.4	2,991.1	2,039.2	3,058.2	2,252.4
Total	<u>7,437.8</u>	<u>5,176.3</u>	<u>7,481.3</u>	<u>5,592.9</u>	<u>7,640.8</u>	<u>5,843.1</u>

	As of December 31,					
	2016		2017		2018	
	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed
	(Bcf)					
Natural gas reserves⁽²⁾						
Changqing	25,697.9	9,920.8	25,509.2	9,107.4	25,425.8	9,406.5
Tarim	24,019.2	14,336.1	22,918.7	14,054.7	22,805.9	13,844.9
Chuanyu	13,905.1	6,982.4	13,838.0	6,756.5	13,882.7	7,857.5
Other regions ⁽¹⁾	15,089.6	9,424.5	14,621.7	9,324.0	14,352.6	9,019.3
Total	78,711.8	40,663.8	76,887.6	39,242.6	76,467.0	40,128.2

(1) Represents other oil regions in China and our overseas oil and gas fields.

(2) Represents natural gas remaining after field separation for condensate removal and reduction for flared gas.

Exploration and Development

We are currently conducting exploration and development efforts in 12 provinces, two municipalities under the direct administration of the central government and three autonomous regions in China as well as in certain regions in other countries. We believe that we have more extensive experience in the exploration and development of crude oil and natural gas than any of our principal competitors in China.

The following table sets forth the number of wells we drilled, or in which we participated, and the results thereof, for the periods indicated.

Year	Daqing	Xinjiang	Changqing	Others ⁽¹⁾	Total
2016					
Net exploratory wells drilled⁽²⁾	148	134	955	550	1,787
Crude oil	127	87	625	353	1,192
Natural gas	9	1	125	75	210
Dry ⁽³⁾	12	46	205	122	385
Net development wells drilled⁽²⁾	3,150	792	5,135	2,194	11,271
Crude oil	3,129	777	4,526	1,824	10,256
Natural gas	15	15	551	354	935
Dry ⁽³⁾	6	—	58	16	80
2017					
Net exploratory wells drilled⁽²⁾	217	132	868	608	1,825
Crude oil	184	69	539	346	1,138
Natural gas	13	11	59	108	191
Dry ⁽³⁾	20	52	270	154	496
Net development wells drilled⁽²⁾	3,205	1,520	6,020	3,731	14,476
Crude oil	3,185	1,504	4,217	2,898	11,804
Natural gas	10	13	1,746	820	2,589
Dry ⁽³⁾	10	3	57	13	83
2018					
Net exploratory wells drilled⁽²⁾	231	130	885	532	1,778
Crude oil	207	100	503	299	1,109
Natural gas	15	11	65	89	180
Dry ⁽³⁾	9	19	317	144	489
Net development wells drilled⁽²⁾	3,421	1,630	6,233	3,893	15,177
Crude oil	3,398	1,619	4,086	2,990	12,093
Natural gas	16	11	2,098	885	3,010
Dry ⁽³⁾	7	—	49	18	74

- (1) Represents the Liaohe, Jilin, Huabei, Dagang, Sichuan, Tarim, Tuha, Qinghai, Jidong, Yumen, Zhejiang, southern and other oil regions.
- (2) “Net” wells refer to the wells after deducting interests of others. No third parties own any interests in any of our wells.
- (3) “Dry” wells are wells with insufficient reserves to sustain commercial production.

We had 499 wells in the process of being drilled and 9,792 wells with multiple completions as of December 31, 2018.

Oil-and-Gas Properties

The following table sets forth our interests in developed and undeveloped acreage by oil region and in productive crude oil and natural gas wells as of December 31, 2018.

Oil Region	Productive Wells⁽¹⁾		Acreage⁽¹⁾ (Thousand acres)			
			Developed		Undeveloped	
	Crude Oil	Natural Gas	Crude Oil	Natural Gas	Crude Oil	Natural Gas
Daqing	77,144	580	1,144.42	103.41	726.90	133.69
Changqing	64,134	15,890	1,510.19	6,628.20	844.83	3,292.87
Xinjiang	34,214	300	394.23	63.44	260.24	18.27
Other regions ⁽²⁾	75,175	6,182	1,671.95	1,320.08	1,014.48	1,871.44
Total	<u>250,667</u>	<u>22,952</u>	<u>4,720.79</u>	<u>8,115.13</u>	<u>2,846.45</u>	<u>5,316.27</u>

- (1) Includes all wells and acreage in which we have an interest. No third parties own any interests in any of our wells or acreage.
- (2) Represents the Liaohe, Jilin, Huabei, Dagang, Southwestern, Tarim, Tuha, Qinghai, Jidong, Yumen, Zhejiang, Southern and other oil regions.

Production

The following table sets forth our historical average net daily crude oil and natural gas production by region and our average sales price for the years ended December 31, 2016, 2017 and 2018.

	For the Year Ended December 31,			% of
	2016	2017	2018	2018 Total
Crude oil production⁽¹⁾				
(thousand barrels per day, except percentages or otherwise indicated)				
Daqing	717.2	668.8	632.6	25.9
Changqing	482.7	479.9	480.9	19.7
Xinjiang	224.7	229.0	232.2	9.5
Other ⁽²⁾	1,090.9	1,052.4	1,093.4	44.9
Total	2,515.5	2,430.1	2,439.1	100.0
Annual production (million barrels)	920.7	887.0	890.3	
Average sales price (US\$ per barrel)	37.99	50.64	68.28	
Natural gas production⁽¹⁾⁽³⁾				
(million cubic feet per day, except percentages or otherwise indicated)				
Changqing	3,103.5	3,121.7	3,275.3	33.1
Tarim	2,093.1	2,277.3	2,353.4	23.8
Chuanyu	1,696.1	1,844.1	1,979.9	20.0
Other ⁽⁴⁾	2,054.1	2,136.1	2,275.3	23.1
Total	8,946.8	9,379.2	9,883.9	100.0
Annual production (Bcf)	3,274.5	3,423.4	3,607.6	
Average realized price (US\$ per Mcf) ⁽⁵⁾	4.69	5.18	5.85	

- (1) Production volumes for each region include our share of the production from all of our cooperative projects with foreign companies in that region.
- (2) Represents production from the Liaohe, Jilin, Huabei, Dagang, Tarim, Tuha, Qinghai, Jidong, Yumen and other oil regions and our share of overseas production as a result of our acquisition of overseas assets.
- (3) Represents production of natural gas for sale.
- (4) Represents production from the Daqing, Qinghai, Tuha, Xinjiang, Liaohe, Huabei, Dagang, Jilin, Jidong, Yumen and other oil and gas regions and our share of overseas production as a result of our acquisition of overseas assets.
- (5) As the sales volume of urban gas was included in the sales volume of natural gas beginning in 2018, the average realized prices for 2016 and 2017 were retrospectively adjusted by applying the same approach. For natural gas citygate price, please refer to “Item 5 — Operating and Financial Review and Prospects — Overview”.

In 2018, we supplied a substantial majority of our total crude oil sales to our refineries. In addition, we enter into annual crude oil mutual supply framework agreement with Sinopec for supply of crude oil to each other's refineries. Under the annual agreement for 2019, we agreed in principle to supply 0.74 million tons of crude oil to Sinopec's refineries and Sinopec agreed in principle to supply 1.26 million tons of crude oil to us in 2019.

The following table sets forth our average sales prices and average lifting costs of crude oil and natural gas of our company on an overall basis and those in China in 2016, 2017 and 2018.

	Crude Oil Average Realized Prices (RMB/ton)	Natural Gas ⁽¹⁾ Average Realized Prices (RMB/Kilostere)	Average Lifting Cost (US\$/BOE)
2016			
Overall	1,865	1,099	11.67
—China	1,831	1,146	13.00
2017			
Overall	2,526	1,235	11.53
—China	2,494	1,225	12.71
2018			
Overall	3,338	1,367	12.31
—China	3,350	1,338	13.55

(1) As the sales volume of urban gas was included in the sales volume of natural gas beginning in 2018, the average realized prices for 2016 and 2017 were retrospectively adjusted by applying the same approach.

Principal Oil and Gas Regions

Daqing Oil Region

The Daqing oil region, our largest oil and gas producing property, is located in the Songliao basin and covers an area of approximately one million acres. In 2016, 2017 and 2018, our crude oil production volume in the Daqing oil region was 717.2 thousand barrels, 668.8 thousand barrels and 632.6 thousand barrels per day, respectively. As of December 31, 2018, we produced crude oil from 40 fields in the Daqing oil region.

As of December 31, 2018, our proved crude oil reserves in the Daqing oil region were 1,487.4 million barrels, representing 19.5% of our total proved crude oil reserves. As of December 31, 2016 and 2017, the proved crude oil reserves in our Daqing oil region were 1,504.7 million barrels and 1,513.7 million barrels, respectively. In 2018, the crude oil reserve-to-production ratio of the Daqing oil region was 6.3 years.

Daqing's crude oil has low sulfur and high paraffin content. As many refineries in China, particularly those in Northeastern China, are configured to refine Daqing crude oil, we have a stable market for the crude oil we produce in the Daqing oil region.

Changqing Oil and Gas Region

The Changqing oil and gas region covers parts of Shaanxi Province, Gansu Province, Ningxia, Inner Mongolia and Shanxi Province. As of December 31, 2018, our proved crude oil reserves in the Changqing oil region were 2,095.2 million barrels, representing 27.4% of our total proved crude oil reserves. In 2018, our crude oil production in the Changqing oil region averaged 480.9 thousand barrels per day, representing approximately 19.7% of our total daily crude oil production. In 2018, the crude oil reserve-to-production ratio at the Changqing oil region was 11.9 years.

In the early 1990s, we discovered the Changqing oil and gas region, which had total proved natural gas reserves of 25,425.8 Bcf as of December 31, 2018, representing 33.3% of our total proved natural gas reserves. In January 2001, we discovered the Sulige gas field in the Changqing oil and gas region, which had total proved natural gas reserves of 14,403.0 Bcf as of December 31, 2018. Sulige gas field is currently the largest gas field in China. In 2018, the Changqing oil and gas region produced 1,195.5 Bcf of natural gas for sale, representing an increase of 4.9% from 1,139.4 Bcf in 2017.

Xinjiang Oil Region

The Xinjiang oil region is one of our four largest crude oil producing properties and is located in the Junggar basin in Northwestern China. We commenced our operations in the Xinjiang oil region in 1951. The Xinjiang oil region covers a total area of approximately 900,000 acres.

As of December 31, 2018, our proved crude oil reserves in the Xinjiang oil region were 1,000.0 million barrels, representing 13.1% of our total proved crude oil reserves. In 2018, our oil fields in the Xinjiang oil region produced an average of 232.2 thousand barrels of crude oil per day, representing approximately 9.5% of our total daily crude oil production. In 2018, the crude oil reserve-to-production ratio at the Xinjiang oil region was 11.8 years.

Tarim Oil and Gas Region

The Tarim oil and gas region is located in the Tarim basin in Northwestern China with a total area of approximately 590,000 acres. In 1998, we discovered the Kela 2 natural gas field in the Tarim oil and gas region. As of December 31, 2018, the proved natural gas reserves in the Tarim oil and gas region reached 22,805.9 Bcf, representing 29.8% of our total proved natural gas reserves.

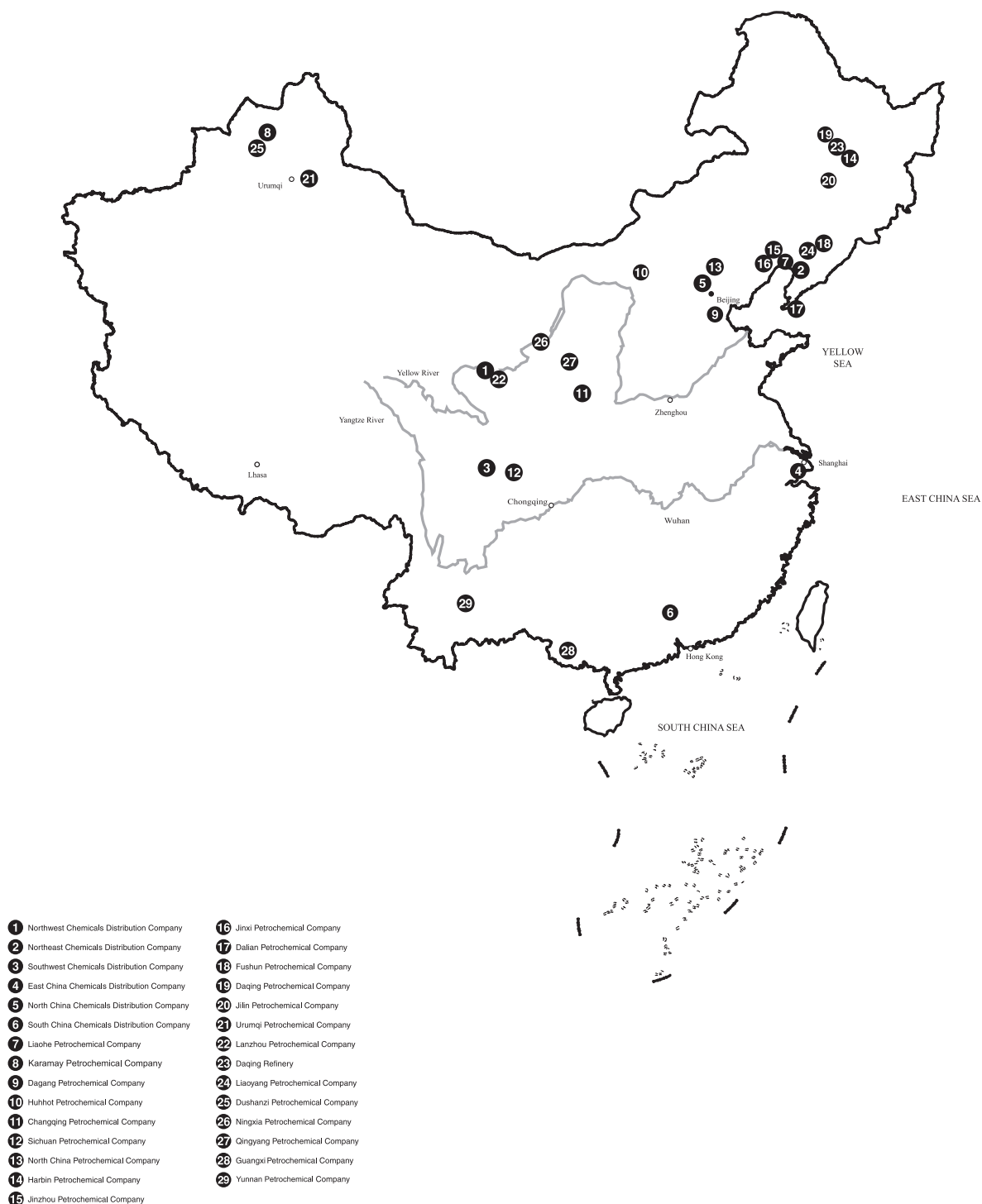
In 2018, we produced 859.0 Bcf of natural gas for sale in the Tarim oil and gas region. We have completed the construction of the pipelines to deliver natural gas in the Tarim oil and gas region to the central and Eastern regions of China where there is strong demand for natural gas transmitted through our West-East Gas Pipelines.

Chuanyu Gas Region

We began natural gas exploration and production in the Chuanyu gas region in the 1950s. The Chuanyu gas region covers a total area of approximately 2.3 million acres. The natural gas reserve-to-production ratio in the Chuanyu gas region was approximately 19.2 years in 2018. As of December 31, 2018, we had 116 natural gas fields under development in the Chuanyu gas region.

As of December 31, 2018, our proved natural gas reserves in the Chuanyu gas region were 13,882.7 Bcf, representing 18.2% of our total proved natural gas reserves and an increase of 0.3% from 13,838.0 Bcf as of December 31, 2017. In 2018, our natural gas production for sale in the Chuanyu gas region reached 722.7 Bcf, representing 20.0% of our total natural gas production for sale.

OUR REFINING AND CHEMICALS SEGMENT



Refining and Chemicals

We now operate 29 enterprises located in nine provinces, four autonomous regions and three municipalities to engage in refining of crude oil and petroleum products, as well as the production and marketing of basic petrochemical products, derivative chemical products and other chemical products.

The following table sets forth the financial and operating data of our refining and chemicals segment for each of the years ended December 31, 2016, 2017 and 2018.

	Year Ended December 31,		
	2016	2017	2018
Revenue (RMB in millions)	582,510	707,804	874,125
Profit from operations (RMB in millions)	39,026	39,961	42,756
Crude oil processed (million barrels)	953.3	1,016.9	1,122.8
Crude oil primary distillation capacity (million barrels/year)	1,257.6	1,347.0	1,380.3
Production of refined oil products (thousand tons)	86,022	92,715	105,342

Refining

Refined Products

We produce a wide range of refined products at our refineries. Some of the refined products are for our internal consumption and used as raw materials in our petrochemical operation. The table below sets forth production volumes for our principal refined products for each of the years ended December 31, 2016, 2017 and 2018.

<u>Principal Product</u>	Year Ended December 31,		
	2016	2017	2018
	(In thousand tons)		
Diesel	46,689	48,241	52,022
Gasoline	33,275	37,363	43,453
Kerosene	6,058	7,111	9,867
Lubricants	1,164	1,636	1,600
Fuel oil	2,222	1,880	1,675
Naphtha	9,919	10,032	11,775

Our Refineries

Most of our refineries are strategically located close to our crude oil production and storage bases along our crude oil and refined product transmission pipelines and railways, which provide our refineries with secure supplies of crude oil and facilitate our distribution of refined products to the domestic markets.

In 2018, we further optimized our production processes, adjusted our products portfolio and concentrated our resources and production capacity on products with high profit margins. We reduced the diesel-gasoline ratio from 1.29 in 2017 to 1.20 in 2018. In each of the years ended December 31, 2016, 2017 and 2018, our exploration and production operations supplied approximately 71.8%, 67.0% and 59.7%, respectively, of the crude oil processed in our refineries.

The table below sets forth certain operating statistics regarding our refineries as of December 31, 2016, 2017 and 2018.

	As of December 31,		
	2016	2017	2018
Primary distillation capacity⁽¹⁾ (thousand barrels per day)			
Lanzhou Petrochemical	212.6	212.6	212.6
Dalian Petrochemical	415.0	415.0	415.0
Fushun Petrochemical	222.7	222.7	222.7
Dushanzi Petrochemical	202.4	202.4	202.4
Guangxi Petrochemical	202.4	202.4	202.4
Jilin Petrochemical	198.4	198.4	198.4
Sichuan Petrochemical	202.4	202.4	202.4
Yunnan Petrochemical ⁽²⁾	—	263.2	263.2
Other refineries	1,789.6	1,771.4	1,862.5
Total	<u>3,445.5</u>	<u>3,690.5</u>	<u>3,781.6</u>
Refining throughput (thousand barrels per day)			
Lanzhou Petrochemical	166.6	178.3	187.7
Dalian Petrochemical	263.5	217.4	323.0
Fushun Petrochemical	170.5	158.9	175.1
Dushanzi Petrochemical	151.2	149.1	147.2
Guangxi Petrochemical	90.9	143.3	186.6
Jilin Petrochemical	184.3	181.6	164.4
Sichuan Petrochemical	141.0	147.5	131.5
Yunnan Petrochemical ⁽²⁾	—	81.4	204.4
Other refineries	1,443.9	1,528.6	1,556.4
Total	<u>2,611.9</u>	<u>2,786.1</u>	<u>3,076.3</u>

(1) Represents the primary distillation capacity of crude oil and condensate.

(2) Yunnan Petrochemical commenced operations in August 2017.

In each of the years ended December 31, 2016, 2017 and 2018, the average utilization rate of the primary distillation capacity at our refineries was 80.3%, 80.3% and 83.0%, respectively, and the average yield for our four principal refined products (gasoline, kerosene, diesel and lubricants) at our refineries was 67.6%, 68.6% and 70.4%, respectively. “Yield” represents the number of tons of a refined product expressed as a percentage of the number of tons of crude oil from which that product is processed. In each of the years ended December 31, 2016, 2017 and 2018, the overall refining yield at our refineries was 93.5%, 93.3% and 93.7%, respectively.

In 2018, Dalian Petrochemical, Yunnan Petrochemical, Fushun Petrochemical, Lanzhou Petrochemical, Dushanzi Petrochemical, Guangxi Petrochemical, Sichuan Petrochemical, and Jilin Petrochemical were our leading refineries in terms of both primary distillation capacity and refining throughput.

To maintain efficient operations of our facilities and lower production costs, we have endeavored to achieve the most cost-efficient proportions of various types of crude oil in our refining process. We purchase a portion of our crude oil requirements from third-party international suppliers located in different countries and regions. In 2018, we purchased crude oil sourced from Rosneft and Transneft, both of which are Russian companies subject to U.S. economic sanctions for use in our refining operations. The revenue generated from our refineries from the crude oil sourced from Rosneft and Transneft accounted for 4.29% of our total revenue in 2018. See “Item 3 — Key Information — Risk Factors — Risks Related to Outbound Investments and Trading.”

Chemicals

Most of our chemical plants are close to our refineries and are connected to the refineries by pipelines, providing additional production flexibility and opportunities for cost competitiveness. The raw materials required by our chemicals operations are mainly supplied by our own refineries.

Our Chemical Products

The table below sets forth the production volumes of our principal chemical products for each of the years ended December 31, 2016, 2017 and 2018.

	Year Ended December 31,		
	2016	2017	2018
	(In thousand tons)		
Basic petrochemicals			
Ethylene	5,589	5,764	5,569
Derivative petrochemicals			
Synthetic resin	9,078	9,284	9,049
Synthetic fiber raw materials and polymer	1,410	1,390	1,388
Synthetic rubber	760	809	869
Other chemicals			
Urea	1,900	1,439	828

We are one of the major producers of ethylene in China. We use the bulk of the ethylene we produce as a principal feedstock for the production of many chemical products, such as polyethylene. As of December 31, 2018, our annual ethylene production capacity was 5,910 thousand tons. We produce a number of synthetic resin products, including polyethylene, polypropylene and ABS. As of December 31, 2018, our annual production capacities for polyethylene, polypropylene and ABS were 5,062 thousand tons, 4,120 thousand tons and 705 thousand tons, respectively.

Marketing of Chemicals

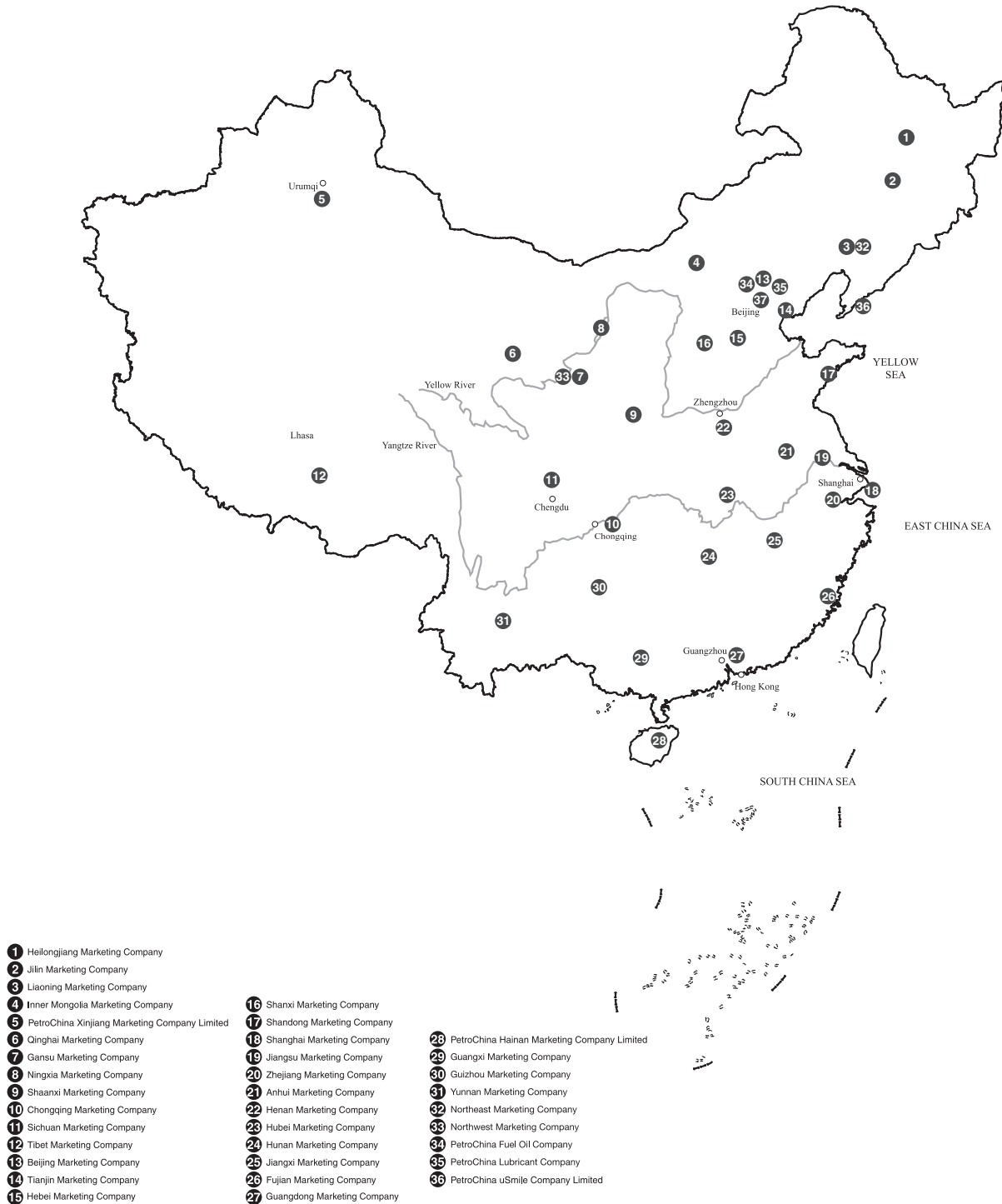
Our chemical products are distributed to a number of industries including the automotive, construction, electronics, medical manufacturing, printing, electrical appliances, household products, insulation, packaging, paper, textile, paint, footwear, agriculture and furniture industries.

The following table sets forth the sales volumes of our chemical products by principal product category for each of the years ended December 31, 2016, 2017 and 2018.

<u>Product</u>	Year Ended December 31,		
	2016	2017	2018
	(In thousand tons)		
Derivative petrochemicals			
Synthetic resin	8,998.4	9,166.0	9,489.1
Synthetic fiber	83.6	76.9	75.8
Synthetic rubber	793.7	813.6	899.6
Intermediates	9,262.4	10,324.6	10,480.2
Other chemicals			
Urea	2,181.8	1,171.8	732.3

In each of the years ended December 31, 2016, 2017 and 2018, our capital expenditures for our refining and chemicals segment amounted to approximately RMB12,847 million, RMB17,705 million and RMB15,287 million, respectively. These capital expenditures were incurred primarily in connection with the construction and expansion of our refining and chemical facilities and the upgrading of our product quality. We believe that our refined products are capable of meeting the product specification and environmental protection requirements as set by the PRC government.

OUR MARKETING SEGMENT



Marketing

We engage in the marketing of refined products through 36 regional sales companies including two distribution branch companies, one lubricant branch company, one fuel oil company and one convenience store chain company, PetroChina uSmile Company Limited, operated under the trade name “uSmile”. These operations include the transportation and storage of the refined products, and the wholesale, retail and export of gasoline, diesel, kerosene, lubricant, asphalt and other refined products. In addition, with respect to our international trading sector, we have optimized the import and export resources, focused on synergies, actively expanded into the high-end markets, and maintained growth in trading volume and improved operation results.

The following table sets forth the financial and operating data of our marketing segment for each of the years ended December 31, 2016, 2017 and 2018:

	Year Ended December 31,		
	2016	2017	2018
Revenue (RMB in millions)	1,301,616	1,660,456	2,003,105
Profit /(Loss) from operations (RMB in millions)	11,048	8,279	(6,450)
External sales volume of refined oil products (thousand tons)	159,107	169,466	177,498

We market a wide range of refined products, including gasoline, diesel, kerosene and lubricants, through an extensive network of sales personnel and independent distributors and a broad wholesale and retail distribution system across China. As of December 31, 2018, our marketing network consisted of:

- Numerous nationwide wholesale distribution outlets. Almost all of these outlets are located in high demand areas across China, particularly in the coastal areas, along major railways and along the Yangtze River; and
- 21,783 service stations, consisting of 20,555 service stations owned and operated by us and 1,228 franchised service stations owned and operated by third parties.

In addition, in order to adapt to changes in market condition and customer demand, we enhanced integrated marketing for refined products, fuel cards, non-oil business, lubricants and gas, and enhanced marketing through internet and carried out various promotion activities. We expanded our internet payment services and enhanced our marketing of non-oil businesses.

The PRC government and other institutional customers, including railway, transportation and fishery operators, are long-term purchasers of the gasoline and diesel that we produce. We sell gasoline and diesel to these customers based on the supply prices for special customers published by the PRC government. See “—Regulatory Matters — Pricing — Refined Products” for a discussion of refined product pricing.

The following table sets forth our sales volumes of diesel, gasoline, kerosene and lubricants for each of the years ended December 31, 2016, 2017 and 2018.

Product	Year Ended December 31,		
	2016	2017	2018
	(In thousand tons)		
Diesel	80,168	87,324	86,904
Gasoline	62,406	65,293	71,125
Kerosene	16,533	16,849	19,469
Lubricants	1,122	1,283	1,158

Wholesale Marketing

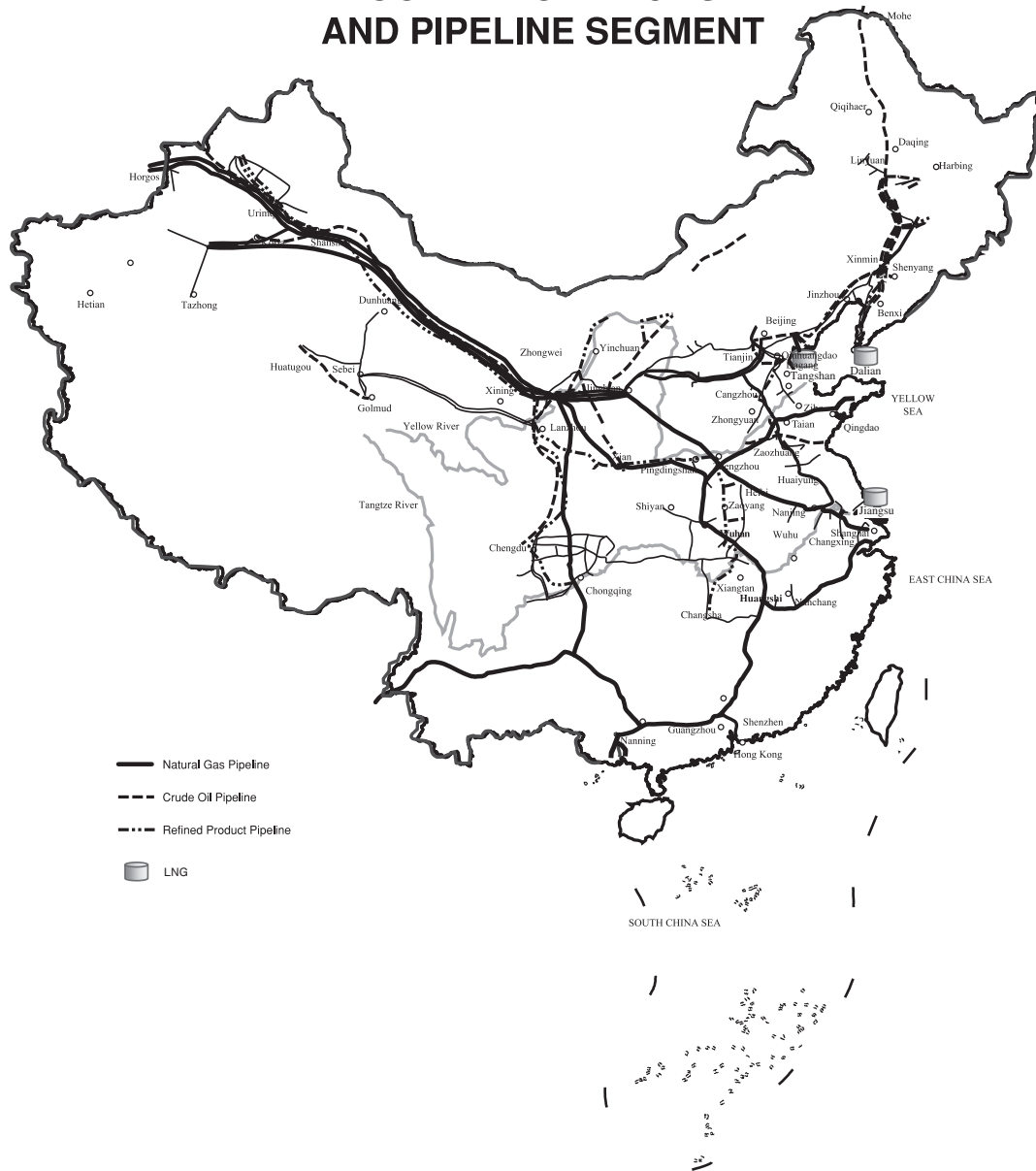
We sell refined products both directly and through independent distributors into various wholesale markets, as well as to utility, commercial, petrochemical, aviation, agricultural, fishery and transportation companies in China. Our gasoline and diesel sales also include the amount we transferred to our retail operations.

Retail Marketing

The weighted average sales volume of gasoline and diesel per business day at our service station network was 10.5 tons, 10.5 tons and 10.3 tons per service station in 2016, 2017 and 2018, respectively.

Capital expenditures for the marketing segment for the years ended December 31, 2016, 2017 and 2018 amounted to RMB7,983 million, RMB10,982 million and RMB17,010 million, respectively, which were used mainly for the construction of sales network facilities including service stations and oil storage tanks.

OUR NATURAL GAS AND PIPELINE SEGMENT



Natural Gas and Pipeline

We are China's largest natural gas transporter and seller in terms of sales volume. We sell natural gas primarily to industrial companies, power plants, fertilizer and chemical companies, commercial users and municipal utilities owned by local governments. In addition, we also transmit crude oil and refined products in the natural gas and pipeline segment.

The following table sets forth the financial and operating data of our natural gas and pipeline segment for each of the years ended December 31, 2016, 2017 and 2018:

	As of December 31 or Year Ended December 31,		
	2016	2017	2018
Revenue (RMB in millions)	247,477	295,786	362,626
Profit from operations (RMB in millions)	17,885	15,688	25,515
Total length of natural gas pipelines (km)	49,420	51,315	51,751
Total length of crude oil pipeline (km)	18,872	19,670	20,048
Total length of refined oil products pipeline (km)	10,560	11,389	11,728
Total volume of natural gas sold ⁽¹⁾ (Bcf)	6,811.3	7,026.2	7,654.7

(1) Represents the natural gas sold to third parties. As the sales volume of urban gas was included in the sales volume of natural gas beginning in 2018, the sales volumes for 2016 and 2017 were retrospectively adjusted by applying the same approach.

Our Principal Markets for Natural Gas

We sell our natural gas across China. Our natural gas supply covers all provinces, municipalities under direct administration of the central government and autonomous regions of China, other than Macau and Taiwan. We supply natural gas to Tibet by means of LNG tanker trucks.

The Bohai Rim is one of our principal markets for natural gas. The natural gas supplied to Bohai Rim is primarily sourced from the Changqing oil and gas region and transmitted through the Shaanxi to Beijing natural gas pipeline system.

The Yangtze River Delta and Southwestern region in China are also our principal markets. We supply natural gas to these regions primarily from our domestic production sites and through long-distance pipelines and by LNG tanker trucks.

In addition, provinces such as Xinjiang, Guangdong, Henan and Hubei consume more and more natural gas and have become another significant natural gas market of us.

Driven by environmental and efficiency concerns, the PRC government is increasingly encouraging industrial and residential use of natural gas. The PRC government has adopted a number of laws and regulations to require local governments to increase the use of clean energy, such as natural gas and liquefied petroleum gas, to replace the use of raw coal. Several local governments have adopted policies to facilitate an increase in natural gas consumption in order to reduce the air pollution level. The PRC government has also adopted preferential value-added tax rate for natural gas production. Effective April 1, 2019, the value-added tax rate for natural gas was reduced from 10% to 9%, and the value-added tax rate for crude oil was reduced from 16% to 13%. In 2017, the PRC government issued a new policy to accelerate the large-scale and high-efficient utilization of natural gas in urban gas, industrial fuel, gas-fired power generation and transportation, and to significantly increase the proportion of use of natural gas in primary energy consumption. The overall goal of the policy is that the proportion of natural gas in the primary energy consumption to reach around 10% by 2020 and 15% by 2030, and the underground gas storage to form an effective working gas volume of over 14.8 billion cubic meters by 2020 and over 35 billion cubic meters by 2030.

We believe that these policies have had a positive effect on the development and consumption of natural gas in our existing or potential markets for natural gas. We believe that these favorable policies will continue to benefit our natural gas business.

Natural Gas Transmission Infrastructure

As of December 31, 2018, we owned and operated approximately 51,751 kilometers of natural gas pipelines in China, representing the vast majority of China's onshore natural gas pipelines. Our existing natural gas pipelines form a national trunk network for natural gas supply and the regional natural gas supply networks in Northwestern, Southwestern, Northern and central China as well as the Yangtze River Delta. Our main natural gas pipelines in operation include the First West-East Gas Pipeline, the Second West-East Gas Pipeline, the Third West-East Gas Pipeline, Zhong County-Wuhan Gas Pipeline, the four Shaanxi-Beijing Gas Pipelines and the Sebei-Lanzhou Gas Pipelines. In 2018, our main natural gas pipelines under construction included the China-Russia East Natural Gas Pipeline and the Fujian-Guangdong branch line of the Third West-East Gas Pipeline.

The China-Russia East Natural Gas Pipeline will extend from Heihe to Shanghai with a total length of 3,691 kilometers and a designed annual throughput capacity of 38.0 billion cubic meters. In 2018, we started the construction of the north section. The north section has a designed length of 837 kilometers. We expect to complete construction of the China-Russia East Natural Gas Pipeline by October 2023.

In 2018, we started the construction of the Fujian-Guangdong branch line of the Third West-East Gas Pipeline, which has a total designed length of 575 kilometers and a designed annual throughput capacity of 5.8 billion cubic meters. We expect to complete construction of the Guangzhou-Chaozhou section by December 2019.

Crude Oil Transportation Infrastructure

We have an extensive network for transportation, storage and distribution of crude oil, which covers many regions of China. As of December 31, 2018, we had crude oil pipelines of 20,048 kilometers. Our main crude oil pipelines in operation include the China-Russia Crude Oil Pipeline, the Western Crude Oil Pipeline, the Northeastern Crude Oil Pipeline and the Lanzhou-Chengdu Crude Oil Pipeline.

Refined Product Transportation Infrastructure

As of December 31, 2018, we had refined product pipelines of 11,728 kilometers. Our main refined product pipelines in operation include the Lanzhou-Zhengzhou-Changsha Refined Oil Pipeline, the Western Refined Oil Pipeline, and the Lanzhou-Chengdu-Chongqing Refined Oil Pipeline. In 2018, we completed the construction of and put into use the Fushun-Jinzhou Refined Oil Pipeline and the Yunnan Refined Oil Pipeline. The Fushun-Jinzhou Refined Oil Pipeline has a length of 431 kilometers with an annual throughput capacity of 7.5 million tons. The Yunnan Refined Oil Pipeline has a length of 951 kilometers with an annual throughput capacity of 8.7 million tons. Our main refined product pipeline under construction is the Jinzhou-Zhengzhou Refined Oil Pipeline, which is expected to be completed by the end of 2019.

During the past three years, we have not experienced any delays in delivering natural gas, crude oil and refined products due to pipeline capacity constraints.

Reform of the Oil and Gas Pipeline Network Operation Mechanism

On March 19, 2019, the PRC government passed the *Opinions on Implementation of the Reform of the Operation Mechanism of Oil and Gas Pipeline Network (the "Opinion")*. According to the Opinion, the PRC

government will carry out reforms of the oil and gas pipeline operation mechanism. An oil and gas pipeline network operator will be established, which will have diversified investors with state-owned capital holding the majority stake. The Opinion states that the PRC government will form an oil and gas market system with multi-channel suppliers in the upstream, an integrated pipeline network with high efficiency in the middle-stream, and a fully competitive market in the downstream, to improve the efficiency of oil and gas resource allocation. We believe the reforms can promote the reasonable use of pipeline resources and will intensify competition in the domestic oil and gas industry.

Competition

As an oil and gas company operating in a competitive industry, we compete in each of our business segments in both China and international markets for desirable business prospects and for customers. Our principal competitors in China are China Petrochemical Corporation, or Sinopec, and China National Offshore Oil Corporation, or CNOOC.

Exploration and Production Operations

We are the largest onshore oil and gas company in China in terms of proved crude oil and natural gas reserves as well as crude oil and natural gas production and sales. However, we compete with other domestic oil and gas companies for the acquisition of desirable crude oil and natural gas prospects. Similarly, we face some competition in the development of offshore oil and gas resources. In addition, the gradual development of the low-cost shale gas and shale oil in the United States has had a material effect on our business. We believe that our experience in crude oil and natural gas exploration and production and our advanced exploration and development technologies that are suitable for diverse geological conditions in China will enable us to maintain our dominant position in discovering and developing crude oil and natural gas reserves in China.

Refining and Chemicals Operations and Marketing Operations

We compete with Sinopec in our refining and chemicals operations and marketing operations on the basis of price, quality and customer service. Most of our refineries and chemical plants are located in the Northeastern and Northwestern regions of China where we have the dominant market share for refined products and chemical products. We sell the remainder of our refined products and chemical products to the Eastern, Southern, Southwestern and Central-southern regions of China, where our products have a considerable market share. The Eastern and Southern regions of China, where refined products and chemical products are in higher demand, are important markets for our refined products and chemical products. Sinopec has a strong presence in the Eastern and Southern regions of China in competition with us, and most of Sinopec's refineries, chemical plants and distribution networks are located in these regions in close proximity to these markets. Moreover, as the newly constructed facilities of CNOOC commenced operation in the same region, large quantity of chemical products have been marketed into that area, which made the competition even intense. We expect that we will continue to face competition in our refined products and chemical products sales in these regions.

In recent years, China has gradually liberalized the restrictions on market access for the refining and chemical industry. The refining and chemical industry led by us and Sinopec has been rapidly transformed into diversified market participants. Some large state-owned enterprises and private enterprises have entered the refining and chemical industry. Local refineries have rapidly emerged, and international refining and chemical companies have recently opened large refineries in China. The restrictions on foreign investment in retail chains of refined oil have been further liberalized. We expect to continue to face strong market competition.

We also face competition from imported refined products and chemical products in terms of price and quality. In recent years, competition from foreign producers of refined products and chemical products has increased and the retail and wholesale markets in China for refined products and chemical products have been

gradually opened to foreign competition as a result of the changes in China's tariff policies toward imported refined products and chemical products. In response, we have to reduce our production costs, improve the quality of our products and optimize our product mix.

In addition, we also face competition from alternative energies. For example, electric car, as a clean means of transport with "zero pollution and zero emission" has won the favor of the government. The central and local governments have imposed restrictions on oil-powered cars, while encouraged electricity-powered cars. The alternative energy-powered cars, especially electric cars, will continue to grow. Despite the issues such as immature technologies, short range and limited infrastructure with respect to electric cars, with the importance attached by the central governments to the development of electric car batteries and electric car technologies and the focus given by the local government to the construction of electric car charging infrastructure, the advantages of electric cars will be fully demonstrated in the future. As a result, the impact of the innovation of electric cars on us will become increasingly obvious and the effect of the refined oil being substituted will be even more prominent.

Natural Gas and Pipeline Operations

We are the largest natural gas supplier in the PRC in terms of sales volume. Currently, we mainly face competition from Sinopec, CNOOC, coal-based natural gas producers and importers of natural gas and LNG in the supply of natural gas to Beijing, Tianjin, Hebei Province, Shanghai, Jiangsu Province, Anhui Province, Henan Province, Hubei Province, Hunan Province and the Northwestern regions of China, our existing principal markets for natural gas. Currently, Sinopec has natural gas fields in Sichuan Province and Chongqing Municipality and sells natural gas to users in places such as Sichuan Province, Chongqing, Hunan Province, Jiangsu Province, Zhejiang Province and Shanghai. We have also expanded into the coastal regions in Eastern and Southern China where we may face competition from CNOOC and Sinopec. The PRC government recently published reforms with an aim to integrate existing pipeline resources and establish a national pipeline network, which is expected to intensify market competition. (See "Item 4 — Information on the Company — Natural Gas and Pipeline"). We believe that our advantages in natural gas resources, production, sales and technologies will enable us to continue to be a dominant player in the natural gas markets in China.

See "Item 3 — Key Information — Risk Factors — Risks Related to Competition".

Environmental Matters

Like other companies in the industries in which we operate, we are subject to numerous national, regional and local environmental laws and regulations promulgated by the governments in those jurisdictions. These laws and regulations concern our oil and gas exploration and production operations, petroleum and petrochemical products and other activities. In particular, some of these laws and regulations:

- require an environmental evaluation report to be submitted and approved prior to the commencement of exploration, production, refining and chemical projects;
- restrict the type, quantities, and concentration of various substances that can be released into the environment in connection with drilling and production activities;
- limit or prohibit drilling activities within protected areas and certain other areas; and
- impose penalties for pollution resulting from oil, natural gas and petrochemical operations, including criminal and civil liabilities for serious pollution.

These laws and regulations may also restrict air emissions and discharges to surface and subsurface water resulting from the operation of natural gas processing plants, chemical plants, refineries, pipeline systems and other facilities that we own. In addition, our operations are subject to laws and regulations relating to the generation, handling, storage, transportation, disposal and treatment of solid waste materials.

We anticipate that the environmental laws and regulations to which we are subject will become increasingly strict and are therefore likely to have an increasing impact on our operations. It is difficult, however, to predict accurately the effect of future developments in such laws and regulations on our future earnings and operations. Some risk of environmental costs and liabilities is inherent in our operations and products, as it is with other companies engaged in similar businesses. We cannot assure you that material costs and liabilities will not be incurred. However, we do not currently expect any material adverse effect on our financial condition or results of operations as a result of compliance with such laws and regulations. We paid pollutant discharge fees of approximately RMB388 million and RMB333 million in 2016 and 2017, respectively. In 2018, the PRC government began charging environmental protection tax instead of pollutant discharge fees. As we have adopted advanced pollution control technologies, some of our enterprises have obtained reductions of environmental protection tax. In 2018, we paid a total environmental protection tax of approximately RMB140 million.

To meet future environmental obligations, we are engaged in a continuous program to develop effective environmental protection measures. This program includes:

- building environment-friendly projects;
- reducing sulfur content in gasoline and diesel fuel;
- reducing olefins and benzene content in gasoline, and continuously reducing emissions and effluents from our refineries and petrochemical plants; and
- developing and installing monitoring systems at our pollutant discharge openings and developing environmental impact assessments for construction projects.

Our capital expenditures on environmental programs in 2016, 2017 and 2018 were approximately RMB3.10 billion RMB4.17 billion and RMB2.70 billion, respectively.

Because a number of our production facilities are located in populated areas, we have established a series of preventative measures to improve the safety of our employees and surrounding residents and minimize disruptions or other adverse effects on our business. These measures include:

- providing each household in areas surrounding our production facilities with printed materials to explain and illustrate safety and protection knowledge and skills; and
- enhancing the implementation of various effective safety production measures we have adopted previously.

We believe that these preventative measures have helped reduce the possibility of incidents that may result in serious casualties and environmental consequences. In addition, the adoption of these preventative measures has not required significant capital expenditures to date, and therefore, will not have a material adverse effect on our results of operations and financial condition.



See “Item 3 — Key Information — Risk Factors — Risks Related to Environmental Protection and Safety” and “Item 3 — Key Information — Risk Factors — Risks Related to Climate Change”.

Properties, Plants and Equipment

We own substantially all of our properties, plants and equipment relating to our business activities. We hold exploration and production licenses covering all of our interests in developed and undeveloped acreage, oil and natural gas wells and relevant facilities.

See the description of our properties, plants and equipment relating to our business activities included elsewhere in this “Item 4 — Information on the Company” and “Item 7 — Major Shareholders and Related Party Transactions — Related Party Transactions”.

Intellectual Property

Our company logo “” is jointly owned by us and CNPC and has been used since December 26, 2004. Together with CNPC, we have applied for trademark registrations of the logo with the State Trademark Bureau of the PRC. To date, most of our applications for registration of  and our other trademarks have been approved and certain others are either in the process of review or public announcement phase. In addition, together with CNPC, we have applied for international trademark registration for our logo in other jurisdictions. We have received 506 International Trademark Registration Certificates for our logo covering more than 50 jurisdictions.

As of December 31, 2018, we owned approximately 15,800 patents in China and other jurisdictions. We were granted 2,848 patents in China in 2018.

Regulatory Matters

Overview

China's oil and gas industry is subject to extensive regulation by the PRC government with respect to exploration, production, transmission and marketing of crude oil and natural gas as well as production, transportation and marketing of refined products and chemical products. The following central government authorities exercise control over China's oil and gas industry:

- The Ministry of Natural Resources, or the MNR, has the authority to grant, examine and approve mineral resources exploration and production licenses, and to oversee the registration and transfer of exploration and production licenses;
- The Ministry of Commerce, or the MOFCOM,
 - sets and grants import and export volume quotas for crude oil and refined products in accordance with the market supply and demand in China as well as WTO requirements for China;
 - issues import and export licenses for crude oil and refined products to oil and gas companies that have obtained import and export quotas; and
 - issues licenses for sales and storage of crude oil, and wholesale and storage of refined oil products.
- The National Development and Reform Commission, or the NDRC:
 - is responsible for industry administration, industry policy and policy coordination over China's oil and gas industry;
 - publishes guidance prices for natural gas and maximum retail prices for certain refined products, including gasoline and diesel;
 - formulates the plan for aggregate import and export volume of crude oil and refined products in accordance with the market supply and demand in China;
 - approves significant petroleum, natural gas, oil refinery and chemical projects set forth under the Catalogs of Investment Projects Approved by the Central Government; and
 - approves Sino-foreign equity and cooperative projects of certain types.

Exploration Licenses and Production Licenses

The *Mineral Resources Law* authorizes the MNR to exercise administrative authority over the exploration and production of mineral resources within the PRC. The *Mineral Resources Law* and its supplementary regulations provide the basic legal framework under which exploration licenses and production licenses are granted. The MNR has the authority to issue mineral resources exploration licenses and production licenses. Applicants must be companies approved by the State Council to engage in oil and gas exploration and production activities.

Applicants for exploration licenses must first register with the MNR blocks in which they intend to engage in exploration activities. The holder of an exploration license is obligated to make a progressively increasing annual minimum exploration investment in each corresponding block. Investments range from RMB2,000 per square kilometer for the initial year to RMB5,000 per square kilometer for the second year, and to RMB10,000 per square kilometer for the third and subsequent years. Additionally, the holder has to pay an annual exploration license fee that starts at RMB100 per square kilometer for each of the first three years and increases by an additional RMB100 per square kilometer per year for subsequent years up to a maximum of RMB500 per square kilometer. The maximum term of an oil and natural gas exploration license is seven years, subject to renewal upon expiration of the original term, with each renewal being up to two years. At the exploration stage, an applicant can also apply for a progressive exploration and production license that allows the holder to test and

develop reserves not yet fully proven. Upon the detection and confirmation of the quantity of reserves in a certain block, the holder must apply for a production license based on economic evaluation, market conditions and development planning in order to shift into the production phase in a timely fashion. In addition, the holder needs to obtain the right to use that block of land. Generally, the holder of a full production license must obtain a land use rights certificate for industrial land use covering that block of land.

The MNR issues production licenses to applicants on the basis of the reserves reports approved by the relevant authorities. Production license holders are required to pay an annual production right usage fee of RMB1,000 per square kilometer. Administrative rules issued by the State Council provide that the maximum term of a production license is 30 years, 20 years, or 10 years as applicable to large, medium and small mineral blocks, respectively. In accordance with a special approval from the State Council, the MNR has issued production licenses with terms coextensive with the projected productive life of the assessed proven reserves as discussed above. Each of our production licenses is renewable upon our application 30 days prior to expiration. If oil and gas prices increase, the productive life of our crude oil and natural gas reservoirs may be extended beyond the current terms of the relevant production licenses.

Among the major PRC oil and gas companies, the exploration licenses and production licenses held by us, Sinopec and CNOOC account for the majority of mining rights in China. Among those companies, we and Sinopec primarily engage in onshore exploration and production, while CNOOC primarily engages in offshore exploration and production.

Pricing

Crude Oil

According to the *Measures for Administration of Petroleum Products Price* issued by NDRC on January 13, 2016, crude oil prices shall be market oriented. We and Sinopec set the crude oil median prices each month based on the average international market FOB prices for crude oil of different grades in the previous month. In addition, we and Sinopec negotiate a premium or discount to reflect transportation costs, the differences in oil quality and the supply and demand.

Refined Products

The prices of our gasoline and diesel products are subject to government regulation.

On December 18, 2008, the NDRC issued the *Notice on Implementing Price and Tax Reform of Refined Oil*, which improved the pricing mechanism for refined oil products. Under the improved mechanism, the domestic ex-factory prices of refined oil products are determined on the basis of the relevant international crude oil prices, by taking into consideration the average domestic processing cost, tax and a pre-determined profit margin. The prices of diesel and gasoline continue to follow the government guiding prices. The highest retail price set for gasoline and diesel is calculated by using the relevant ex-factory price and a determined profit margin for retailing activities.

On March 26, 2013, the NDRC issued the *Notice on Further Improvement of Refined Oil Pricing Mechanism* and the amended and restated *Measures for Oil Prices Management (on trial)*. Under this new system, (i) the price adjustment period was shortened from 22 working days to 10 and the 4% limit on the price adjustment range was eliminated; (ii) the composition of the basket of crudes to which refined oil products prices are linked was adjusted in light of the composition of the imported crudes and changes in crudes trading on the international market; and (iii) the refined oil products pricing mechanism was further enhanced.

In order to promote the oil product quality upgrading, on September 16, 2013, the NDRC issued the *Circular regarding Relevant Opinions on the Pricing Policy for Oil Product Quality Upgrading*, pursuant to

which the price increase standard for the auto-use gasoline and diesel upgraded to China IV Standard shall be set as RMB290 per ton and RMB370 per ton, respectively, and the price increase standard for the auto-use gasoline and diesel upgraded from China IV to China V Standard shall be set at RMB170 per ton and RMB160 per ton, respectively.

On January 12, 2015, the NDRC issued the *Notice on Reducing Domestic Refined Oil Prices*, pursuant to which, since January 13, 2015, the price for No. 98 gasoline is to be determined by the production and operation enterprises themselves.

On January 13, 2016, the NDRC issued the *Notice on Issues Concerning Further Improving the Pricing Mechanism for Refined Oil*, pursuant to which, starting from January 13, 2016, downward adjustment of the refined oil price is subject to a floor of US\$40 per barrel. Accordingly, when the international crude oil price drops to US\$40 per barrel or below, the refined oil price in China shall not be adjusted downwards and the unadjusted amount shall be allocated to the reserve fund to be used for energy saving, reduction of emission, improving the oil quality and securing a safe supply of refined oil. When the international crude oil price surges to US\$130 per barrel or above, appropriate financial and taxation policies shall be adopted to ensure the production and supply of refined oil but the refined oil price shall in principle remain unadjusted or shall only be slightly adjusted upwards. This regulation also liberalized the ex-factory price of liquefied petroleum gas.

On December 15, 2016, the Ministry of Finance (“MOF”) and NDRC issued *Circulation on Collection of Risk Reserves for Oil Price Control* (the “Rules”), pursuant to which, effective January 13, 2016, when the price of crude oil in international market drops below the lower limit set by the Chinese government, domestic enterprises which are engaged in production, commissioned processing and import and export of such refined oil products as gasoline and diesel shall make full payment of risk reserves according to sales volumes and the corresponding collection rates. “Sales volumes” refer to the actual sales volumes of such enterprises between the two adjacent window periods of price adjustment. Collection rates for risk reserves are determined with reference to the unadjusted prices of refined oil products. The NDRC and the MOF jointly determine the collection rates on a quarterly basis and notify the collection agencies in writing.

On December 22, 2016, MOF issued *Notice on Proper Collection of Risk Reserves for Oil Price Adjustment in 2016*, pursuant to which, if the subsidiaries (limited to listed companies) of CNPC, Sinopec and CNOOC have already recognized the risk reserves accrued as operation revenue, such subsidiaries may opt to have such risk reserves to be paid by their parent companies out of the net profit.

Aviation Kerosene

The ex-factory price of aviation kerosene is currently determined by the supply and demand parties subject to a limit of the CIF price in the Singapore market.

Chemical Products

We determine the prices of all of our chemical products based on market conditions.

Natural Gas

On June 28, 2013, the NDRC announced the initiation of a program for the adjustment of natural gas prices from July 10, 2013. The program consists of (i) changing the pricing mechanism of natural gas from ex-factory price to citygate price, and no longer differentiating the prices payable by users in different provinces; (ii) establishing the mechanism linking the citygate price of natural gas to the price of alternative energy with a view to gradually shift to a market-driven pricing mechanism for natural gas; (iii) adopting differential pricing approaches towards the existing usage and the incremental usage so as to establish as soon as practicable a new pricing mechanism for natural gas while reducing the impact that the pricing reform will have on existing gas users.

On August 10, 2014, based on the natural gas price reform roadmap, the NDRC issued price adjustment programs for non-residential use stock natural gas, pursuant to which, effective September 1, 2014, (i) the natural gas citygate price for non-residential use was increased by RMB400 per thousand cubic meters; (ii) no adjustment will be made to the citygate price for natural gas consumed by residential users; and (iii) further action will be taken to implement the policy in connection with the liberalization of the sales price of imported liquefied natural gas and the ex-factory prices for shale gas, coal-seam gas and coal gas.

On February 26, 2015, the NDRC announced the unification of the prices of domestic natural gas of existing and incremental gas volume starting from April 1, 2015.

On November 18, 2015, the NDRC announced the reduction of the price of natural gas for non-residential use from November 20, 2015, whereby the citygate price ceiling for non-resident users was decreased by RMB700 per thousand cubic meters while the preferential policy and price for natural gas used by fertilizer makers remain unchanged. With a view to improve the market-driven pricing mechanism for natural gas, since November 20, 2016, suppliers and non-residential users can negotiate prices of natural gas up to 20% above the benchmark price for non-residential use.

On October 15, 2016, the NDRC issued *Clarifying the Price Policy for Gas Storage Facilities*, which announced that the prices for natural gas purchase and sale to be conducted by and the prices of gas storage services to be provided by the gas storage facilities shall be formed through the operation of market.

On November 5, 2016, NDRC issued *Notice on Enhancing Price Liberalization for Gas Used as Fertilizer Feedstock*, pursuant to which, effective November 10, 2016, prices for gas used as fertilizer feedstock were fully liberalized and subject to negotiations between the vendors and the purchasers. It encourages the trading of the natural gas used by fertilizer makers in the oil and gas exchange centers in order to achieve open and transparent pricing of gas as fertilizer feedstock.

On November 11, 2016, the NDRC issued *Notice on Relevant Issues concerning the Price Policy for Natural Gas Citygate Price in Fujian Province*, which expressly liberated the citygate natural gas price in Fujian Province and made Fujian the first province that would implement fully liberated citygate natural gas price.

On August 29, 2017, the NDRC issued *Notice on Reduction of the Benchmark Citygate Price of Non-residential Natural Gas*, which reduced the benchmark city gate price of non-residential natural gas by RMB100 per thousand cubic meters effective September 1, 2017.

On May 25, 2018, NDRC issued *Notice on Straightening Out the Citygate Price of Natural Gas for Residential Use* (the "Notice"), pursuant to which, effective June 10, 2018, prices of natural gas for residential use will no longer be subject to the highest citygate price limit. Instead, the suppliers and users may negotiate prices up to 120% of the reference base rate, which is the same as the base rate for non-residential use. The citygate price of natural gas for residential use may not be increased until the first anniversary of the Notice. According to the Notice, where there is a significant difference between the price of natural gas for residential use and non-residential use, any increase in the citygate price for residential use may not exceed RMB350 per thousand cubic meters in the first year, with any remaining price difference to be rolled over into subsequent years. The policy also rolled out seasonal natural gas prices with a view to encourage market-oriented pricing.

Pipeline Transmission Tariff

Pipeline transmission tariffs for crude oil, refined oil and natural gas are set by the government. Cross province transmission tariffs are set by the NDRC and provincial transmission tariffs are set by the provincial level branches of the NDRC.

For those pipelines constructed prior to 1984, which were funded by the government, the transmission tariff is a uniform flat tariff determined based on the principle of minimum profit margin. For those pipelines

constructed with the funds of the enterprises after 1984, the tariffs must be submitted to the NDRC for examination and approval on a case by case basis and based on the capital investment made in the pipeline, the operation period for the pipeline and a reasonable profit margin.

On October 9, 2016, the NDRC issued *Regulation on Administration of the Pipeline Transmission Tariff for Natural Gas (on trial)* and *Rules on Supervision and Review of the Costs Used in Setting the Pipeline Transmission Tariff (on trial)*, which provides that effective January 1, 2017, the pipeline transmission tariff for natural gas shall be reviewed and determined on the principle of “permissible costs plus reasonable margins”, and the rules intended to regulate the tariff charged by companies engaged in cross-province pipeline transmission operation.

On August 29, 2017, the NDRC issued the *Notice on Approving the Inter-provincial Natural Gas Pipeline Transmission Tariff*, which published the transmission tariff for 13 inter-provincial pipelines companies including PetroChina Beijing Natural Gas Pipeline Co., Ltd. and others.

On March 27, 2019, the NDRC issued the *Notice on Adjusting the Inter-provincial Pipeline Natural Gas Transmission Tariff*, which adjusted the transmission tariff for 13 inter-provincial pipelines companies including PetroChina Beijing Natural Gas Pipeline Co., Ltd. and others.

Production and Marketing

Crude Oil

Each year, the NDRC publishes the projected target for the production and process of crude oil in China based on the domestic consumption estimates submitted by domestic producers, including but not limited to us, Sinopec and CNOOC, the production of these companies as well as the forecast of international crude oil prices. The actual production volumes are determined by the producers themselves and may vary from estimates. On December 4, 2016, MOFCOM issued the amended *Measures on the Administration of the Refined Products Market*, pursuant to which, effective January 1, 2007, qualified foreign investors are allowed to establish and invest in enterprises that conduct crude oil business.

Refined Products

Previously, only we, Sinopec and joint ventures of the two companies had the right to conduct gasoline and diesel wholesale business. Other companies, including foreign invested companies, were not allowed to engage in wholesale of gasoline and diesel in China’s domestic market. In general, only domestic companies, including Sino-foreign joint venture companies, were permitted to engage in retail of gasoline and diesel. Since December 11, 2004, wholly foreign-owned enterprises are permitted to conduct refined oil retail business. Since January 1, 2007, when the *Measures on the Administration of the Refined Products Market* became effective, all entities meeting certain requirements are allowed to submit applications to the MOFCOM to conduct refined oil products wholesale, retail and storage businesses. On July 28, 2018, the PRC government removed the restriction that a Chinese partner must hold a majority share in the construction and operation of a retail oil station chain which has more than 30 outlets and sells refined products of different types and brands supplied through multiple channels.

Natural Gas

The NDRC determines each year the annual national natural gas production target based on the natural gas production targets submitted by domestic natural gas producers. Domestic natural gas producers determine their annual natural gas production targets on the basis of consumption estimates. The actual production volume of each producer is determined by the producer itself, which may deviate from the production target submitted by it. The NDRC also formulates the annual natural gas supply guideline, which requires natural gas producers to distribute a specified amount of natural gas to the designated key municipalities and key enterprises.

Foreign Investments

Cooperation in Exploration and Production with Foreign Companies

Currently, CNPC is one of the few Chinese companies that have the right to cooperate with foreign companies in onshore crude oil and natural gas exploration and production in China. CNOOC has the right to cooperate with foreign companies in offshore crude oil and natural gas exploration and production in China.

Sino-foreign cooperation projects and foreign parties in onshore oil and gas exploration and production in China are generally selected through open bids and bilateral negotiations. Those projects are generally conducted through production sharing contracts. The MOFCOM must approve those contracts.

As authorized by the Regulations of the PRC on Exploration of Onshore Petroleum Resources in Cooperation with Foreign Enterprises, CNPC has the right to enter into joint cooperation arrangements with foreign oil and gas companies for onshore crude oil and natural gas exploration and production. We do not have the capacity to enter into production sharing contracts directly with foreign oil and gas companies under existing PRC law. Accordingly, CNPC will enter into production sharing contracts. After signing a production sharing contract, CNPC will, subject to approval of the MOFCOM, assign to us most of its commercial and operational rights and obligations under the production sharing contract as required by the Non-competition Agreement between CNPC and us.

Transportation and Refining

Since December 1, 2007, PRC regulations have encouraged foreign investment in the construction and operation of oil and gas pipelines and storage facilities. On March 10, 2015, PRC lifted the restrictions on foreign investment in refineries with a production capacity of below 10 million tons per annum. Furthermore, when appropriate, projects must receive necessary approvals from relevant PRC government agencies. See “Item 3 — Key Information — Risk Factors — Risks Related to Government Regulation.”

Import and Export

Since January 1, 2002, state-owned trading companies have been allowed to import crude oil under an automatic licensing system. Non-state-owned trading companies have been allowed to import crude oil and refined products subject to quotas. The export of crude oil and refined oil products by both state-owned trading companies and non-state-owned trading companies is subject to quota control. The MOFCOM has granted us the right to conduct crude oil and refined product import and export business.

Capital Investment and Financing

Capital investments in exploration and production of crude oil and natural gas made by Chinese oil and gas companies are subject to approval by or filing with relevant government authorities. The following projects are subject to approval by the NDRC or the competent local authorities:

- facilities for taking delivery of and storing liquefied petroleum gas (excluding accessory projects of oil or gas fields or refineries);
- new facilities for taking delivery of or storing imported liquefied natural gas (including expansion on a different site other than the original facilities);
- oil or gas transmission pipeline networks (excluding gathering and transmission pipeline networks of oil or gas fields);
- new refineries, expansion of existing primary processing refineries;
- new ethylene, paraxylene (PX), diphenylmethane diisocyanate (MDI) projects; and
- new coal-to-olefins projects, new coal to paraxylene (PX) projects, and new coal-to-methanol projects with a capacity of 1 million tons per annum or more.

Taxes, Fees and Royalties

We are subject to a variety of taxes, fees and royalties. The table below sets forth the major taxes, fees and royalty fees payable by us or by Sino-foreign oil and gas exploration and development cooperative projects. Our subsidiaries which have legal person status should report and pay enterprise income tax to the relevant tax authorities based on the applicable laws and regulations.

<u>Tax Item</u>	<u>Tax Base</u>	<u>Tax Rate</u>
<i>Enterprise income tax</i>	Taxable income	25%, or 15% for qualified taxpayers in certain western regions of China
<i>Value-added tax</i>	Revenue	<p>Prior to July 1, 2017, value added tax rates were 17%, 13%, 11% and 6%, as applicable. In particular, 13% was for liquefied natural gas, natural gas, liquefied petroleum gas, agricultural film and fertilizers and 17% for oil products and other products.</p> <p>Effective July 1, 2017, the rate of 13% was canceled and the applicable rate for natural gas has been changed from 13% to 11%.</p> <p>Effective May 1, 2018, the rate of 17% was changed to 16% and the rate of 11% was changed to 10%.</p> <p>Effective April 1, 2019, the rate of 16% was changed to 13% and the rate of 10% was changed to 9%.</p> <p>Since May 1, 2016, as a result of the reform of value-added tax in lieu of business tax, certain sectors such as real estate, engineering construction, financial and other sectors, which previously were subject to business tax, have been subject to value-added tax instead.</p>
<i>Consumption tax</i>	Aggregate volume sold or self-consumed	<p>RMB1.52 per liter for gasoline, naphtha, solvent naphtha and lubricant and RMB1.2 per liter for diesel, aviation kerosene and fuel oil.</p> <p>Collection of taxes on aviation kerosene continues to be suspended.</p>
<i>Resource tax</i>	Sales	<p>6%, exemption or reduction may apply if qualified.</p> <p>From April 1, 2018 to March 31, 2021, shale gas production enjoys a 30% reduction.</p>
<i>Crude oil special gain levy</i>	Sales amount above specific threshold	Five-level progressive tax rates from 20% to 40%, taxable if the crude oil price reaches the threshold of US\$65 per barrel.
<i>Environmental protection tax</i>	Air pollution equivalent, water pollution equivalent, solid waste pollution equivalent and noise exceeding the standard decibel	<p>Effective January 1, 2018, the PRC government started to impose environmental protection tax. Different emissions apply their corresponding tax rates.</p> <p>If a taxpayer's emission of taxable atmospheric pollutants or water pollutants is less than 30% of the national and local pollutant discharge standards, the environmental protection tax shall be levied at 75%. If the taxpayer's emission of taxable atmospheric pollutants or water pollutants is less than 50% of the national and local pollutant discharge</p>

		standards, the environmental protection tax shall be levied at 50%.
<i>Mining right occupancy fees⁽¹⁾</i>	Area	RMB100 to RMB500 per square kilometer per year for exploration; RMB1,000 per square kilometer per year for production.
<i>Royalty fee⁽²⁾</i>	Production volume	Progressive rate of 0-12.5% for crude oil and 0-3% for natural gas

- (1) Effective April 13, 2017, the exploration license fee and production license fee were renamed as mining right occupancy fees.
- (2) It shall be paid in cash and is only applicable to Sino-foreign oil and gas exploration and development cooperative projects in China. However, effective December 1, 2010, the royalty fee payable by new Sino-foreign oil and gas exploration and development cooperative projects in Western regions was replaced by the resource tax, while those cooperative projects under contracts signed before December 1, 2010 continue to be subject to the royalty fee until the contracts expire. Effective November 1, 2011, the royalty fee payable by new Sino-foreign oil and gas exploration and development cooperative projects in the whole country was replaced by the resource tax, while those cooperative projects under contracts signed before November 1, 2011 continue to be subject to the royalty fee until the contracts expire.

Environmental Regulations

We are subject to various PRC national environmental laws and regulations and also environmental regulations promulgated by the local governments in whose jurisdictions we have operations. The PRC government has adopted extensive environmental laws and regulations that affect the operation of the oil and gas industry. There are national and local standards applicable to emissions control, discharges to surface and subsurface water and disposal, and the generation, handling, storage, transportation, treatment and disposal of solid waste materials.

The environmental regulations require a company, such as us, to register or file an environmental impact report with the relevant environmental authority for approval before it undertakes any construction of a new production facility or any major expansion or renovation of an existing production facility. The new facility or the expanded or renovated facility will not be permitted to operate unless the relevant environmental authority has inspected the environmental equipment installed at the facility and decides it satisfies the environmental protection requirements. Companies that need to discharge pollutants, whether in the form of gas, water or solid wastes, must submit application for pollutant discharge permits. The application must state in detail the types of discharge, discharge outlet, types of pollutants, concentration and amount of discharge. After reviewing the application materials, the relevant environmental administrative department will determine to issue a discharge permit to the company, specifying the types of permitted pollutants, the permitted concentration and amount. If a company's discharges deviated from what were permitted, the relevant administrative department may impose fines on the company or order the company to suspend or close down its operation for resolving the issues. In addition, companies discharging taxable pollutants should declare and pay corresponding environmental protection taxes in accordance with the PRC Environmental Protection Tax Law and its implementing regulations.

Item 4A — UNRESOLVED STAFF COMMENTS

We do not have any unresolved staff comment.

Item 5 — OPERATING AND FINANCIAL REVIEW AND PROSPECTS

General

You should read the following discussion together with our consolidated financial statements and their notes included elsewhere in this annual report. Our consolidated financial statements have been prepared in accordance with IFRS.

Overview

We are engaged in a broad range of petroleum and natural gas related activities, including:

- the exploration, development, production and sale of crude oil and natural gas;
- the refining of crude oil and petroleum products, and the production and marketing of basic petrochemical products, derivative chemical products and other chemical products;
- marketing of refined oil products and trading; and
- the transmission of natural gas, crude oil and refined oil products as well as the sale of natural gas.

We are China's largest producer of crude oil and natural gas and are one of the largest companies in China in terms of revenue. In 2018, we produced approximately 890.3 million barrels of crude oil and approximately 3,607.6 Bcf of natural gas for sale. Our refineries processed approximately 1,122.8 million barrels of crude oil in 2018. In 2018, we had revenue of RMB2,353,588 million and profit attributable to owners of the Company of RMB52,591 million.

Factors Affecting Results of Operations

Our results of operations and the period-to-period comparability of our financial results are affected by a number of external factors, including changes in the prices, production and sales volume of our principal products and the regulatory environment.

Prices of Principal Products

The fluctuations in the prices of crude oil, refined products, chemical products and natural gas have a significant impact on our revenue. See “Item 4 — Information on the Company — Regulatory Matters — Pricing” for a more detailed discussion of current PRC pricing regulations and “Item 3 — Risk Factors — Risks Related to Pricing and Exchange Rate”.

The table below sets forth the average realized prices of our principal products in 2016, 2017 and 2018.

	2016	2017	2018
Crude oil (US\$/barrel)	37.99	50.64	68.28
Natural gas (US\$/thousand cubic feet) ⁽¹⁾	5.73	6.30	7.13
Gasoline (US\$/barrel)	101.41	111.26	124.88
Kerosene (US\$/barrel)	54.67	66.60	86.84
Diesel (US\$/barrel)	82.84	90.84	110.38

- (1) Natural gas citygate price. As the sales volume of urban gas was included in the sales volume of natural gas beginning in 2018, the average realized prices for 2016 and 2017 were retrospectively adjusted by applying the same approach.

Production and Sales Volume for Oil and Gas Products

Our results of operations are also affected by production and sales volumes. Our crude oil and natural gas production volumes depend primarily on the level of the proved developed reserves in the fields in which we have an interest, as well as other factors such as general economic environment and market supply and demand conditions.

Regulatory Environment

Our operating activities are subject to extensive regulations and control by the PRC government, including the issuance of exploration and production licenses, the imposition of industry-specific taxes or product-specific taxes and levies and the implementation of environmental policies and safety standards. Our results of operations will be affected by any future changes of such regulatory environment.

Critical Accounting Policies

The preparation of our consolidated financial statements requires our management to select and apply significant accounting policies, the application of which may require management to make judgments and estimates that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities as of the date of our financial statements, and the reported amounts of revenue and expenses during the reporting period. Notwithstanding the presentation of our principal accounting policies in Note 3 to our consolidated financial statements included elsewhere in this annual report, we have identified the accounting policies below as most critical to our business operations and the understanding of our financial condition and results of operations presented in accordance with IFRS. Although these estimates are based on our management's best knowledge of current events and actions, actual results ultimately may differ from those estimates.

Accounting for Oil and Gas Exploration and Production Activities

We use the successful efforts method of accounting, with specialized accounting rules that are unique to the oil and gas industry, for oil and gas exploration and production activities. Under this method, geological and geophysical costs incurred are expensed when incurred. However, all costs for developmental wells, support equipment and facilities, and proved mineral interests in oil and gas properties are capitalized. Costs of exploratory wells are capitalized as construction in progress pending determination of whether the wells find proved reserves. For exploratory wells located in regions that do not require substantial capital expenditures before the commencement of production, the evaluation of the economic benefits of the reserves in such wells will be completed within one year following the completion of the exploration drilling. Where such evaluation indicates that no economic benefits can be obtained, the relevant costs of exploratory wells will be converted to dry well exploration expenses. The relevant costs will be classified as oil and gas assets and go through impairment review if the evaluation indicates that economic benefits can be obtained. For wells with economically viable reserves in areas where a major capital expenditure would be required before production can begin, the related well costs remain capitalized only if additional drilling is under way or firmly planned. Otherwise the well costs are expensed as dry wells. We have no material costs of unproved properties capitalized in oil and gas properties.

Oil and Gas Reserves

The estimation of the quantities of recoverable oil and gas reserves in oil and gas fields is integral to effective management of our exploration and production operations. Because of the subjective judgments involved in developing and assessing such information, engineering estimates of the quantities of recoverable oil and gas reserves in oil and gas fields are inherently imprecise and represent only approximate amounts.

Before estimated oil and gas reserves are designated as "proved", certain engineering criteria must be met in accordance with industry standards and the regulations of the SEC. Proved oil and gas reserves are the estimated

quantities of crude oil and natural 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 regulation before the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether the estimate is a deterministic estimate or probabilistic estimate. Therefore, these estimates do not include probable or possible reserves. Our proved reserves estimates are updated annually by independent, qualified and experienced oil and gas reserves engineering firms in the United States, Singapore and Canada. Our oil and gas reserves engineering department has policies and procedures in place to ensure that these estimates are consistent with these authoritative guidelines. Among other factors required by authoritative guidelines, this estimation takes into account recent information about each field, including production and seismic information, estimated recoverable reserves of each well, and oil and gas prices and operating costs as of the date the estimate is made. The price shall be the average price during the 12-month period before the ending date of the period covered by this 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. The costs shall be that prevailing at the end of the period.

Despite the inherent imprecision in these engineering estimates, estimated proved oil and gas reserves quantity has a direct impact on certain amounts reported in the financial statements. In addition to the capitalization of costs related to oil and gas properties on the balance sheet discussed earlier, estimated proved reserves also impact the calculation of depreciation, depletion and amortization expenses of oil and gas properties. The cost of oil and gas properties is amortized at the field level on the unit of production method. Unit of production rates are based on the total oil and gas reserves estimated to be recoverable from existing facilities based on the current terms of our production licenses. Our reserves estimates include only crude oil and natural gas which the management believes can be reasonably produced within the current terms of the production licenses that are granted by the Ministry of Natural Resources, ranging from 30 years to 55 years from the effective date of issuance in March 2000, renewable upon application 30 days prior to expiration. Consequently, the impact of changes in estimated proved reserves is reflected prospectively by amortizing the remaining book value of the oil and gas property assets over the expected future production. If proved reserves estimates are revised downward, earnings could be affected by higher depreciation expense or an immediate write-down of the property's book value had the downward revisions been significant. See "— Property, Plant and Equipment" below. Given our large number of producing properties in our portfolio, and the estimated proved reserves, it is unlikely that any changes in reserves estimates will have a significant effect on prospective charges for depreciation, depletion and amortization expenses.

In addition, due to the importance of these estimates in understanding the perceived value and future cash flows of a company's oil and gas operations, we have also provided supplemental disclosures of "proved" oil and gas reserves estimates prepared in accordance with authoritative guidelines elsewhere in this annual report.

Property, Plant and Equipment

Where it is probable that property, plant and equipment, including oil and gas properties, will generate future economic benefits, their costs are initially recorded in the consolidated statement of financial position as assets. Cost represents the purchase price of the asset and other costs incurred to bring the asset into existing use. Subsequent to their initial recognition, property, plant and equipment are carried at cost less accumulated depreciation, depletion and amortization (including any impairment).

Depreciation, to write off the cost of each asset, other than oil and gas properties, to their residual values over their estimated useful lives is calculated using the straight-line method.

The Company uses the following useful lives for depreciation purposes:

Buildings and plant	8-40 years
Equipment and machinery	4-30 years
Motor vehicles	4-14 years
Other	5-12 years

No depreciation is provided on construction in progress until the assets are completed and ready for use.

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

Property, plant and equipment, including oil and gas properties, are reviewed for possible impairments when events or changes in circumstances indicate that the carrying amount may not be recoverable. Determination as to whether and how much an asset is impaired involves management estimates and judgments such as future crude oil prices, prices of refined products and chemical products, the operation costs, the product mix, production volumes and the oil and gas reserves. Certain estimates and assumptions adopted by the management in the impairment reviews and calculations are formed by the internal professional team (including operations and finance teams) by reference to external institutions' analysis reports and taking into account current economic conditions. The other estimates and assumptions are consistent with the assumptions used in our business plans.

In forming the relevant estimates and assumptions for impairment tests by our management, our internal professional team (including operations and finance teams) forms a preliminary conclusion by reference to the external institutions' analysis reports and our historical financial data, and taking into account current economic conditions and our business plans. Then, the preliminary conclusion is reviewed and approved by the management. The approved estimates and assumptions are then utilized by our subsidiaries and branches to perform the impairment tests.

When determining whether there are indications of impairment for oil and gas properties, we consider internal factors, mainly including the decline of production and reserves volumes at the late development stage of certain oil blocks and a significant drop in economic benefits of certain oil blocks resulting from the lower price of crude oil, and external factors, mainly including a significant drop in international prices of crude oil, resulting from the imbalance of supply and demand of global crude oil. When an indication of impairment of certain oil blocks is identified, we will perform the impairment tests on the oil blocks. An impairment loss is recognized for the amount by which the carrying amount of the cash-generating unit exceeds the higher of its fair value less costs to sell and its value in use. Value in use is determined by reference to the discounted expected future cash flows to be derived from the cash-generating unit.

The expected medium-to-long-term future international prices of crude oil utilized by us when estimating the expected future cash flows are determined mainly based upon the forecast of the international prices of crude oil made by principal international investment institutions combined with the judgment and analysis of the future trends of international prices of crude oil made by us. We calculated the expected future cash flows of each oil block according to the estimates of future production volume levels per year stated in the oil and gas reserves reports, the estimates of operation costs of oil and gas made by us, and taking into account its future capital expenditure plan. We refer to the weighted average cost of capital of the oil and gas industry when determining the discount rate and makes relevant adjustments according to specific risks in different countries or regions. In the year ended December 31, 2017 and 2018, the after-tax discount rates adopted by most of our oil and gas regions were between 7.6% and 11.0%, and between 7.3% and 11.5%, respectively.

Given the broad scope of our property, plant and equipment, the impairment test involves numerous assumptions, which are interrelated to each other to a certain extent. For example, the estimates and judgments

with respect to the product mix, production costs and oil and gas reserves may vary along with the changes in crude oil prices. The sensitivity analysis performed after taking into account the interrelationship among all of the estimates and judgments would be neither cost efficient nor time efficient. As a result, the management believes that a sensitivity analysis of relevant assumptions on impairment is not practicable. Favorable changes to some assumptions might have avoided the need to impair any assets or make it necessary to reverse an impairment loss recognized in prior periods, whereas unfavorable changes might have caused an additional unknown number of other assets to become impaired, or resulted in larger impacts on impaired assets.

Our operating results in the following fiscal year may deviate from management's estimates or judgments. This would require an adjustment to the provision for impairment of the property, plant and equipment disclosed in Note 15 to the consolidated financial statements.

Gains and losses on disposals of property, plant and equipment are determined by reference to their carrying amounts and are recorded in the consolidated profit or loss.

Interest and other costs on borrowings to finance the construction of property, plant and equipment are capitalized during the period of time that is required to complete and prepare the asset for its intended use. Costs for repairs and maintenance activities are expensed as incurred except for costs of components that result in improvements or betterments which are capitalized as part of property, plant and equipment and depreciated over their useful lives.

Asset Retirement Obligation

Provision is recognized for the future decommissioning and restoration of oil and gas properties. The amounts of the provision recognized are the present values of the estimated future expenditures. The estimation of the future expenditures is based on current local conditions and requirements, including legal requirements, technology, price level, etc. In addition to these factors, the present values of these estimated future expenditures are also impacted by the estimation of the economic lives of oil and gas properties. Changes in any of these estimates will impact the operating results and the financial position of the Company over the remaining economic lives of the oil and gas properties.

Operating Results

The following discussion is based on our historical results of operations. As a result of the factors discussed above, such results of operations may not be indicative of our future operating performance.

Our statement of comprehensive income for each of the years ended December 31, 2016, 2017 and 2018 is summarized in the table below.

	Year Ended December 31,		
	2016	2017	2018
	(RMB in millions)		
Revenue	1,616,903	2,015,890	2,353,588
Operating expenses	(1,556,268)	(1,948,168)	(2,232,591)
Profit from operations	60,635	67,722	120,997
Exchange gain/(loss), net	1,257	(1,094)	1,145
Interest expense, net	(20,857)	(19,507)	(18,583)
Share of profit of affiliates and joint ventures	4,105	5,968	11,647
Profit before income tax expense	45,140	53,089	115,206
Income tax expense	(15,768)	(16,296)	(42,790)
Profit for the year attributable to non-controlling interests	21,515	13,995	19,825
Profit for the year attributable to owners of the Company	7,857	22,798	52,591

The table below sets forth our revenue by business segment for each of the years ended December 31, 2016, 2017 and 2018 as well as the percentage changes in revenue for the periods shown.

	<u>2016</u>	<u>2017</u>	<u>2017 vs. 2016</u>	<u>2018</u>	<u>2018 vs. 2017</u>
	(RMB in millions, except percentages)				
Revenue					
Exploration and production	412,484	505,430	22.5%	658,712	30.3%
Refining and chemicals	582,510	707,804	21.5%	874,125	23.5%
Marketing	1,301,616	1,660,456	27.6%	2,003,105	20.6%
Natural gas and pipeline	247,477	295,786	19.5%	362,626	22.6%
Headquarters and others	2,197	2,057	(6.4)%	2,376	15.5%
Total	2,546,284	3,171,533	24.6%	3,900,944	23.0%
Less intersegment sales	(929,381)	(1,155,643)	24.3%	(1,547,356)	33.9%
Consolidated net sales from operations	<u>1,616,903</u>	<u>2,015,890</u>	24.7%	<u>2,353,588</u>	16.8%

The table below sets forth our operating income by business segment for each of the years ended December 31, 2016, 2017 and 2018, as well as the percentage changes in operating income for the periods shown. Other profit from operations shown below consists of research and development, business services and infrastructure support to our operating business segments.

	<u>2016</u>	<u>2017</u>	<u>2017 vs. 2016</u>	<u>2018</u>	<u>2018 vs. 2017</u>
	(RMB in millions, except percentages)				
Profit/(loss) from operations					
Exploration and production	3,148	15,475	391.6%	73,519	375.1%
Refining and chemicals	39,026	39,961	2.4%	42,756	7.0%
Marketing	11,048	8,279	(25.1)%	(6,450)	(177.9)%
Natural gas and pipeline	17,885	15,688	(12.3)%	25,515	62.6%
Headquarters and others	(10,472)	(11,681)	11.5%	(14,343)	22.8%
Total	<u>60,635</u>	<u>67,722</u>	11.7%	<u>120,997</u>	78.7%

Year Ended December 31, 2018 Compared to Year Ended December 31, 2017

Consolidated Results of Operations

Overview

In 2018, our revenue was RMB2,353,588 million, representing an increase of 16.8% as compared with 2017. Net profit attributable to owners of the company was RMB52,591 million, representing an increase of 130.7% as compared with 2017. Basic earnings per share were RMB0.29, representing an increase of RMB0.17 as compared to 2017.

Revenue Our revenue increased by 16.8% from RMB2,015,890 million in 2017 to RMB2,353,588 million in 2018. This increase was primarily due to an increase in the prices of a majority of our oil and gas products.

The table below sets out the external sales volume and average realized prices for our major products in 2017 and 2018 and the respective percentage changes for the periods shown:

	Sales Volume ('000 ton)			Average Realized Price (RMB/ton)		
	2017	2018	Percentage of Change (%)	2017	2018	Percentage of Change (%)
Crude oil*	114,930	110,457	(3.9)	2,392	3,213	34.3
Natural gas (hundred million cubic meters, RMB/'000 cubic meter)**	1,989.59	2,167.54	8.9	1,235	1,367	10.7
Gasoline	65,293	71,125	8.9	6,386	7,024	10.0
Diesel	87,324	86,904	(0.5)	4,600	5,478	19.1
Kerosene	16,849	19,469	15.5	3,552	4,540	27.8
Heavy oil	23,395	19,964	(14.7)	2,380	3,335	40.1
Polyethylene	4,739	4,644	(2.0)	8,559	8,816	3.0
Lubricant	1,283	1,158	(9.7)	7,693	7,875	2.4

Note: * The sales volumes of crude oil listed in the table above represent all of our external sales volumes. The decrease in crude oil sales volume in 2018 as compared to 2017 was primarily due to the decrease in our international trading volume of crude oil.

** As the sales volume of urban gas was included in the sales volume of natural gas beginning in 2018, the sales volumes and average realized prices for 2016 and 2017 were retrospectively adjusted by applying the same approach. The increase in natural gas average realized price in 2018 as compared to 2017 was primarily due to the combined effects of an increase in the entrepôt trading price of natural gas and effective measures taken by the Company to optimize the structure of natural gas sales.

Operating Expenses Operating expenses increased by 14.6% from RMB1,948,168 million in 2017 to RMB2,232,591 million in 2018.

Purchases, Services and Other Expenses Purchases, services and other expenses increased by 19.7% from RMB1,285,716 million in 2017 to RMB1,539,010 million in 2018. This increase was primarily due to an increase in expenses relating to the purchase of oil and gas products and other trading activities as a result of the increase in oil and gas prices.

Employee Compensation Costs Employee compensation costs (including salaries and additional costs such as insurance, housing funds and training fees) were RMB144,027 million in 2018, representing an increase of 14.9% from RMB125,384 million in 2017. This increase was primarily due to an increase in our employee salaries and costs according to our performance-based remuneration system and in line with the general increase in average employee salaries in the industry.

Exploration Expenses Exploration expenses decreased by 21.6% from RMB23,884 million in 2017 to RMB18,726 million in 2018. This decrease was primarily due to the fact that, we optimized our exploration deployment resulting in a decrease in dry well expenses.

Depreciation, Depletion and Amortization Depreciation, depletion and amortization decreased by 2.3% from RMB237,375 million in 2017 to RMB231,929 million in 2018. This decrease was primarily due to a decrease in the depletion of oil and gas properties as a result of an increase in the proved undeveloped reserves and the decrease in depletion ratio caused by the rise of oil and gas prices, partially offset by an increase in asset impairment provision in 2018 as compared to 2017.

Selling, General and Administrative Expenses Selling, general and administrative expenses decreased by 4.0% from RMB77,042 million in 2017 to RMB73,986 million in 2018. This decrease was primarily due to our continuing efforts to broaden our income sources, reduce expenditure and costs, enhance efficiency, and strictly control our non-production related expenses.

Taxes other than Income Taxes Taxes other than income taxes increased by 9.7% from RMB198,022 million in 2017 to RMB217,267 million in 2018. This was primarily due to the increase in crude oil prices in 2018 as compared to 2017. In particular, (i) we incurred a crude oil special gain levy of RMB4,750 million in 2018 due to the increase in crude oil prices as a special gain levy is payable only if the crude oil price reaches US\$65 per barrel or above, while in 2017, no crude oil special gain levy was incurred; (ii) the consumption tax we paid increased by RMB6,747 million from RMB142,708 million in 2017 to RMB149,455 million in 2018; and (iii) the resource tax we paid increased by RMB6,339 million from RMB18,000 million in 2017 to RMB24,339 million in 2018.

Other Expenses, net Net other expenses was RMB7,646 million in 2018, representing an increase of RMB6,901 million from RMB745 million in 2017. This was primarily due to the combined effects of the increase in the losses from disposal of assets, as partially offset by the increase in the VAT refund relating to the importation of natural gas as recognized in 2018.

Profit from Operations The profit from operations in 2018 was RMB120,997 million, representing an increase of 78.7% from RMB67,722 million in 2017.

Net Exchange Gain /(Loss) Net exchange gain in 2018 was RMB1,145 million, as compared to the net exchange loss of RMB1,094 million in 2017. This was primarily due to the appreciation of US Dollar against Renminbi as compared with the end of 2017.

Net Interest Expense Net interest expense decreased by 4.7% from RMB19,507 million in 2017 to RMB18,583 million in 2018, primarily due to the combined effect of a decrease in the average balance of interest-bearing borrowings, a decrease in interest expenses and an increase in income from deposits as compared with 2017.

Profit Before Income Tax Expense Profit before income tax expense increased by 117.0% from RMB53,089 million in 2017 to RMB115,206 million in 2018.

Income Tax Expense The income tax expense increased by 162.6% from RMB16,296 million in 2017 to RMB42,790 million in 2018, which was primarily due to the increase in taxable income.

Profit for the Year As a result of the foregoing, our profit in 2018 increased by 96.8% from RMB36,793 million in 2017 to RMB72,416 million in 2018.

Profit Attributable to Non-controlling Interests Profit attributable to non-controlling interests increased by 41.7% from RMB13,995 million in 2017 to RMB19,825 million in 2018, which was primarily due to the increase in profits of certain of our subsidiaries in 2018.

Profit Attributable to Owners of the Company Profit attributable to owners of the company increased by 130.7% from RMB22,798 million in 2017 to RMB52,591 million in 2018.

Segment Results

Exploration and Production Segment

Revenue Revenue of the exploration and production segment was RMB658,712 million in 2018, representing an increase of 30.3% from RMB505,430 million in 2017. This increase was primarily due to the increase in the prices of crude oil and natural gas and increase in the sales volume of natural gas. Our average realized crude oil price in 2018 was US\$68.28 per barrel, representing an increase of 34.8% from US\$50.64 per barrel in 2017.

Operating Expenses Operating expenses of the exploration and production segment increased by 19.4% from RMB489,955 million in 2017 to RMB585,193 million in 2018. This increase was primarily due to the

combined effects of (i) an increase in procurement expenditure resulting from the increase in volume and price of imported oil from Russia and Kazakhstan; (ii) the impairment provision for certain oil and gas assets with higher costs of development and production made in accordance with the accounting standards; and (iii) the increase in taxes other than income taxes as compared to 2017.

In 2018, the unit oil and gas lifting cost was US\$12.31 per barrel, representing an increase of 6.8% from US\$11.53 per barrel in 2017. Excluding the effect of changes in exchange rate, the lifting cost increased by 4.6% from 2017, primarily due to an increase in power, materials and labor costs in 2018 as compared to 2017.

Profit from Operations In 2018, we stressed our low-cost development strategy and meticulous management, continued to promote steady output of crude oil, made greater efforts in exploration and production in main gas areas and optimized our production structure, resulting in a steady increase in gas output. In overseas operations, we took advantage of the Belt and Road Initiative, actively promoted the international cooperation in our oil and gas business, and formulated our development strategy based on project potential and enhanced dynamic control and management of investment. In 2018, the exploration and production segment realized an operating profit of RMB73,519 million, representing an increase of RMB58,044 million from RMB15,475 million in 2017, and returned to its position as a main profit contributor of our company.

Refining and Chemicals Segment

Revenue The revenue of the refining and chemicals segment increased by 23.5% from RMB707,804 million in 2017 to RMB874,125 million in 2018. This increase was primarily due to the increase in the prices of refined products and the fact that we produced more high-profitability products as a result of our optimized product structure. Both the prices and sales volume of certain refined and chemical products increased.

Operating Expenses Operating expenses of the refining and chemicals segment increased by 24.5% from RMB667,843 million in 2017 to RMB831,369 million in 2018. This increase was primarily due to the combined effects of (i) an increase in expenses associated with the purchase of crude oil and feedstock oil from external suppliers; and (ii) an impairment provision made in accordance with the accounting standards for certain facilities scheduled to be deactivated as a result of the regulations to promote the use of ethanol in vehicles.

In 2018, the cash processing cost of our refineries was RMB169.38 per ton, representing an increase of RMB0.34 per ton from RMB169.04 per ton in 2017, primarily due to an increase in power and labor cost as compared to 2017.

Profit from Operations In 2018, in our refining and chemicals segment, in response to market demand, we increased the processing load of the facilities with high efficiency, continued to adjust our product structure, increased production of high value-added and market-favorable products, and intensified management and control over our costs and expenses, maintaining a good position in profit contribution. In 2018, we realized operating profits of RMB42,756 million in the refining and chemicals segment, representing an increase of 7.0% as compared with RMB39,961 million in 2017. The refining operations recorded an operating profit of RMB34,933 million, representing an increase of 7.2% as compared with RMB32,573 million in 2017. Our chemical operations realized an operating profit of RMB7,823 million, representing an increase of 5.9%, as compared with RMB7,388 million in 2017.

Marketing Segment

Revenue Revenue of the marketing segment increased by 20.6% from RMB1,660,456 million in 2017 to RMB2,003,105 million in 2018. This increase was primarily due to the combined effects of (i) the increase in both sales volume and prices of products such as gasoline and kerosene, and the rise in the price of diesel as partially offset by the decrease in the sales volume of diesel; and (ii) the increase in revenue derived from trading of oil products.

Operating Expenses Operating expenses of the marketing segment increased by 21.6% from RMB1,652,177 million in 2017 to RMB2,009,555 million in 2018, primarily due to an increase in the expenses for purchase of refined oil from external suppliers.

(Loss) /profit from Operations In 2018, facing an unfavorable situation of substantial surplus in domestic resources and fiercer competition in the market, our domestic marketing segment adhered to the principle of market-orientation and efficiency, adopted active measures to address market competition, maximized efforts to increase our market share and enhance efficiency, and effectively ensured the proper downstream operations of our refineries, so as to realize the value of our industrial chain. In international trading, the marketing segment intensified coordination and cooperation with domestic industrial chains, and optimized the import and export of oil and gas resources. In 2018, affected by certain factors including fierce market competition and an adverse effect on profit from inventories due to a sharp decrease in oil prices in the fourth quarter, the marketing segment recorded an operating loss of RMB6,450 million, representing a decrease of RMB14,729 million as compared with the operating profit of RMB8,279 million in 2017.

Natural Gas and Pipeline Segment

Revenue Revenue of the natural gas and pipeline segment amounted to RMB362,626 million in 2018, representing an increase of 22.6% as compared with RMB295,786 million in 2017, primarily due to the increase in the sales volume of natural gas.

Operating Expenses Operating expenses of the natural gas and pipeline segment amounted to RMB337,111 million in 2018, representing an increase of 20.4% as compared with RMB280,098 million in 2017, primarily due to the increase in the expenses for purchasing natural gas.

Profit from Operations In 2018, in the natural gas and pipeline segment, in line with the increased demand for natural gas in the domestic market, we optimized our marketing strategies, made great efforts to expand into the high-end and high-profitability market, and continued to enhance the value of our natural gas business chain. In 2018, we realized an operating profit of RMB25,515 million, representing an increase of 62.6% as compared with RMB15,688 million in 2017.

In 2018, the volume of imported natural gas and liquefied natural gas (LNG) increased substantially. We took active measures to control the loss arising from the imported natural gas, and recorded a net loss of RMB24,907 million in the sale of imported natural gas, representing an increase in loss of RMB960 million as compared to 2017. We will continue to adopt vigorous measures to control losses.

In 2018, our international operations realized revenue of RMB836,619 million, accounting for 35.5% of our total revenue. Profit before income tax expense amounted to RMB4,781 million. Our international operations maintained a healthy development with further improved operating ability.

Our four operating segments are exploration and production, refining and chemicals, marketing as well as natural gas and pipeline. Overseas operations do not constitute a separate operating segment. The financial data of overseas operations are included in the financial data of the respective operating segment mentioned above.

Year Ended December 31, 2017 Compared to Year Ended December 31, 2016

Consolidated Results of Operations

Overview

In 2017, our revenue was RMB2,015,890 million, representing an increase of 24.7% as compared with 2016. Net profit attributable to the owners of the company was RMB22,798 million, representing an increase of 190.2% as compared with 2016. Basic earnings per share were RMB0.12, representing an increase of RMB0.08 as compared with 2016.

Revenue Our revenue increased by 24.7% from RMB1,616,903 million in 2016 to RMB2,015,890 million in 2017. This increase was primarily due to (i) the increasing selling prices of the majority of oil and gas products and (ii) the increase in the sales volume.

The table below sets out the external sales volume and average realized prices for our major products in 2016 and 2017, respectively:

	Sales Volume ('000 ton)			Average Realized Price (RMB/ton)		
	2016	2017	Percentage of Change (%)	2016	2017	Percentage of Change (%)
Crude oil	100,108	114,930	14.8	1,881	2,392	27.2
Natural gas (hundred million cubic meters, RMB/'000 cubic meter)	1,928.73	1,989.59	3.2	1,099	1,235	12.4
Gasoline	62,406	65,293	4.6	5,725	6,386	11.5
Diesel	80,168	87,324	8.9	4,127	4,600	11.5
Kerosene	16,533	16,849	1.9	2,869	3,552	23.8
Heavy oil	22,952	23,395	1.9	1,892	2,380	25.8
Polyethylene	4,764	4,739	(0.5)	7,981	8,559	7.2
Lubricant	1,122	1,283	14.3	7,424	7,693	3.6

Note: The sales volumes listed in the table above represent all of our external sales volumes. As the sales volume of urban gas was included in the sales volume of natural gas beginning in 2018, the sales volumes and average realized prices for 2016 and 2017 were retrospectively adjusted by applying the same approach.

Operating Expenses Operating expenses increased by 25.2% from RMB1,556,268 million in 2016 to RMB1,948,168 million in 2017.

Purchases, Services and Other Expenses Purchases, services and other expenses increased by 34.0% from RMB959,640 million in 2016 to RMB1,285,716 million in 2017. This increase was primarily due to the increase in purchase of oil and gas products.

Employee Compensation Costs Employee compensation costs (including salaries and additional costs such as insurance, housing funds and training fees) were RMB125,384 million in 2017, representing an increase of 6.6% from RMB117,662 million in 2016. This increase was primarily due to the improvement of our performance-based remuneration system and the increase in our employee salaries and costs in line with the general increase of employee average salaries in the industry.

Exploration Expenses Exploration expenses increased by 28.6% from RMB18,576 million in 2016 to RMB23,884 million in 2017. This increase was primarily due to the fact that, in order to consolidate the oil and gas resource foundations, we optimized our exploration deployment and increased our investment in oil and gas exploration.

Depreciation, Depletion and Amortization Depreciation, depletion and amortization increased by 8.8% from RMB218,147 million in 2016 to RMB237,375 million in 2017. This increase was primarily due to (i) our provision made for assets impairment, and (ii) an increase in depreciation and depletion as a result of an increase in the cost of property, plant and equipment.

Selling, General and Administrative Expenses Selling, general and administrative expenses increased by 3.8% from RMB74,255 million in 2016 to RMB77,042 million in 2017. This increase was primarily due to the increases in repair expenses and lease expenses as a result of the expansion of our business.

Taxes other than Income Taxes Taxes other than income taxes increased by 4.4% from RMB189,608 million in 2016 to RMB198,022 million in 2017. In particular, the consumption tax increased by RMB2,440 million from RMB140,268 million in 2016 to RMB142,708 million in 2017; and the resource tax increased by RMB3,528 million from RMB14,472 million in 2016 to RMB18,000 million in 2017.

Other Expenses/Income, net Net other expenses in 2017 were RMB745 million, as compared to net other income of RMB21,620 million in 2016. This was primarily due to the combined effects of the following factors: (i) our disposal of certain equity interests in Trans-Asia Gas Pipeline Co., Ltd. (the “Trans-Asia Pipeline”) in 2016 for which we recognized a net gain of RMB24,534 million, and (ii) the increase in the VAT refund relating to the importation of natural gas as recognized in 2017.

Profit from Operations The profit from operations in 2017 was RMB67,722 million, representing an increase of 11.7% from RMB60,635 million in 2016.

Net Exchange (Loss)/Gain Net exchange loss in 2017 was RMB1,094 million, as compared to the net exchange gain of RMB1,257 million in 2016. This was primarily due to the depreciation of US Dollar against Renminbi in 2017.

Net Interest Expense Net interest expense decreased by 6.5% from RMB20,857 million in 2016 to RMB19,507 million in 2017, primarily due to a decrease in the average balance of interest-bearing borrowings as compared with 2016 as a result of our active measures to control debts and reduce interest.

Profit Before Income Tax Expense Profit before income tax expense increased by 17.6% from RMB45,140 million in 2016 to RMB53,089 million in 2017.

Income Tax Expense The income tax expense increased by 3.3% from RMB15,768 million in 2016 to RMB16,296 million in 2017, which was primarily due to the increase in taxable income.

Profit for the Year As a result of the foregoing, our profit in 2017 increased by 25.3% from RMB29,372 million in 2016 to RMB36,793 million in 2017.

Profit Attributable to Non-controlling Interests Net profit attributable to non-controlling interests decreased by 35.0% from RMB21,515 million in 2016 to RMB13,995 million in 2017, which was primarily due to the fact that the disposal of certain equity interests in Trans-Asia Pipeline in 2016 was attributable to non-controlling interests.

Profit Attributable to Owners of the Company The net profit attributable to owners of the company increased by 190.2% from RMB7,857 million in 2016 to RMB22,798 million in 2017.

Segment Results

Exploration and Production Segment

Revenue Revenue of the exploration and production segment was RMB505,430 million in 2017, representing an increase of 22.5% from RMB412,484 million in 2016. This increase was primarily due to the combined effects of (i) the increase in the price of crude oil as partially offset by the decrease in the sales volume of crude oil, and (ii) the increase in the sales volume of natural gas and shale gas. Our average realized crude oil price in 2017 was US\$50.64 per barrel, representing an increase of 33.3% from US\$37.99 per barrel in 2016.

Operating Expenses Operating expenses of the exploration and production segment increased by 19.7% from RMB409,336 million in 2016 to RMB489,955 million in 2017. This increase was primarily due to the combined effects of (i) realized gains derived from the disposal of certain equity interests in the Trans-Asia Pipeline in 2016, and (ii) the increase in depreciation, depletion and amortization in 2017.

We enhanced our control over costs and expenses continuously. Our unit oil and gas lifting cost was US\$11.53 per barrel in 2017, representing a decrease of 1.2% from US\$11.67 per barrel in 2016.

Profit from Operations In 2017, in response to the increasingly complex development situation, in domestic operations, we adhered to the low-cost strategy and the meticulous management, optimized development plans, and took multi-measures to save energy and tap the potential synergies so as to raise the profit per single well. In overseas operations, we devoted major efforts to broadening sources of income and reducing expenditure as well as cutting costs and enhancing efficiency by various means such as optimizing assets and decreasing inventory. In 2017, the exploration and production segment realized an operating profit of RMB15,475 million, representing an increase of RMB12,327 million from RMB3,148 million in 2016, contributing a substantial increase in the profit level.

Refining and Chemicals Segment

Revenue The revenue of the refining and chemicals segment increased by 21.5% from RMB582,510 million in 2016 to RMB707,804 million in 2017. This increase was primarily due to the increase in oil prices and the production of high-profitability products as a result of our optimized product structure. Both the sales volume and price of most of the refined and chemical products were increased.

Operating Expenses Operating expenses of the refining and chemicals segment increased by 22.9% from RMB543,484 million in 2016 to RMB667,843 million in 2017. This increase was primarily due to the combined effects of (i) the increase in the expenses associated with the purchase of crude oil and feedstock oil from external suppliers; and (ii) impairment provision for some petrochemical assets with higher costs of production and operation in accordance with the accounting standards.

In 2017, we continued to optimize our productions and operations in the refining and chemicals segment. Due to the effects of the increase in the processing volume of crude oil and strengthened control over costs and expenses, the cash processing cost of our refineries was RMB169.04 per ton, representing a decrease of RMB10.89 per ton from RMB179.93 per ton in 2016.

Profit from Operations In 2017, in our refining and chemicals segment, we focused on the principle of market orientation and benefit, energetically pushed forward the structure optimization, reform and innovation, increased the production of high value-added and market-favorable products, and improved internal profit generating capabilities; intensified control over costs and expenses. These efforts resulted in several economic indicators being better than 2016 and maintaining a dominant position in profit contribution. In 2017, we realized operating profits of RMB39,961 million in the refining and chemicals segment, representing an increase of 2.4% as compared with RMB39,026 million in 2016. The refining operations recorded an operating profit of RMB32,573 million, representing an increase of 18.2% as compared with RMB27,565 million in 2016 due to the optimized product structure and the increase in gross profit. Taking advantage of the prosperous cycle of the chemical product market, we increased the sales of high-profitability products. However, as affected by the impairment provision for some petrochemical assets with higher production and operation costs, our chemical operations realized an operating profit of RMB7,388 million, representing a decrease of 35.5%, as compared with RMB11,461 million in 2016.

Marketing Segment

Revenue Revenue of the marketing segment increased by 27.6% from RMB1,301,616 million in 2016 to RMB1,660,456 million in 2017. This increase was primarily due to the combined effects of (i) the increase in both sales volume and prices of such products as gasoline and kerosene, and the rise in the price and the decrease in the sales volume of diesel; and (ii) the increase in revenue derived from trading of oil products.

Operating Expenses Operating expenses of the marketing segment increased by 28.0% from RMB1,290,568 million in 2016 to RMB1,652,177 million in 2017, primarily due to an increase in the expenses for purchase of refined oil from external suppliers.

Profit from Operations In 2017, in active response to the unfavorable condition of fiercer competition in the market, the marketing segment aimed for maximizing the overall results of the company. In domestic operations, we kept strengthening connection between production, sales and inventory management, optimized allocation of resources, enhanced cost and expense control, improved the integration of marketing and increased the profit from our non-oil business. In international trading, the marketing segment intensified the coordination and cooperation with domestic industrial chain, and optimized the import and export of oil and gas resources. In 2017, the marketing segment realized an operating profit of RMB8,279 million, representing a decrease of 25.1% as compared with RMB11,048 million in 2016.

Natural Gas and Pipeline Segment

Revenue Revenue of the natural gas and pipeline segment amounted to RMB295,786 million in 2017, representing an increase of 19.5% as compared with RMB247,477 million in 2016, primarily due to the increase in the sales volume of natural gas.

Operating Expenses Operating expenses of the natural gas and pipeline segment amounted to RMB280,098 million in 2017, representing an increase of 22.0% as compared with RMB229,592 million in 2016, primarily due to the increase in the expenses for purchasing natural gas.

Profit from Operations In 2017, in the natural gas and pipeline segment, we overcame the negative effects of decline in citygate price, optimized the allocation of resources, reduced comprehensive purchase costs, continued to enhance cost control, and realized an operating profit of RMB15,688 million, representing a decrease of 12.3% as compared with RMB17,885 million in 2016. This decrease was primarily due to the effects that (i) the impairment on goodwill related to the acquisition of PetroChina United Pipelines Co., Ltd. Amounted to RMB3,709 million; and (ii) the sales of imported gas recorded a net loss of RMB23,947 million, representing an increase of loss of RMB9,063 million as compared with 2016.

In 2017, our international operations realized a revenue of RMB721,374 million, accounting for 35.8% of the our total revenue. Profit before income tax expense amounted to RMB4,543 million, accounting for 8.6% of our pre-tax profit. Our international operations maintained a healthy development with further improved international operating ability.

Our four operating segments are exploration and production, refining and chemicals, marketing as well as natural gas and pipeline. Overseas operations do not constitute a separate operating segment. The financial data of overseas operations are included in the financial data of the respective operating segment mentioned above.

Liquidity and Capital Resources

Our primary sources of funding include cash generated by operating activities and short-term and long-term borrowings. Our primary uses of funds were for operating activities, capital expenditures, repayment of short-term and long-term borrowings and distributions of dividends to shareholders. Our payments to CNPC are limited to dividends and payments for services provided to us by CNPC. For the year ended December 31, 2018, we distributed as dividends 45% of our reported income for the year attributable to owners of the Company together with additional interim and final special dividends in return to our shareholders. See “Item 8 — Financial Information — Dividend Policy” for a discussion of factors which may affect the determination by our board of directors of the appropriate level of dividends.

Our financing ability may be limited by our financial condition, our results of operations and the international and domestic capital markets. Prior to accessing the international and domestic capital markets, we must obtain approval from the relevant PRC government authorities. In general, we must obtain PRC government approval for any project involving significant capital investment for our refining and chemicals, marketing and

natural gas and pipeline segments. For a more detailed discussion of factors which may affect our ability to satisfy our financing requirements, see “Item 3 — Key Information — Risk Factors — Risks Related to Liquidity”.

We plan to fund the capital and related expenditures described in this annual report principally through cash from operating activities, short-term and long-term borrowings and cash and cash equivalents. Net cash flows from operating activities in the year ended December 31, 2018 was RMB351,565 million. As of December 31, 2018, we had cash and cash equivalents of RMB85,598 million. While each of the projects described in this annual report for which significant capital expenditures will be required is important to our future development, we do not believe that failure to implement any one of these projects would have a material adverse effect on our financial condition or results of operations. If the price of crude oil declines sharply in the future, it is likely that we would delay or reduce the scale of the capital expenditures for our exploration and production segment.

We currently do not have any outstanding options, warrants or other rights for any person to require us to issue any common stock at a price below its market value. We do not currently intend to issue any such rights or to otherwise issue any common stock for a price below its market value.

In addition, as of December 31, 2018, we did not have any transactions, arrangements or other relationships with unconsolidated entities or other persons that are reasonably likely to materially affect the liquidity or availability of or requirements for our capital resources.

The table below sets forth our cash flows for each of the years ended December 31, 2016, 2017 and 2018 and our cash equivalents at the end of each year.

	Year Ended December 31,		
	2016	2017	2018
	(RMB in millions)		
Net cash flows from operating activities	265,179	366,655	351,565
Net cash flows used for investing activities	(175,887)	(243,546)	(267,732)
Net cash flows used for financing activities	(67,007)	(94,725)	(123,515)
Currency translation difference	2,873	(3,538)	2,503
Cash and cash equivalents at year end	97,931	122,777	85,598

Our cash and cash equivalents decreased by 30.3% from RMB122,777 million as of December 31, 2017 to RMB85,598 million as of December 31, 2018.

Net Cash Flows from Operating Activities

Our net cash flows from operating activities amounted to RMB351,565 million for the year ended December 31, 2018, representing a decrease of 4.1% from RMB366,655 million for the year ended December 31, 2017. This was mainly due to a combined effect of the changes in inventories, receivables and payables and other working capital and the increase in taxes, employee fees during the reporting period. As of December 31, 2018, we had cash and cash equivalents of RMB85,598 million. Our cash and cash equivalents were mainly denominated in Renminbi and US Dollars (approximately 46.2% were denominated in Renminbi, approximately 49.1% were denominated in US Dollars, approximately 2.1% were denominated in HK Dollars and approximately 2.6% were denominated in other currencies).

Our net cash flows from operating activities amounted to RMB366,655 million for the year ended December 31, 2017, representing an increase of 38.3% from RMB265,179 million for the year ended December 31, 2016. This was mainly due to a combined effect of an increase in profit and strengthened management over inventories, payables and other working capital during the reporting period. As of December 31, 2017, we had cash and cash equivalents of RMB122,777 million. Our cash and cash equivalents

were mainly denominated in Renminbi and US Dollars (approximately 57.8% were denominated in Renminbi, approximately 36.4% were denominated in US Dollars, approximately 4.9% were denominated in HK Dollars and approximately 0.9% were denominated in other currencies).

Our net cash flows from operating activities amounted to RMB265,179 million for the year ended December 31, 2016, representing an increase of 1.5% from RMB261,312 million for the year ended December 31, 2015. This was mainly due to a combined effect of a decrease in profit and the decrease in tax expenses during the reporting period. As of December 31, 2016, we had cash and cash equivalents of RMB97,931 million. Our cash and cash equivalents were mainly denominated in Renminbi and US Dollars (approximately 52.6% were denominated in US Dollars, approximately 44.3% were denominated in Renminbi, approximately 1.7% were denominated in HK Dollars and approximately 1.4% were denominated in other currencies).

Net Cash Flows Used for Investing Activities

Our net cash flows used for investing activities in 2018 amounted to RMB267,732 million, representing an increase of 9.9% from RMB243,546 million in 2017. The increase was primarily due to a combined effect of the adjustment of our investment plans based on the oil price trend and market changes and the increase in capital expenditures in 2018.

Our net cash flows used for investing activities in 2017 amounted to RMB243,546 million, representing an increase of 38.5% from RMB175,887 million in 2016. The increase was primarily due to a combined effect of the adjustment of our investment plans based on the oil price trend and market change and the increase in capital expenditures in 2017.

Our net cash flows used for investing activities in 2016 amounted to RMB175,887 million, representing a decrease of 18.5% from RMB215,879 million in 2015. The decrease was primarily due to a combined effect of the adjustment of our investment plans based on the oil price trend and market change, a decrease in capital expenditures during the current reporting period and payment of considerations for integration of certain pipelines assets in 2015.

Net Cash Flows Used for Financing Activities

Our net cash flows used for financing activities in 2018 was RMB123,515 million, representing an increase of 30.4% from RMB94,725 million in 2017. This was primarily due to our efforts in optimizing our debt structure, the decrease in amount of debts and the decrease in new borrowings in 2018.

Our net cash flows used for financing activities in 2017 was RMB94,725 million, representing an increase of 41.4% from RMB67,007 million in 2016. This was primarily due to a combined effect of (i) our efforts in optimizing our financial arrangement and debt structure; (ii) the decrease in amount of debts and financing cost, (iii) the decrease in long-term borrowings in 2017, and (iv) the increase in balance of short-term borrowings as of December 31, 2017.

Our net cash flows used for financing activities in 2016 was RMB67,007 million, representing an increase of 47.5% from RMB45,439 million in 2015. This was primarily due to a combined effect of (i) our efforts in optimizing financial arrangement and debt structure, and strengthening the management of our interest-bearing borrowings, (ii) the decrease in financing cost, (iii) the decrease in long-term borrowings in 2016, and (iv) the increase in balance of short-term borrowings as of December 31, 2016.

Our net borrowings as of December 31, 2016, 2017 and 2018 were as follows:

	As of December 31,		
	2016	2017	2018
	(RMB in millions)		
Short-term borrowings (including current portion of long-term borrowings)	143,384	175,417	137,738
Long-term borrowings	372,887	289,858	269,422
Total borrowings	516,271	465,275	407,160
Less: cash and cash equivalents	97,931	122,777	85,598
Net borrowings	418,340	342,498	321,562

Our total borrowings as of December 31, 2018 consisted of approximately 49.5% of fixed-rate loans and approximately 50.5% of floating-rate loans. Of our borrowings as of December 31, 2018, approximately 71.5% were denominated in Renminbi, approximately 26.2% were denominated in US Dollars and approximately 2.3% were denominated in other currencies.

Our total borrowings as of December 31, 2017 consisted of approximately 54.5% of fixed-rate loans and approximately 45.5% of floating-rate loans. Of our borrowings as of December 31, 2017, approximately 71.4% were denominated in Renminbi, approximately 26.7% were denominated in US Dollars and approximately 1.9% were denominated in other currencies.

Our total borrowings as of December 31, 2016 consisted of approximately 54.8% of fixed-rate loans and approximately 45.2% of floating-rate loans. Of our borrowings as of December 31, 2016, approximately 72.1% were denominated in Renminbi, approximately 26.5% were denominated in US Dollars and approximately 1.4% were denominated in other currencies.

Our debt to capital ratio (calculated by dividing interest-bearing debts by the aggregate of interest-bearing debts and shareholder's equity) as of December 31, 2016, 2017 and 2018 was 27.3%, 25.2% and 22.4%.

As of December 31, 2018, the outstanding amount of our debts secured by CNPC and its subsidiaries and other third parties was RMB27,685 million.

Capital Expenditures and Investments

In 2018, we focused on the principles of quality and profitability for capital expenditures, continued to optimize our investment structure and control our overall capital expenditures, with a focus on the investment in upstream oil and gas projects in order to enhance our sustainable development capability. In 2018, our capital expenditures were RMB255,974 million, representing an increase of 18.4% from RMB216,227 million in 2017.

The table below sets forth our capital expenditures and investments by business segment for each of the years ended December 31, 2016, 2017 and 2018 as well as those anticipated for the year ending December 31, 2019. Actual capital expenditures and investments for periods after January 1, 2019 may differ from the amounts indicated below.

	2016		2017		2018		2019 Anticipated	
	(RMB in millions)	%	(RMB in millions)	%	(RMB in millions)	%	(RMB in millions)	%
Exploration and production ⁽¹⁾ . . .	130,248	75.56	161,997	74.92	196,109	76.61	228,200	75.91
Refining and chemicals	12,847	7.45	17,705	8.19	15,287	5.97	38,800	12.91
Marketing	7,983	4.63	10,982	5.08	17,010	6.65	14,600	4.86
Natural gas and pipeline	20,340	11.80	24,529	11.34	26,502	10.35	17,800	5.92
Headquarters and others	968	0.56	1,014	0.47	1,066	0.42	1,200	0.40
Total	<u>172,386</u>	<u>100.00</u>	<u>216,227</u>	<u>100.00</u>	<u>255,974</u>	<u>100.00</u>	<u>300,600</u>	<u>100.00</u>

(1) If investments related to geological and geophysical exploration costs are included, the capital expenditures and investments for the exploration and production segment in 2016, 2017, 2018 and the estimates for the same in 2019 would be RMB139,135 million, RMB176,426 million, RMB206,256 million and RMB239,200 million, respectively.

As of December 31, 2018, the capital commitments contracted but not provided for were approximately RMB41,989 million.

Exploration and Production

A majority of our capital expenditures and investments relate to our exploration and production segment. For each of the three years ended December 31, 2016, 2017 and 2018, capital expenditures in relation to the exploration and production segment amounted to RMB130,248 million, RMB161,997 million and RMB196,109 million, respectively. In 2018, our capital expenditures were primarily used for the exploration projects in our 16 domestic oil and gas fields, construction of production facilities in our oil and gas fields, and the exploration and development projects in our five major overseas oil and gas cooperation regions.

We anticipate that the capital expenditures for our exploration and production segment in 2019 would amount to RMB228,200 million. Domestic exploration activities will be focused on the key basins such as Songliao Basin, Erdos Basin, Tarim Basin, Sichuan Basin and Bohai Bay Basin. Domestic development activities will be focused on a growth in the production of crude oil and natural gas by developing oil and gas fields in Daqing, Changqing, Liaohe, Xinjiang, Tarim and the Southwest region and enhancing the development of unconventional resources such as shale gas. Overseas operations will be aimed at continued cooperation with our current partners in the operation of the existing projects and the development of new projects in the Middle East, Central Asia, the Americas and the Asia-Pacific regions to ensure an effective growth of our reserves and production.

Refining and Chemicals

Our capital expenditures for our refining and chemicals segment for each of the years ended December 31, 2016, 2017 and 2018 were RMB12,847 million, RMB17,705 million and RMB15,287 million, respectively. In 2018, our capital expenditures were mainly spent on the construction of large-scale refining and chemicals facilities, including the projects of Liaoyang Petrochemical and Huabei Petrochemical and certain other oil product quality upgrading projects.

We anticipate that the capital expenditures for the refining and chemicals segment in 2019 would amount to RMB38,800 million, which are expected to be used primarily for the refining-chemical integration project of

Guangdong Petrochemical, Daqing Petrochemical's project in relation to adjustment and upgrading of product structure, the large-scale refining-chemical projects of producing ethylene out of ethane in Changqing and Tarim, and certain refining-chemical transformation and upgrading projects.

Marketing

Our capital expenditures for our marketing segment for each of the years ended December 31, 2016, 2017 and 2018 were RMB7,983 million, RMB10,982 million and RMB17,010 million, respectively. Our capital expenditures for the marketing segment in 2018 were mainly used for the construction of service stations, storage facilities and other facilities for our sales network.

We anticipate that the capital expenditures for our marketing segment for the year of 2019 will amount to RMB14,600 million, which are expected to be used primarily for the construction and expansion of refined oil sales networks and the construction of the overseas oil and gas operation centers.

Natural Gas and Pipeline

Our capital expenditures for the natural gas and pipeline segment for each of the three years ended December 31, 2016, 2017 and 2018 were RMB20,340 million, RMB24,529 million and RMB26,502 million, respectively. Our capital expenditures for the natural gas and pipeline segment in 2018 were mainly used for construction projects including the Fujian-Guangdong branch line of the Third West-East Gas Pipeline, the north section of the China-Russia East Natural Gas Pipeline, the Second China-Russia Crude Oil Pipeline and the Jinzhou-Zhengzhou Refined Oil Pipeline.

We anticipate that our capital expenditures for the natural gas and pipeline segment in 2019 will amount to approximately RMB17,800 million, which are expected to be used primarily for the construction of key natural gas transmission projects such as the China-Russia East Natural Gas Pipeline, Fujian-Guangdong branch of the Third West-East Gas Pipeline, the LNG equipment and other facilities for peak regulation, storage and transportation, the natural gas interconnection projects, as well as the construction of gas branches and sales terminals.

Headquarters and Others

Our non-segment-specific capital expenditures and investments for each of the years ended December 31, 2016, 2017 and 2018 were RMB968 million, RMB1,014 million and RMB1,066 million, respectively, which were primarily used for research activities and development of the IT system.

Our anticipated capital expenditures for the headquarters and others in 2019 will amount to RMB1,200 million. These planned capital expenditures and investments mainly include capital expenditures for scientific research activities and the development of the IT system.

Off-Balance Sheet Arrangements

As of December 31, 2018, there were no off-balance sheet arrangements that had or were reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources that is material to investors.

Long-Term Contractual Obligations and Other Commercial Commitments and Payment Obligations

All information that is not historical in nature disclosed under "Item 5 — Operating and Financial Review and Prospects — Long-Term Contractual Obligations and Other Commercial Commitments and Payment Obligations" is deemed to be a forward looking statement. See "Forward-Looking Statements" for additional information.

The tables below set forth our long-term contractual obligations outstanding as of December 31, 2018.

<u>Contractual Obligations</u>	<u>Payment Due by Period</u>				
	<u>Total</u>	<u>Less Than 1 Year</u>	<u>1-3 Years</u>	<u>3-5 Years</u>	<u>After 5 Years</u>
					(RMB in millions)
Long-term debt	344,792	75,370	178,543	52,865	38,014
Capital lease obligations	1,165	138	253	254	520
Operating leases	227,935	12,664	20,477	18,745	176,049
Capital commitments	41,989	7,936	34,025	28	—
Other long-term obligations	—	—	—	—	—
Debt-related interest	35,693	11,460	13,626	4,742	5,865
Total	<u>651,574</u>	<u>107,568</u>	<u>246,924</u>	<u>76,634</u>	<u>220,448</u>

We are obligated to make annual payment with respect to our exploration and production licenses to the Ministry of Natural Resources. The table below sets forth the estimated amount of the annual payments in the next five years:

<u>Year</u>	<u>Annual Payment</u> (RMB in millions)
2019	800
2020	800
2021	800
2022	800
2023	800

Assets Retirement Obligation

A number of provinces and regions in which our oil and gas exploration and production activities are located have promulgated environmental protection regulations, which set forth specific abandonment and disposal processes for oil and gas exploration and production activities. We have established standard abandonment procedures, including plugging all retired wells, dismantling all retired metering stations and other related facilities and performing site restoration, in response to the issuance of these provincial and regional regulations. As of December 31, 2018, the balance of assets retirement obligation was RMB132,780 million.

Research and Development

We have a research and development management department, directly under which there are three research institutions. Except for our branch companies which are engaged in marketing activities, each of our branch companies has its own research and development management department. Most of our branch companies have their own research institutions. Our research and development management departments are mainly responsible for managing and coordinating the research and development activities conducted by each of the research institutions. As of December 31, 2018, we had 39,377 employees in our research and development departments and institutions.

In each of the years ended December 31, 2016, 2017 and 2018, our total expenditures for research and development were approximately RMB17,565 million, RMB18,601 million and RMB21,045 million, respectively.

Exploration and Production

Most of China's major oil and gas fields are characterized by a broad range of geological conditions, and a majority of China's oil and gas fields are in continental sedimentary basins with complex structures. Our research and development efforts with respect to our exploration and production business focus on:

- theories and technologies of crude oil and natural gas exploration;
- oil and gas development theories and technologies;
- engineering technologies and equipment;
- theories and technologies for oil and gas storage and transportation; and
- technologies for security, energy conservation and environmental protection.

Refining and Chemicals

Currently, our research and development efforts in the refining and chemicals segment are focusing on the following areas:

- technologies for clean refined oil products;
- technologies for unqualified heavy oil processing;
- refining-chemical integration technologies;
- technologies for production of olefin aromatics;
- technologies for new products of synthetic resin and synthetic rubber;
- new catalyst and catalytic materials; and
- technologies for safety, energy saving and environmental protection.

Trend Information

In 2019, the global economy is expected to recover slowly with the economic environment still facing risks and challenges. As supply and demand in the global oil market eases, international oil prices are likely to demonstrate a wide-range of volatility and remain uncertain to a large extent. China's economy is expected to stay within a reasonable ambit and the consumption demand for oil and gas in China is expected to maintain growth momentum generally while the consumption of natural gas in particular is expected to continue on a fast track. Given a series of favorable policies, such as the expedited implementation of structural reform on the oil and gas sector, formulation of rules for a fair, open and transparent market and build-up of a business environment based on the rule of law, as well as tax and duty cuts on an even larger scale, a fairer market environment will be nurtured which is expected to facilitate our long-term business development. We will continue to adhere to our steady development guidelines, insist on quality-based business development, fully implement our four major strategies regarding resources, market, globalization and innovation, continue to optimize the structure of our industry chain, improve the value of our oil and gas business chains, and vigorously intensify measures to broaden our sources of income and to reduce expenditure as well as cut costs and enhance efficiency, in an effort to maintain a steady and positive improvement of our production and operations, and continue to improve our market competitiveness and corporate value.

In respect of exploration and production, we will insist on efficient exploration and development at a low cost, and make great efforts to increase reserves and production as well as improve profitability. With regards to our oil and gas exploration, we aim to explore large-scale and high quality reserves, strengthen centralized exploration and precise exploration of major basins and key series and strata, promote comprehensive exploration of resources including tight oil and gas, shale oil and gas and coalbed methane to consolidate the

resource base, and strive to acquire mineable reserves with economies of scale. With respect to our oil and gas production, we will, on the basis of stable output of oil and increase of gas, carry out construction of key projects to increase our production capacity, endeavor to ensure stable production in existing oil fields and start-up of new projects, both in pursuit of efficiency and profitability, focusing on optimization, arrangement and adjustment of development plans, achieve lean manufacturing driven by innovation and a balance between production and efficiency, advance unconventional oil and gas businesses such as coalbed methane and shale gas in an orderly manner and endeavor to increase both production and efficiency.

In respect of refining and chemicals, we will, taking into account efficiency, resources and market conditions, make scientific and reasonable arrangements for processing load, continue to optimize resource allocation and product structure, in order to achieve the most efficient utilization of resources and to maximize overall value. In respect of the refining business, we will endeavor to ensure a reasonable diesel-gasoline ratio, increase production of high-profitability and featured products; in respect of the chemical business, we will, in consideration of the market cycle, broaden sources of quality chemical raw materials, accelerate research and development on new products needed by the market, enhance the proportion of products that are high-end, high value-added and high profitability.

In respect of sales of chemical products, we will proceed with an in-depth study of marketing strategy, to try to optimize our geographic deployment, explore the high-end market and push ahead the strategy of “Internet + Marketing”. We will continue to push forward transformation and upgrading of our oil refining and chemical business, accelerate structural adjustment and optimization, and steadily level up the efficiency in our business operations. In respect of sales, we will delve deep in our market survey and our analysis of the competitive trends to increase our market share in specific segments, enhance efficiency and carry out a flexible competitive strategy. We will stress the core role of oil stations and expedite our efforts to establish a group of oil stations that are demonstration class and meet the 3.0 standards. Meantime, we will enhance cross-over consolidation of service, goods, internet and financing functions and implement innovative initiatives with respect to well-integrated marketing, strengthened mutual promotion between oil and non-oil businesses, and enhanced innovation at terminals.

In respect of natural gas and pipeline, we will devote efforts to optimize our resources and terminal sales in order to improve the value of the natural gas industry chain. We will coordinate resources domestic and abroad, enhance the start-up of major domestic gas fields, and import resources from abroad according to market demand. By leveraging platforms such as our trading center and entering into more online transactions through the bidding process, we will also step up our pace in exploring the high-end market, optimizing sales targets, and striving to maintain a stable market share. We will continue to push forward the construction of key pipelines and reinforce the construction of natural gas branches and terminal facilities.

In respect of international operations, we will continue to improve the strategic layout of the five major overseas oil and gas cooperation zones, the four major strategic oil and gas channels and the three major oil and gas operation hubs, further integrate resources and adjust structures, and increase operation efficiency as well as profitability. We will enhance strategic cooperation, emphasize the exploration and development of existing key projects and high-profitability projects, and endeavor to push ahead efficient and quality-based development of our oil and gas business operation outside China. We will leverage on the synergy and cooperation between international trading and production and sales, make overall arrangements for import and export structures as well as domestic and foreign resources, improve trading channels and our marketing network, and improve our capability to allocate resources and create profits.

Other than as disclosed above and elsewhere in this annual report, we are not aware of any trends, uncertainties, demands, commitments or events for the periods covered in this annual report that are reasonably likely to have a material adverse effect on our net revenue, profit, liquidity or capital resources, or that would cause the disclosed financial information to be misleading.

Other Information

Inflation

Inflation or deflation did not have a significant impact on our results of operations for the year ended December 31, 2018.

Related Party Transactions

For a discussion of related party transactions, see “Item 7 — Major Shareholders and Related Party Transactions — Related Party Transactions” and Note 38 to our consolidated financial statements included elsewhere in this annual report.

Recent Developments in IFRS

For a detailed discussion of recent developments in IFRS, see Note 3 to our consolidated financial statements.

Item 6 — *DIRECTORS, SENIOR MANAGEMENT AND EMPLOYEES*

Directors, Senior Management and Supervisors

As of the date of this report, our board of directors consisted of 10 directors, five of whom were independent non-executive directors. Directors are elected at shareholder meetings for three-year term. The directors may be re-elected and re-appointed upon the expiration of his/her term of office. The functions and duties conferred on the board of directors include:

- convening shareholders’ meetings and reporting its work to the shareholders’ meeting;
- implementing the resolutions of the shareholders’ meeting;
- determining our business plans and investment programs;
- formulating our annual budget and final accounts;
- formulating our profit distribution and loss recovery proposals;
- formulating proposals for the increase or reduction of our registered capital and the issuance of our debentures or other securities and listings;
- proposing to redeem shares, merge, spin-off, dissolve or otherwise change the form of the Company;
- deciding on our internal management structure;
- appointing or dismissing the president of the company, and upon the nomination of the president, appointing or dismissing the senior vice president, vice president, chief financial officer and other senior management, and determining matters relating to their remuneration;
- formulating our basic management system;
- preparing amendments to our articles of association;
- managing the information disclosures of our company; and
- exercising any other powers and duties conferred by the shareholders at general meetings.

Five of the directors are affiliated with CNPC or its subsidiaries.

The PRC Company Law requires a joint stock company with limited liability to establish a supervisory committee. This requirement is reflected in our articles of association. The supervisory committee is responsible for monitoring our financial matters and overseeing the corporate actions of our board of directors and our senior management personnel. At the end of this reporting period, the supervisory committee consisted of nine supervisors, five of whom were elected, and may be removed, by the shareholders in a general meeting, and four of whom are employees representatives who were elected by our staff, and may be removed, by our staff. Five of our supervisors are affiliated with CNPC. The term of office of our supervisors is three years. The supervisors may be re-elected and re-appointed. An elected supervisor cannot concurrently hold the position of a director, president, senior vice president, vice president or chief financial officer in our company.

The supervisory committee shall be responsible to the shareholders' meeting and shall exercise the following functions and powers in accordance with law:

- to review the periodic reports prepared by the board of directors and issue written opinions in connection with such review;
- to review our financial condition;
- to oversee the performance of duties by the directors, the president, senior vice presidents, vice presidents, the chief financial officer and other senior officers of the company and to propose the removal of any of the foregoing persons who acts in contravention of any law, regulation, the company's articles of association or any resolutions of the shareholders' meeting;
- to demand any director, the president, senior vice president, vice president, the chief financial officer or any other senior officer who acts in a manner which is harmful to the company's interest to rectify such behavior;
- to check the financial information such as the financial report, business report and plans for distribution of profits to be submitted by the board of directors at the shareholders' meetings and to authorize, in the company's name, publicly certified and practicing auditors to assist in the re-examination of such information should any doubt arise in respect thereof;
- to propose the convening of an extraordinary shareholders' meeting, and convene and preside over a shareholders' meeting when the board fails to perform its duties to do so as set forth in the PRC Company Law;
- to submit proposals at the shareholders' meetings;
- to confer with any director, or initiate legal proceedings on behalf of the company against any director, the president, senior vice president, vice president, the chief financial officer or any other senior officer in accordance with Article 152 of the PRC Company Law;
- to initiate investigations upon being aware of any extraordinary development in the operational conditions of the company;
- together with the audit committee of the board of directors, to review the performance of the outside auditors on a yearly basis, and to propose the engagement, renewal of engagement and termination of engagement of the outside auditors, as well as the service fees with respect to the audit services;
- to oversee the compliance of related party transactions; and
- other functions and powers as set forth in the articles of association of the company.

Supervisors shall attend meetings of the board of directors as observers.

In the event that any action of our directors adversely affects our interests, supervisors shall confer with or initiate legal proceedings against such directors on our behalf. A resolution proposed at any meeting of the supervisory committee shall be adopted only if it is approved by two-thirds or more of our supervisors.

Our senior management is appointed by and serves at the supervision of our board of directors. The board of directors will review, evaluate and supervise the performance of the management and reward or punish the members of the management in accordance with relevant rules and regulations.

The following table sets forth certain information concerning our directors, supervisors and executive officers as of the date of this report:

Name⁽¹⁾	Age	Position	Time of Election⁽²⁾
Wang Yilin	62	Chairman of the Board of Directors	June 2015
Liu Yuezhen	57	Non-executive Director	May 2014
Liu Hongbin	55	Non-executive Director	May 2014
Hou Qijun	52	Executive Director and President	June 2017
Duan Liangwei	51	Non-executive Director	June 2017
Lin Boqiang	61	Independent Non-executive Director	May 2014
Zhang Biyi	65	Independent Non-executive Director	October 2014
Elsie Leung Oi-sie	79	Independent Non-executive Director	June 2017
Tokuchi Tatsuhito	66	Independent Non-executive Director	June 2017
Simon Henry	57	Independent Non-executive Director	June 2017
Xu Wenrong	57	Chairman of the Supervisory Committee	
Zhang Fengshan	57	Supervisor	
Jiang Lifu	55	Supervisor	
Lu Yaozhong	53	Supervisor	
Wang Liang	56	Supervisor	
Fu Suotang	56	Supervisor appointed by employees' representatives	
Li Jiamin	55	Supervisor appointed by employees' representatives	
Liu Xianhua	55	Supervisor appointed by employees' representatives	
Li Wendong	54	Supervisor appointed by employees' representatives	
Sun Longde	56	Vice President	
Wu Enlai	58	Secretary to the Board of Directors	
Li Luguang	56	Vice President	
Tian Jinghui	56	Vice President	
Chai Shouping	57	Chief Financial Officer	
Ling Xiao	55	Vice President	
Yang Jigang	55	Vice President	
Wang Zhongcai	59	Vice President	

(1) The following changes have taken place to our board of directors, supervisors and senior management since our last annual report:

On June 5, 2018, Mr. Zhang Jianhua was appointed as the president of the Company and Mr. Li Luguang was appointed as a vice president of the Company. Mr. Lin Aiguo resigned from the position of chief engineer due to age.

On June 7, 2018, Mr. Yu Baocai resigned from the position as a director of the Company and a member of the evaluation and remuneration committee due to position adjustment.

On November 14, 2018, Mr. Zhang Jianhua resigned from the position as a vice-chairman, executive director and president of the Company and a member of the investment and development committee of the Company due to position adjustment.

On March 21, 2019, Mr. Hou Qijun was appointed as the president of the Company.

On April 15, 2019, Mr. Qin Weizhong resigned from the position as a director of the Company and a member of the health, safety and environment committee of the Company due to position adjustment.

(2) For directors only.

Directors

Wang Yilin, age 62, is the chairman of our company, the chairman of CNPC and the secretary of the Communist Party of China (“CPC”) Leadership Group of CNPC. Mr. Wang is a professor-level senior engineer and holds a doctorate degree. He has extensive work experience in China’s oil and gas industry. Mr. Wang was appointed as the standing member of the CPC Committee, deputy director and chief exploration geologist of Xinjiang Petroleum Administration Bureau in June 1996, and the general manager and secretary of the CPC Committee of our Xinjiang Oilfield Company in September 1999. He served as the assistant general manager of CNPC since July 2003. Mr. Wang was appointed as a deputy general manager and a member of the CPC Leadership Group of CNPC in December 2003. From July 2004, he worked concurrently as the chief safety officer of CNPC. He was a director of our company from November 2005 to April 2011. From April 2011, Mr. Wang was the chairman of CNOOC, the secretary of the CPC Leadership Group of CNOOC and the chairman of CNOOC Limited. Mr. Wang was appointed as the chairman of CNPC and the secretary of the CPC Leadership Group of CNPC in April 2015, and the chairman of our company in June 2015.

Liu Yuezhen, age 57, is a director of our company and the chief accountant and a member of the CPC Leadership Group of CNPC. Mr. Liu is a researcher-level senior accountant, holds a master’s degree and has extensive financial and accounting experience. He served as deputy general manager and chief accountant of AVIC Jiangnan Aviation Life-saving Appliance Corporation since March 1996. In February 2000, he was promoted to general manager of Jiangnan Aviation Life-saving Appliance Corporation and concurrently served as the director of the 610 Research Institute. Mr. Liu served as the chairman of the board of directors and general manager of AVIC Beijing Qingyun Aviation Instruments Co., Ltd. from May 2003 and as the chief accountant and a member of the CPC Leadership Group of CASIC (Group) Company from November 2006. Mr. Liu has been the chief accountant and a member of the CPC Leadership Group of CNPC since December 2013. Mr. Liu was appointed as a director of our company in May 2014.

Liu Hongbin, age 55, is a director of our company and a deputy general manager and a member of the CPC Leadership Group of CNPC. Mr. Liu is a senior engineer, holds a bachelor’s degree and has extensive work experience in China’s oil and gas industry. He was appointed as the chief engineer of Tuha Petroleum Exploration & Development Headquarters in June 1995, a deputy general manager and a member of the CPC Committee of PetroChina Tuha Oilfield Company in July 1999, the commander and deputy secretary of the CPC Committee of Tuha Petroleum Exploration & Development Headquarters in July 2000, the general manager of the Planning Department of our company in March 2002, and the director of the Planning Department of CNPC in September 2005. Mr. Liu was appointed as a vice president of our company in June 2007. He was appointed as the general manager and secretary of the CPC Committee of PetroChina Marketing Company in November 2007. In July 2013, he was appointed as a deputy general manager and a member of the CPC Leadership Group of CNPC. Mr. Liu was appointed as an executive director and general manager of Daqing Oilfield Company Ltd. in August 2013. Mr. Liu was appointed as a director of our company in May 2014.

Hou Qijun, age 52, is a director and the president of our company, and concurrently the deputy general manager of CNPC. Mr. Hou is a professor-level senior engineer and holds a doctorate degree. He has extensive work experience in China’s oil and gas industry. He served as a director, deputy general manager and a member of the CPC Committee of Daqing Oilfield Company Limited since October 2002. He served as the general manager and deputy secretary of the CPC Committee of Jilin Oilfield Company from October 2004, and concurrently an executive director and the general manager of Jilin Petroleum (Group) Company Limited from July 2007. He served as the secretary of the CPC Committee and deputy general manager of PetroChina Natural

Gas and Pipelines Company from September 2011, and concurrently a deputy general manager of PetroChina Natural Gas Marketing Company from November 2011. He served concurrently as the director of PetroChina Oil & Gas Pipeline Control Center from March 2012. He served as the general manager of the Planning Department of the company and concurrently the general manager of the Planning Department of CNPC from November 2013. He was appointed as a deputy general manager of CNPC in March 2017. Mr. Hou has served concurrently as the general manager and deputy secretary of the CPC Committee of PetroChina Exploration and Production Company from April 2017. In June 2017, he was appointed as a director and vice president of our company. Mr. Hou was appointed as the president of our company in March 2019.

Duan Liangwei, age 51, is a director of our company, and concurrently a deputy general manager and the chief safety officer of CNPC. Mr. Duan is a professor-level senior engineer and holds a doctorate degree. He has extensive work experience in China's petrochemical industry. From February 2006, Mr. Duan served as a deputy general manager, the chief safety officer and a member of the CPC Committee of Jilin Petrochemical Company. From March 2010, he served concurrently as the general manager of Jilin Fuel Ethanol Company Limited. From September 2011, he served as the general manager of Dagang Petrochemical Company. From July 2013, he served as the general manager and the deputy secretary of the CPC Committee of PetroChina Dalian Petrochemical Company, the manager of Dalian Petrochemical Corporation, and the director of Dalian Regional Companies Coordination Group. He was appointed as a deputy general manager of CNPC in March 2017. Mr. Duan has served concurrently as the chief safety director of CNPC since April 2017. Mr. Duan was appointed as a director of our company in June 2017.

Independent Non-executive Directors

Lin Boqiang, age 61, is an independent non-executive director of our company. Mr. Lin holds a doctorate degree in economics from the University of California. He was formerly a senior energy economist at the Asian Development Bank, and is currently working at Xiamen University in such capacity as a Distinguished Professor of the Changjiang Scholars Program at the School of Management, the director of Research Institute for China's Energy Policy, the director of 2011 Collaborative Innovation Center for Energy Economics and Energy Policy, and a doctoral advisor. Mr. Lin is a member of the National Energy Consultation Committee under the National Energy Commission, a member of the Energy Price Consultation Committee under the National Development and Reform Commission, a guest economic analyst of Xinhua News Agency, a guest commentator of China National Radio, the vice-chairman of China Energy Society, and a member of the Board of Stewards of Future of Energy of the World Economic Forum based in Davos Switzerland. Mr. Lin was elected as an independent non-executive director of our company in May 2014.

Zhang Biyi, age 65, is an independent non-executive director of our company. Mr. Zhang is a senior accountant. He graduated from the department of finance and banking from Xiamen University in February 1982. He served as the head of the Enterprise Division, assistant to the director, and deputy director of the Finance Bureau at China Ship Industry Corporation. In July 1999, Mr. Zhang was appointed as a deputy general manager of China Shipbuilding Industry Corporation, and he served as deputy general manager and chief accountant of China Shipbuilding Industry Corporation from December 2004 to February 2014. From March 2008 to January 2010, he also served concurrently as the general manager of China Shipbuilding Industry Company Ltd. Mr. Zhang was elected as an independent non-executive director of our company in October 2014.

Elsie Leung Oi-sie, age 79, is an independent non-executive director of our company. She is a consultant of Iu, Lai & Li Solicitors & Notaries, and an independent non-executive director of China Life Insurance Company Limited, United Company RUSAL, Plc. and China Resources Power Holdings Co., Ltd. Ms. Leung obtained her LL.M. degree from the University of Hong Kong, and is an academician of College of International Marriage Law. She holds the practicing qualifications for attorney of Hong Kong and Britain. Ms. Leung was the first Secretary for Justice of the Hong Kong Special Administrative Region, a member of Executive Council of HKSAR and the Deputy Director of Hong Kong Basic Law Committee of the Standing Committee of the National People's Congress of the PRC. Ms. Leung was appointed as the Justice of the Peace, the Notary Public,

and the China-Appointed Attesting Officer, and was awarded a Grand Bauhinia Medal. Ms. Leung was appointed as a non-executive independent director of our company in June 2017.

Tokuchi Tatsuhito, age 66, is an independent non-executive director of our company. He is also the executive director & research fellow of the Center for Industrial Development and Environment Governance (CIDE), Tsinghua University, the senior fellow of Rebuild Japan Initiative Foundation, and the member & experts adviser to the Foreign Advisory Committee of State Administration of Foreign Experts Affairs of the PRC. Mr. Tokuchi graduated from the Department of Chinese Language and Literature, Peking University, and received his master's degree in East Asian Economy from the Center for East Asian Studies of Stanford University. He previously held such positions as the general manager of Investment Banking Division of Daiwa Securities SMBC Co., Ltd., the president of Daiwa Securities Singapore Limited, the Executive Vice President of Daiwa Securities (Hong Kong) Inc. in charge of investment banking business, a vice president of Daiwa Securities (America) Inc., the vice chairman of Singapore Investment Banking Association, and a deputy general manager, managing director, general manager, and Investment Banking Committee chairman of CITIC Securities Co., Ltd. In 2009, Mr. Tokuchi was awarded the China Friendship Award, China's highest award for foreigners. Mr. Tokuchi was appointed as a non-executive independent director of our company in June 2017.

Simon Henry, age 57, is an independent non-executive director of our company. He is a fellow of the UK Chartered Institute of Management Accountants, and has extensive experience in the areas of finance management, strategic planning, marketing, and investor relations. Mr. Henry obtained a first class Bachelor's degree in mathematics from Cambridge University in 1982 and was awarded a Master's degree in 1986 by Cambridge. He joined Royal Dutch Shell in 1982. He worked for 8 years until March 2017 as the Chief Finance Officer and an executive director of the Board of Royal Dutch Shell. He now serves as a non-executive director and the chairman of the audit committee of the board of directors of Lloyds Banking Group and as a non-executive director of Rio Tinto plc. In addition, Mr. Henry is currently a member of the UK Defense Board. Mr. Henry was appointed as a non-executive independent director of our company in June 2017.

Supervisors

Xu Wenrong, age 57, is the chairman of the supervisory committee of our company and a deputy secretary of the CPC Leadership Group and deputy general manager of CNPC. Mr. Xu is a professor-level senior engineer and holds a doctorate degree. Mr. Xu has extensive work experience in China's oil and gas industry. Mr. Xu served as a deputy director of Bureau of Geophysical Prospecting of CNPC from November 1997, the director and deputy secretary of the CPC Committee of the Bureau of Geophysical Prospecting of CNPC from December 1999, and the vice chairman of the board of directors, general manager and deputy secretary of the CPC Committee of BGP Inc. from December 2002. He was appointed as an assistant president of CNPC in January 2004, and from September 2005 Mr. Xu concurrently served as the director general of the Development and Research Department of CNPC, and the chairman of CNPC Services & Engineering Ltd from June 2006. He served as a member of the CPC Leadership Group and chief of the Discipline Inspection Group of China Shipping (Group) Company from May 2011. He was appointed as a director of China Shipping (Group) Company in October 2011. He served concurrently as the principal of China Shipping Party School from December 2011, and the chairman of the Labor Union of China Shipping (Group) Company from January 2012. He served concurrently as the president of China Shipping Management Cadre College from May 2013. He was appointed as a deputy general manager, a member of the CPC Leadership Group and chief of Discipline Inspection Group of China Shipping (Group) Company in February 2014. He served as a deputy general manager and member of the CPC Leadership Group of CNPC from January 2016. He was appointed as a deputy secretary of the CPC Leadership Group and deputy general manager of CNPC in November 2016. He was appointed as a director of our company in May 2016. Mr. Xu was appointed as a member and the chairman of the supervisory committee of our company in June 2017.

Zhang Fengshan, age 57, is a supervisor and the chief safety officer of our company and the general manager of our Quality, Security and Environmental Protection Department. He is concurrently the deputy chief

safety officer of CNPC, the general manager of Quality, Security and Environmental Protection Department of CNPC and the director of the Security, Environmental Protection Supervision Center of CNPC. Mr. Zhang is a professor-level senior engineer, holds a master's degree and has extensive experience in China's oil and gas industry. He was appointed as a deputy director and a standing member of the CPC Committee of Liaohe Oil Exploration Bureau in July 2000, the safety director of Liaohe Oil Exploration Bureau in May 2002, the director and deputy secretary of the CPC Committee of Liaohe Petroleum Exploration Bureau in August 2004 and in February 2008, the general manager and deputy secretary of the CPC Committee of Great Wall Drilling and Exploration Company Ltd., where he also served as an executive director from July 2008. Mr. Zhang has been the general manager of the Security, Environment, and Energy Conservation Department of our company and of CNPC since June 2012. In July 2014, Mr. Zhang was appointed as the chief safety officer of our company and the deputy chief safety officer of CNPC. In December 2015, Mr. Zhang was appointed as the director of the Security, Environmental Protection Supervision Center of CNPC. In December 2016, Mr. Zhang was appointed as the general manager of our Quality, Security and Environmental Protection Department and the general manager of the Quality, Security and Environmental Protection Department of CNPC. Mr. Zhang was appointed as a supervisor of our company in May 2014.

Jiang Lifu, age 55, is a supervisor of our company, the general manager of our Reform and Enterprise Management Department and the general manager of the Reform and Enterprise Management Department of CNPC. Mr. Jiang is a professor-level senior economist, holds a doctorate degree and has extensive work experience in China's oil and gas industry. He was appointed as a deputy general manager of our Capital Operation Department in August 2003, a deputy director of CNPC's Planning Department in May 2005, a deputy general manager of our Planning Department in June 2007 and a deputy director of CNPC's Planning Department. Since April 2014, Mr. Jiang has been the general manager of the Enterprise Management Department of our company and the general manager of the Enterprise Management Department of CNPC. In April 2015, Mr. Jiang was appointed as the general manager of our Reform and Enterprise Management Department and the general manager of the Reform and Enterprise Management Department of CNPC. Mr. Jiang was elected as a supervisor of our company in October 2014.

Lu Yaozhong, age 53, is a supervisor of our company, the general manager of our Capital Operation Department, and the general manager of the Capital Operation Department of CNPC. Mr. Lu is a professor-level senior accountant and holds a master's degree. He has extensive work experience in China's oil and gas industry. He served as the chief accountant and a member of the CPC Committee of PetroChina Kazakhstan Company from December 2009 and the chief accountant of Overseas Exploration and Development Branch Company of China National Oil and Gas Exploration and Development Corporation from August 2013. Mr. Lu has served as the general manager of the Capital Operation Department of our company and concurrently the general manager of the Capital Operation Department of CNPC since April 2017. Mr. Lu was appointed as a supervisor of our company in June 2017.

Wang Liang, age 56, is a supervisor of our company, the general manager of our Audit Department, and concurrently the general manager of the Audit Department, and the director and deputy secretary of the CPC Committee of the Audit Service Center of CNPC. Mr. Wang is a professor-level senior accountant and holds a bachelor's degree. He has extensive work experience in China's oil and gas industry. He served as a director, chief accountant and member of the CPC Committee of CNPC Offshore Engineering Company Limited from January 2005, a member of the CPC Leadership Group and deputy director of Liaoning Provincial Finance Department from April 2006, the chairman of the board of directors Generali China Insurance Co., Ltd. from April 2007, the chief accountant and a member of the CPC Committee of CNPC Chuanqing Drilling Engineering Company Limited from February 2008, the general manager and deputy secretary of the CPC Committee of CNPC Assets Management Co., Ltd. from October 2009, the chairman of the board of directors, general manager, and deputy secretary of the CPC Committee of Kunlun Trust Co., Ltd. from March 2014, the chairman of the board of directors, secretary of the CPC Committee, secretary of the discipline inspection commission, and chairman of the Labor Union of CNPC Assets Management Co., Ltd. from July 2014, and the secretary of the CPC Committee, secretary of the Discipline Inspection Commission, chairman of the Labor Union and deputy

general manager of China Petroleum Finance Co., Ltd. from July 2016. In May 2017, he was appointed as the general manager of our Audit Department, and concurrently the general manager of the Audit Department of CNPC, the director and secretary of the CPC Committee of the Audit Service Center of CNPC. In November 2017, he was appointed as the general manager of our Audit Department, the general manager of the Audit Department of CNPC, the director and deputy secretary of the CPC Committee of the Audit Service Center of CNPC. Mr. Wang was appointed as a supervisor of our company in October 2017.

Fu Suotang, age 56, is an employee representative supervisor of our company. He is also the general manager and the secretary of the CPC Committee of PetroChina Changqing Oilfield Company, and the director and general manager of Changqing Petroleum Exploration Bureau. Mr. Fu is a professor-level senior engineer and holds a doctorate degree. He has extensive work experience in China's oil and gas industry. He served as the chief geologist and member of the CPC Committee of PetroChina Qinghai Oilfield Company from April 2007. He served as the general manager and deputy secretary of the CPC Committee of PetroChina Qinghai Oilfield Company and concurrently the director of Qinghai Petroleum Management Bureau from April 2014. In April 2017, he was appointed as the general manager and deputy secretary of the CPC Committee of PetroChina Changqing Oilfield Company and concurrently the director of Changqing Petroleum Exploration Bureau. In April 2018, he was appointed the general manager and the secretary of the CPC Committee of PetroChina Changqing Oilfield Company, and concurrently the executive director and general manager of Changqing Oilfield Exploration Bureau. Mr. Fu was appointed as an employee representative supervisor of our company in June 2017.

Li Jiamin, age 55, is an employee representative supervisor of our company. He is also the general manager and the secretary of the CPC Committee of PetroChina Lanzhou Petrochemical Company, and the executive director and general manager of Lanzhou Petroleum & Chemical Company. Mr. Li is a professor-level senior engineer and holds a master's degree. He has extensive work experience in China's oil and petrochemical industry. He was appointed as a deputy general manager, chief security officer and member of the CPC Committee of Lanzhou Petroleum & Chemical Company in August 2004. He was appointed as the general manager and deputy secretary of the CPC Committee of PetroChina Lanzhou Petrochemical Company and the general manager Lanzhou Petroleum & Chemical Company in March 2012. In November 2017, he was appointed the general manager and the secretary of the CPC Committee of PetroChina Lanzhou Petrochemical Company, and the executive director and general manager of Lanzhou Petroleum & Chemical Company. Mr. Li was appointed as an employee representative supervisor of our company in May 2014.

Liu Xianhua, age 55, is an employee representative supervisor of our company. He is also the general manager and deputy secretary of the CPC Committee of PetroChina Liaoning Marketing Company and the executive director and general manager of CNPC Liaoning Petroleum Marketing Company. Mr. Liu is a professor-level senior economist and holds a master's degree. He has extensive work experience in China's oil and petrochemical industry. In May 2005, he was appointed as the general manager and deputy secretary of the CPC Committee of PetroChina Shandong Marketing Company. In March 2012, he was appointed as the general manager and deputy secretary of the CPC Committee of PetroChina Northeast Marketing Company. In December 2015, he was appointed as the general manager and deputy secretary of the CPC Committee of PetroChina Liaoning Marketing Company, and the general manager of CNPC Liaoning Petroleum Corporation. In November 2017, he was appointed the general manager and deputy secretary of the CPC Committee of PetroChina Liaoning Marketing Company and the executive director and general manager of CNPC Liaoning Petroleum Marketing Company. Mr. Liu was appointed as an employee representative supervisor of our company in May 2016.

Li Wendong, age 54, is an employee representative supervisor of our company. He is also the chairman, general manager and the secretary of the CPC Committee of Beijing Natural Gas Pipelines Company. Mr. Li is a professor-level senior engineer and holds a master's degree. He has extensive work experience in China's oil and gas industry. In January 2006, he was appointed as a deputy director and a member of the CPC Committee of China Petroleum Pipeline Bureau. In August 2011, he was appointed as the secretary of the CPC Committee, the secretary of the Discipline Inspection Commission, the chairman of the Labor Union and deputy general manager

of PetroChina West Pipelines Company. In November 2013, he was appointed as the general manager, the secretary of the CPC Committee, the secretary of the Discipline Inspection Commission and the chairman of the Labor Union of PetroChina West Pipeline Company, and the general manager of PetroChina West-East Natural Gas Sales Company. Since March 2016, he has served as the general manager and secretary of the CPC Committee of PetroChina West-East Natural Gas Transmission Pipelines Company, and the general manager of PetroChina West-East Natural Gas Sales Company. In April 2018, he was appointed as the general manager and the secretary of the CPC Committee of Beijing Natural Gas Pipelines Company. In October 2018, he was appointed as the chairman, general manager and the secretary of the CPC Committee of Beijing Natural Gas Pipelines Company. Mr. Li was appointed as an employee representative supervisor of our company in May 2016.

Other Senior Management

Sun Longde, age 56, is a vice president of our company. He is also an executive director and the secretary of the CPC Committee of Daqing Oilfield Company Ltd., an executive director and the general manager of Daqing Petroleum Administration Bureau Co., Ltd. Mr. Sun is a professor-level senior engineer and holds a doctorate degree. He has extensive work experience in China's oil and geological industry. He was appointed as the manager of Exploration & Development Company of the Shengli Petroleum Administration Bureau in September 1997, the chief geologist and a member of the CPC Committee of Tarim Petroleum Exploration & Development Headquarters in November 1997, a deputy general manager and a member of the CPC Committee of PetroChina Tarim Oilfield Company in September 1999, and the general manager and secretary of the CPC Committee of PetroChina Tarim Oilfield Company in July 2002. He was elected as an academician to the Chinese Academy of Engineering in December 2011. In April 2014, Mr. Sun was appointed as the director of the consultancy center of CNPC. In July 2015, Mr. Sun was appointed as the general manager of our Science and Technology Management Company and the general manager of the Science and Technology Department of CNPC. He was appointed as an executive director and the general manager of Daqing Oilfield Company Ltd., the director of Daqing Petroleum Administration Bureau, and a deputy secretary of the CPC Committee of Daqing Oilfield in March 2016. In October 2018, he was appointed as an executive director and the secretary of the CPC Committee of Daqing Oilfield Company Ltd., an executive director and the general manager of Daqing Petroleum Administration Bureau Co., Ltd. Mr. Sun was appointed as a vice president of our company in June 2007.

Li Luguang, age 56, is a vice president of our company, and the general manager and vice Party secretariat of our Exploration and Production Branch. Mr. Li is a professor-level senior engineer and holds a doctor degree. He has extensive working experience in China's oil and gas industry. He served as the deputy general manager and Party member of Southwest Oil and Gas Field Branch from September 1999, the general manager and vice Party secretariat of Southwest Oil and Gas Field Branch from September 2003, the general manager and Party secretariat of Southwest Oil and Gas Field Branch from November 2005, assistant to the general manager of CNPC from April 2014, concurrently as the general manager and vice secretariat of the CPC committee of Tarim Oilfield Branch from October 2016, and the general manager and secretariat of the CPC committee of Tarim Oilfield Branch from April 2017, the general manager and vice Party secretariat of Exploration and Production Branch from April 2018. Mr. Li was appointed as a vice president of our company in June 2018.

Tian Jinghui, age 56, is a vice president of our company, and an executive director and secretary of the CPC Committee of PetroChina International Company Ltd., and the chairman of China National United Oil Corporation. Mr. Tian is a professor-level senior economist and holds a master's degree. He has extensive experience in China's oil and gas industry. In May 1998, he was appointed as the chief of the Preparatory Group of PetroChina Northwest Marketing Company. He was appointed as a deputy general manager and member of the CPC Committee of our Refining & Marketing Company from December 1999, a deputy general manager, chief safety officer and member of the CPC Committee of PetroChina Marketing Company from November 2007. In June 2009, he was appointed as the secretary of the CPC Committee and deputy general manager of PetroChina Marketing Company. In August 2013, he was appointed as the general manager and secretary of the

CPC Committee of PetroChina Marketing Company. In April 2017, Mr. Tian was appointed as the general manager and deputy secretary of the CPC Committee of PetroChina Marketing Company, an executive director of the board of directors and secretary of the CPC Committee of PetroChina International Company Ltd., and the chairman of China National United Oil Corporation. Mr. Tian was appointed as a vice president of our company in November 2015

Chai Shouping, age 57, is the chief financial officer of our company. Mr. Chai is a professor-level senior accountant and holds a master's degree. He has extensive work experience in financial operations and management in China's oil and petrochemical industry. In April 2002, he was appointed as a deputy general manager of the Finance Department of our company. In September 2012, he was appointed as the chief accountant and a member of the CPC Committee of China National Oil and Gas Exploration and Development Corporation (overseas exploration and development branch), the deputy general manager and the chief financial officer of CNPC Exploration and Development Company Limited and the chief financial officer of PetroChina International Investment Company Limited. In March 2013, he was appointed as the general manager of the Finance Department of our company. Mr. Chai was appointed as the chief financial officer of our company in January 2017.

Ling Xiao, age 55, is a vice president of our company, the general manager and secretary of the CPC Committee of our Natural Gas Sales Company (PetroChina Natural Gas Pipelines Company), the chairman of the board of directors and the secretary of the CPC Committee of PetroChina Pipelines Co., Ltd., and the chairman of Kunlun Energy Co., Ltd. Mr. Ling is a professor-level senior engineer and holds a doctorate degree. He has extensive experience in China's oil industry. He was appointed as a deputy director and member of the CPC Committee of Xinjiang Petroleum Administration Bureau in June 2001, the chairman of the board of directors and general manager of West Pipeline Co., Ltd. in August 2004, the secretary of the CPC Committee of West Pipeline Co., Ltd. in January 2015, the general manager and deputy secretary of the CPC Committee of PetroChina West Pipeline Company in March 2009, the general manager and secretary of the CPC Committee of West-East Gas Transmission Pipeline Company and concurrently the general manager of West-East Gas Transmission Sales Company in November 2013, the secretary of the CPC Committee and deputy general manager of PetroChina Natural Gas and Pipelines Company and concurrently the deputy general manager of our Natural Gas Sales Company in March 2016, the secretary of the CPC Committee and deputy general manager of our Natural Gas Sales Company (PetroChina Natural Gas and Pipelines Company) and general manager and secretary of the CPC Committee of PetroChina Pipelines Co., Ltd. in September 2016. Mr. Ling was appointed as the general manager and deputy secretary of the CPC Committee of our Natural Gas Sales Company (PetroChina Natural Gas and Pipelines Company), and the chairman of the board of directors and secretary of the CPC Committee of PetroChina Pipelines Co., Ltd. in November 2017, the secretary of the CPC committee of the Natural Gas Sales Company in October 2018. Mr. Ling was appointed as a vice president of our company in December 2017.

Yang Jigang, age 55, is a vice president of our company, and the general manager and the secretary of the CPC Committee of our Refinery and Chemical Engineering Company. Mr. Yang is a professor-level senior engineer and holds a master's degree. He has extensive experience in China's petroleum and petrochemical industry. He was appointed as the deputy manager of Lanzhou Chemical Industry Corporation in August 1997, the chief engineer of the Oil Refinery and Chemical Engineering Department of CNPC in November 1998, a member of the preparatory group for the establishment of our Refining and Chemicals Marketing Company in September 1999, the chief engineer and member of the CPC Committee of our Refinery and Marketing Branch Company in December 1999, a deputy general manager, chief engineer and member of the CPC Committee of our Chemical Engineering and Marketing Company in August 2000, the general manager and deputy secretary of the CPC Committee of PetroChina Daqing Petrochemical Company in May 2005, the secretary of the CPC Committee and deputy general manager of our Refinery and Chemical Engineering Company in December 2009, and the general manager and secretary of the CPC Committee of our Refinery and Chemical Engineering Company in November 2017. Mr. Yang was appointed as a vice president of our company in December 2017.

Wang Zhongcai, age 59, is a vice president of our company, and the chairman of the board of directors, the secretary of the CPC Committee and chairman of the Labor Union of China National Oil and Gas Exploration

and Development Company Ltd. Mr. Wang is a professor-level senior engineer and holds a doctorate degree. He has extensive experience in China's oil industry. He served as the deputy general manager of CNPC International (Kazakhstan) Ltd. and concurrently the chairman of JSC CNPC International Aktobe Petroleum from March 1999, a senior deputy general manager of CNPC International (Kazakhstan) Ltd. and concurrently the general manager of JSC CNPC International Aktobe Petroleum from April 2000, a deputy general manager of China National Oil and Gas Exploration and Development Corporation and concurrently the general manager of CNPC International (Russia) Ltd. from May 2003, a deputy general manager of China National Oil and Gas Exploration and Development Corporation and concurrently the chief of the CNPC Russian Coordination Leading Group from March 2005, a deputy general manager of China National Oil and Gas Exploration and Development Corporation and concurrently the general manager of CNPC International (Kazakhstan) Ltd. and JSC CNPC International Aktobe Petroleum from November 2005, the general manager, secretary of the CPC Committee and the chief of Kazakhstan Coordination Group of CNPC International (Kazakhstan) Ltd. from September 2008, a senior deputy general manager and a member of the CPC Committee of Overseas Exploration and Development Branch (China National Oil and Gas Exploration and Development Corporation) from December 2009, and the secretary of the CPC Committee, senior deputy general manager and chairman of the Labor Union of Overseas Exploration and Development Branch (China National Oil and Gas Exploration and Development Corporation) from April 2014. Mr. Wang was appointed as the chairman of the board of directors, secretary of the CPC Committee and the chairman of the Labor Union of China National Oil and Gas Exploration and Development Company Ltd. in November 2017. Mr. Wang was appointed as a vice president of our company in December 2017.

Secretary to the Board of Directors

Wu Enlai, age 58, is the secretary to the board of directors of our company. He is a professor-level senior engineer and holds a master's degree. Mr. Wu has extensive work experience in China's oil and petrochemical industry. Mr. Wu was appointed as a deputy director general of Tarim Petrochemical Engineering Construction Headquarters in August 1997, a deputy director general of the Capital Operation Department of CNPC in August 2002 and a deputy general manager of China National Oil and Gas Exploration and Development Corporation in January 2004. He was appointed as the chief of the Preparatory Work Group for PetroChina Guangxi Petrochemical Company in May 2005, and the general manager, secretary of the CPC Committee, secretary of the Discipline Inspection Commission and chairman of the Labor Union of PetroChina Guangxi Petrochemical Company in October 2005, and the head of the Enterprise Coordination Group of our company in Guangxi in September 2012. He was appointed as an executive director and the general manager of CNPC Hong Kong (Holding) Ltd. and a director and the chairman of Kunlun Energy Company Ltd. in December 2013. Since 2014, Mr. Wu has served as the vice director of the Council of China Association of Listed Companies. He was named a senior member of Hong Kong Institute of Chartered Secretaries in January 2018. Mr. Wu was appointed as the secretary to our board of directors in November 2013.

Compensation

The senior management members' compensation has two components, namely, fixed salaries and variable compensation. The variable component, which accounts for approximately 75% of the total compensation package, is linked to the attainment of specific performance targets, such as our income for the year, return on capital and the individual performance evaluation results. All of our senior management members have entered into performance contracts with us.

Our directors and supervisors, who hold senior management positions or are otherwise employed by us and other senior management of our company receive compensation in the form of salaries, insurance and other benefits in kind, including our contribution to the pension plans for them.

The aggregate amount of salaries, insurance and other benefits in kind paid by us to the five highest paid individuals during the year ended December 31, 2018 was RMB4,374 thousand. We paid RMB716 thousand as our contribution to the pension plans with respect to these individuals in the year ended December 31, 2018.

The aggregate amount of salaries and other compensation, insurance and other benefits in kind paid by us to our directors, who hold senior management positions or are otherwise employed by us, during the year ended December 31, 2018 was RMB1,666 thousand which does not include the fees totaling RMB1,772 thousand paid to our independent directors. The aggregate amount of salaries or other compensation, insurance and other benefits in kind paid by us to our supervisors, who hold senior management position or are otherwise employed by us during the year ended December 31, 2018 was RMB3,177 thousand. The aggregate amount of salaries or other compensation, insurance and other benefits in kind paid by us to other senior management during the year ended December 31, 2018 was RMB6,770 thousand.

In 2018, we paid RMB1,781 thousand as our contribution to the pension plans for our directors and supervisors, who hold senior management positions or are otherwise employed by us and other senior management of our company.

Save as disclosed, no other payments have been paid or are payable, with respect to the year ended December 31, 2018, by us or any of our subsidiaries to our directors. In addition, we have no service contracts with our directors that provide for benefits to our directors upon the termination of their employment with us.

For discussions about the compensations of our individual directors and supervisors, please see Note 11 to our consolidated financial statements included elsewhere in this annual report.

Board Practices

Our board of directors has five committees, namely, the nominating committee, the audit committee, the investment and development committee, the evaluation and remuneration committee and the health, safety and environment committee.

Nominating Committee

The current members of our nominating committee are Mr. Wang Yilin, the chairman of the committee, Mr. Lin Boqiang and Mr. Zhang Biyi. The nominating committee's major responsibilities include:

- reviewing and discussing the structure, size and composition of the board of directors regularly, and making recommendations on changes to the board to follow the company's corporate strategy;
- considering the criteria and procedures for selection of directors, president and other senior management, and making recommendations to the board of directors;
- considering the board diversity policy and the training systems for directors and management;
- extensively selecting qualified candidates for directorship and members of senior management, reviewing the qualifications of candidates for directorship and president, and making recommendations;
- reviewing the proposals on candidates nominated by the nominators who have the nominating rights under the Articles of Association;
- reviewing and making assessment on the independence of independent non-executive directors; and
- attending the shareholders' meeting and answer the investor's consultation on the work of the Nomination Committee, as well as the relevant laws, regulations, listing rules and other matters authorized by the board of directors.

Audit Committee

Our audit committee is currently composed of two non-executive independent directors, Mr. Lin Boqiang and Mr. Zhang Biyi, and one non-executive director, Mr. Liu Yuezhen. Mr. Lin Boqiang serves as the chairman

of the committee. Under our audit committee charter, the chairman of the committee must be an independent director and all resolutions of the committee must be approved by independent directors. The audit committee's major responsibilities include:

- reviewing and supervising the engagement of external auditors and their performance;
- reviewing and ensuring the completeness of annual reports, interim reports and quarterly reports, if any, and related financial statements and accounts, and reviewing any material opinion contained in the aforesaid statements and reports with respect to financial reporting;
- reporting to the board of directors in writing on the financial reports of the company and related information, having considered the issues raised by external auditors;
- reviewing and scrutinizing the work conducted by the internal audit department in accordance with the applicable PRC and international rules;
- monitoring the financial reporting system and internal control procedures of the company, as well as checking and assessing matters relating to, among others, the financial operations, internal control and risk management of the company;
- receiving, keeping and dealing with complaints or anonymous reports regarding accounting, internal accounting control or audit matters and ensuring the confidentiality of such complaints or reports;
- reporting regularly to the board of directors with respect to any significant matters which may affect the financial position of the company and its operations and with respect to the self-evaluation of the committee on the performance of their duties; and
- performing other responsibilities as may be required under relevant laws, regulations and the listing rules of the stock exchanges where the shares of the company are listed (as amended from time to time).

Investment and Development Committee

The current members of our investment and development committee are Mr. Liu Hongbin and Mr. Simon Henry. The investment and development committee's major responsibilities include:

- studying the strategies of the company as proposed by our president and making recommendations to the board of directors;
- studying the annual investment budget and the adjustment proposal regarding the investment plan as proposed by our president and making recommendations to the board of directors; and
- reviewing feasibility studies and preliminary feasibility studies for material investment projects subject to the approval of the board of directors and making recommendations to the board of directors.

Evaluation and Remuneration Committee

The current members of our evaluation and remuneration committee are Ms. Elsie Leung Oi-sie, the chairman of the committee, and Mr. Tokuchi Tatsuhito. The evaluation and remuneration committee's major responsibilities include:

- studying the evaluation criteria for directors and senior officers, conducting the evaluations and proposing suggestions;
- studying and evaluating the remuneration policies and plans for directors and senior officers (including the compensation in connection with the removal or retirement of the director and senior officers);
- organizing the evaluation of the performance of our president and reporting the evaluation result to the board of directors, supervising the evaluation of the performance of our senior vice presidents, vice presidents, chief financial officer and other senior management members conducted under the leadership of the president;

- studying our incentive plan and compensation plan, supervising and evaluating the implementation of these plans and making recommendations for improvements to and perfection of such plans; and
- studying the relevant laws, regulations and the listing rules of the stock exchanges where the shares of the company are listed (as amended from time to time) and other matters authorized by the board of directors.

Health, Safety and Environment Committee

The current members of our health, safety and environment committee are Mr. Duan Liangwei, the chairman of the committee, and Mr. Hou Qijun. The health, safety and environment committee's major responsibilities include:

- supervising the effective implementation of our Health, Safety and Environmental Protection Plan, or the HSE Plan;
- making recommendations to the board of directors and our president regarding major decisions with respect to health, safety and environmental protection; and
- inquiring about the occurrence of and determining the responsibilities for material accidents of the company, and examining and supervising the treatment of such accidents.

Employees

As of December 31, 2016, 2017 and 2018, we had 508,757, 494,297 and 476,223 employees (not including the temporary employees), respectively. During 2018, we employed 305,384 temporary employees on an average. As of December 31, 2018, we had 295,439 temporary employees. The table below sets forth the number of our employees by business segment as of December 31, 2018.

	<u>Employees</u>	<u>% of Total</u>
Exploration and production	268,633	56.41
Refining and chemicals	137,761	28.93
Marketing	48,743	10.24
Natural gas and pipeline	15,560	3.27
Headquarters and others ⁽¹⁾	5,526	1.15
Total	<u>476,223</u>	<u>100.00</u>

(1) Including the numbers of employees of the management of our headquarters, specialized companies, PetroChina Exploration & Development Research Institute, PetroChina Planning & Engineering Institute, Petrochemical Research Institute and other units.

Our employees participate in various basic social insurance plans organized by municipal and provincial governments whereby we are required to make monthly contributions to these plans at certain rates of the employees' salary as stipulated by relevant local regulations. Expenses incurred by us in connection with the retirement benefit plans were approximately RMB16,184 million, RMB16,010 million and RMB19,566 million, respectively, for the years ended December 31, 2016, 2017 and 2018, respectively.

In 2018, we did not experience any strikes, work stoppages, labor disputes or actions that affected the operation of any of our businesses. Our company maintains good relationship with our employees.

Share Ownership

As of December 31, 2018 our directors, senior officers and supervisors did not have share ownership in us or any of our affiliates.

Item 7 — MAJOR SHAREHOLDERS AND RELATED PARTY TRANSACTIONS

Major Shareholders

We were established on November 5, 1999 with CNPC as its sole promoter. As of March 31, 2019, CNPC beneficially owned 148,302,183,536 shares, which include 291,518,000 H Shares indirectly held by CNPC through Fairy King Investments Limited, an overseas wholly owned subsidiary of CNPC, representing approximately 81.03% of the share capital of us, and, accordingly, CNPC is our controlling shareholder.

The following table sets forth the major shareholders of our A shares as of March 31, 2019:

<u>Name of Shareholders</u>	<u>Class of Shares</u>	<u>Number of Shares Held</u>	<u>Percentage of Such Share in That Class of the Issued Shares Capital (%)</u>	<u>Percentage of the Total Share Capital (%)</u>
CNPC	A shares	148,010,665,536	91.41	80.87

The following table sets forth the major shareholders of our H Shares as of March 31, 2019:

<u>Name of Shareholders</u>	<u>Number of Shares Held</u>	<u>Percentage of Such Share in That Class of the Issued Shares Capital (%)</u>	<u>Percentage of the Total Share Capital (%)</u>
CNPC	291,518,000 (long position) ⁽¹⁾	1.38	0.16
BlackRock, Inc. ⁽²⁾	1,927,929,269 (long position)	9.14	1.05
	14,006,000 (short position)	0.07	0.01
JPMorgan Chase & Co. ⁽³⁾	1,305,168,268 (long position)	6.18	0.71
	243,826,811 (short position)	1.15	0.13
	523,311,136 (lending pool)	2.48	0.29
The Bank of New York Mellon Corporation ⁽⁴⁾	1,130,224,788 (long position)	5.36	0.62
	808,462,500 (short position)	3.83	0.44
	271,211,324 (lending pool)	1.29	0.15
Citigroup Inc. ⁽⁵⁾	1,101,430,221 (long position)	5.22	0.60
	50,906,550 (short position)	0.24	0.03
	934,405,871 (lending pool)	4.42	0.51

(1) Held by Fairy King Investments Limited, an overseas wholly-owned subsidiary of CNPC.

(2) Blackrock, Inc., through various subsidiaries, had an interest in the H Shares of the Company, of which 1,927,929,269 H Shares (long position) and 14,006,000 H Shares (short position) were held in its capacity as interest of corporation controlled by the substantial shareholder.

(3) JPMorgan Chase & Co., through various subsidiaries, had an interest in the H Shares of the Company, of which 436,846,689 H Shares (long position) and 243,826,811 H Shares (short position) were held in its capacity as interest of corporation controlled by the substantial shareholder, 321,599,717 H Shares (long position) were held in its capacity as investment manager, 23,402,026 (long position) were held in its capacity as holder of the guaranteed interest of shares, 8,700 H Shares (long position) were held in its capacity as trustee, and 523,311,136 H Shares (long position) were held in its capacity as approved lending agent.

(4) The Bank of New York Mellon Corporation, through its wholly-owned subsidiary, The Bank of New York Mellon, had an interest in the H Shares of the Company, of which 1,130,224,788 H Shares (long position) and 808,462,500 H Shares (short position) were held in its capacity as interest of corporation controlled by the substantial shareholders, and 271,211,324 H Shares were held in its capacity as approved lending agent.

(5) Citigroup Inc., through various subsidiaries, had an interest in the H Shares of the Company, of which 28,424,457 H Shares (long position) were held in its capacity as holder of the guaranteed interest of shares, 138,599,893 H Shares (long position) and 50,906,550 H Shares (short position) were held in its capacity as

interest of corporation controlled by the substantial shareholder, and 934,405,871 H Shares (long position) were held in its capacity as approved lending agent.

Related Party Transactions

CNPC is a controlling shareholder of our company. We enter into extensive transactions with CNPC and other members of the CNPC group, all of which constitute related party transactions for us. We also continued to carry out existing continuing transactions with other related parties in the year ended December 31, 2018.

Continuing Related Party Transactions

Since 2000, our company has engaged a variety of continuing related party transactions with CNPC. CNPC provides various services to us and our company also provides specific products and services to CNPC. These transactions are governed by several agreements between CNPC and us, including the comprehensive products and services agreement, land lease, building lease, intellectual property licensing contracts and contract for the transfer of rights under production sharing contracts, as amended.

1. The comprehensive products and services agreement between CNPC and the Company

The comprehensive products and services agreement entered into between CNPC and us is updated every three years. The current comprehensive products and services agreement, or the new agreement, was signed on August 24, 2017, which covers the period from January 1, 2018 to December 31, 2020. In the new agreement, we added certain categories of products and services provided by our company to CNPC, and partially amended the pricing basis in accordance with relevant laws and regulations. Other terms and conditions of the agreement remain unchanged. The new agreement was approved at the extraordinary general meeting held on October 26, 2017.

The products and services provided by CNPC to us include (a) engineering and technical services, mainly to be provided before the commercial operation of projects, including but not limited to, exploration technological services, downhole operational services, oilfield construction services, refinery construction services and engineering design services; (b) production services, mainly for our daily operations after the projects commence operations, including but not limited to crude oil, natural gas, refined products, chemical products, supply of water, power and gas, and communication services; (c) materials supply services, which are mainly intermediary services for the procurement of materials provided before and after the official commissioning are granted, including but not limited to purchase of materials, quality inspections, storage and transport of materials; (d) social and life services, including but not limited to security, education, hospitals, property management, staff canteens, training centers and hotels; and (e) financial services, including loans and other financial assistance, deposit services, entrusted loans, settlement services, financial leasing services and others.

The products and services provided by our company to CNPC and the companies jointly-held by CNPC and us include: (a) general products and services, including refined oil products, chemical products, natural gas, crude oil, supply of water, power and gas and heating, metering, and commissioned operations, supply of materials, other products and services that CNPC may request us to provide from time to time for itself to consume, use or sell; and (b) financial services provided by the company to jointly held companies, including provision of entrusted loans, guarantees and other financial services.

The general principle of the comprehensive agreement is that the products and services provided are in accordance with the needs of the recipients, and the prices are fair and reasonable. The terms and conditions are not inferior to those of independent third party providers. The pricing of the general agreement follows government pricing, market price, cost price, and agreement price, depending on the circumstances. The comprehensive agreement is not exclusive, and the parties may provide and purchase products and services from other third parties, but all parties are obliged to provide the products and services set forth in the comprehensive agreement and the provisions of the annual plan.

2. Land Use Right Lease

We entered into a land lease agreement with CNPC in March 2000, pursuant to which, CNPC leased to us land use right across China totaling approximately 1,145 million square meters, which were related to our various operations and businesses, for a term of 50 years. We may adjust the land use right area and the rent every three years based on our production and operating requirement and the market prices. In 2014, we and CNPC confirmed that since January 1, 2015, the total area of land use right leased by us was adjusted to 1,777.21 million square meters and the rent was adjusted to no more than RMB 4,831.21 million. On August 24, 2017, the parties signed a new confirmation letter, pursuant to which, since January 1, 2018, the total area of land was adjusted to 1,772.65 million square meters and the annual rent was adjusted to no more than RMB5,783 million. Other terms of the lease remain unchanged. The independent valuer, Savills Valuation and Professional Consultancy Co., Ltd., reviewed the confirmation letter and confirmed that the rent as adjusted is fair and reasonable, and such rent is not higher than the market level. The new confirmation letter of the land lease was approved at the extraordinary general meeting held on October 26, 2017.

3. Real Estate Lease

We entered into a real estate lease with CNPC in March 2000, which was amended in September 2002. Pursuant to the lease, CNPC leased 712,500 square meters of real estate across China to us for our business operations. Both parties agreed to adjust the number and rent of leased properties every three years based on the needs of production and operation or changes in the market price of real estate. According to the adjustment in 2014, starting from January 1, 2015, we agreed to lease from CNPC a total of approximately 1,179,585.57 square meters of real estate for a total rent of approximately RMB707.71 million per year. Other terms of the lease remain unchanged. On August 24, 2017, we and CNPC signed a new real estate lease, effective January 1, 2018, for a term of 20 years. Pursuant to the new agreement, starting from January 1, 2018, the company agreed to lease a total gross floor area of 1,152,968 square meters from CNPC, and agreed to pay a total annual rent of RMB730 million. The area and rent are to be adjusted every three years and the rent should not be higher than the fair market price. The independent valuer Savills Valuation & Professional Consultants Limited has reviewed the new real estate lease and confirmed that the adjusted rent is fair and reasonable and not higher than the market level. The new real estate lease was approved at the extraordinary general meeting held on October 26, 2017.

Loan and guarantee

As of December 31, 2018, we had unsecured short-term and long-term loans from CNPC and its affiliates in an aggregate amount of RMB213,721 million and with an average annual interest rate of 4.10%. The proceeds from the loans were basically used for our working capital. As of December 31, 2018, the total outstanding amount of our debts secured by CNPC and its subsidiaries was RMB27,456 million.

In 2018, we did not provide any guarantee to or for the benefit of CNPC and its subsidiaries. As of December 31, 2018, the total outstanding guarantee we provided to or for the benefit of our subsidiaries, associates and affiliates other than CNPC and its subsidiaries was RMB180,456 million.

One-off Related Party Transactions

Save as disclosed above, there were no significant one-off related party transactions in 2018.

In addition, during the reporting period, we had a number of other continuing related party transactions with certain companies such as CNPC Exploration and Development Company Limited. For a detailed discussion of our relationships and transactions with these parties, please refer to Note 38 to our consolidated financial statements included in this annual report, “Item 7 — Major Shareholders and Related Party Transactions — Related Party Transactions” in our annual report on Form 20-F filed with the SEC on May 27, 2008, and the 6-K filed with the SEC on August 28, 2014, August 24, 2017 and September 8, 2017, respectively.

The above-mentioned related-party transactions were within the upper limit of the amount of related party transactions as approved at the shareholders' general meeting.

Interests of Experts and Counsel

Not applicable.

Item 8 — FINANCIAL INFORMATION

Financial Statements

See pages F-1 to F-70 following Item 19.

Legal Proceedings

We are involved in several legal proceedings concerning matters arising in the ordinary course of our business. We believe, based on currently available information, that these proceedings, individually or in the aggregate, will not have a material adverse effect on our results of operations or financial condition.

Dividend Policy

Our Articles of Association provided that if our net profit attributable to owners of the Company and the accumulated undistributed profit for a year are positive, and our cash flow can satisfy our normal operation and sustainable development, the amount of cash dividend to be distributed shall not be less than 30% of the net profit attributable to owners of the Company realized in that year. We distribute dividends twice a year. Distribution of final dividends needs to be passed at the general meeting by ordinary resolution. The general meeting can, by ordinary resolution, authorize the board of directors to determine the distribution of interim dividends. Since our shares got listed on the stock exchanges, we have strictly complied with the Articles of Association and other relevant regulatory requirements, and adhered to the principle of bringing returns to shareholders, we have been distributing 45% of our net profit attributable to owners of the Company as dividends. Since 2016, considering the profit was negatively impacted by the low oil price, we have distributed special dividends in addition to the base dividends of 45% of the net profit attributable to owners of the Company.

Our board of directors will declare dividends, if any, in Renminbi on a per share basis and will pay such dividends in Renminbi with respect to A Shares and HK dollars with respect to H Shares. The Bank of New York will convert the HK dollar dividends and distribute them to holders of ADSs in U.S. dollars, less expenses of conversion. The holders of the A Shares and H Shares will share proportionately on a per share basis in all dividends and other distributions declared by our board of directors.

We will take into account factors including the following for declaration of dividends:

- general business conditions;
- our financial results;
- capital requirements;
- contractual restrictions on the payment of dividends by us to our shareholders or by our subsidiaries to us;
- our shareholders' interests;

- the effect on our debt ratings; and
- other factors our board of directors may deem relevant.

We may only distribute dividends after we have made allowances for:

- recovery of losses, if any;
- allocations to the statutory common reserve fund; and
- allocations to a discretionary common reserve fund if approved by our shareholders.

The allocation to the statutory funds is 10% of profit for the year attributable to owners of the company determined in accordance with PRC accounting rules. Under PRC law, our distributable earnings will be equal to our profit for the year attributable to owners of the company determined in accordance with PRC accounting rules or IFRS, whichever is lower, less allocations to the statutory and discretionary funds.

We believe that our dividend policy strikes a balance between two important goals:

- providing our shareholders with a competitive return on investment; and
- assuring sufficient reinvestment of profits to enable us to achieve our strategic objectives.

In 2018, a dividend of RMB0.08880 per share (inclusive of applicable taxes) for the six months ended June 30, 2018 was paid to our A shareholders and H shareholders (including ADS holders). The board of directors recommended that a final dividend of RMB 0.06271 per share (which is 45% of the net profit attributable to owners of the Company for the second half of 2018) and an additional special final dividend of RMB0.02729 per share, totaling RMB0.09 (inclusive of applicable taxes) should be paid. The final dividend for the year ended December 31, 2018 is subject to the approval by the annual general meeting to be held on June 13, 2019, and shall be paid to our shareholders listed on our shareholder register as of the close of business on June 27, 2019. The register of members of H Shares will be closed from June 22, 2019 to June 27, 2019 (both days inclusive) during which period no transfer of H Shares will be registered. The final dividends for A shares and H Shares (including ADSs) for 2018 will be paid on or about June 28, 2019 and August 2, 2019, respectively.

Significant Changes

None.

Item 9 — THE OFFER AND LISTING

Trading Market Information

Our ADSs, each representing 100 H Shares, par value RMB1.00 per H Share, have been listed and traded on the New York Stock Exchange since April 6, 2000 under the symbol “PTR”. Our H Shares have been listed and traded on the Hong Kong Stock Exchange since April 7, 2000 under the symbol “857”. In September 2005, our company issued an additional 3,196,801,818 H Shares. CNPC also sold 319,680,182 state-owned shares it held concurrently with our company’s issuance of new H Shares in September 2005. In October 2007, we issued 4 billion A Shares and these shares were listed on the Shanghai Stock Exchange on November 5, 2007 under the symbol “601857”. Following the issuance of A Shares, all the domestic shares of our company existing prior to the issuance of A Shares, i.e. the shares held by CNPC (our controlling shareholder) in our company, have been registered with China Securities Depository and Clearing Corporation Limited as tradable A Shares. The New York Stock Exchange, the Hong Kong Stock Exchange and Shanghai Stock Exchange are the principal trading markets for our ADSs, H Shares and A Shares, respectively.

As of December 31, 2018, there were 21,098,900,000 H Shares and 161,922,077,818 A Shares issued and outstanding. As of December 31, 2018, there were 170 registered holders of American depositary receipts evidencing 7,783,250 ADSs. The depositary of the ADSs is the Bank of New York Mellon.

Item 10 — *ADDITIONAL INFORMATION*

Memorandum and Articles of Association

Our Articles of Association Currently in Effect

On October 26, 2017, the amendment to the Articles of Association of the Company was approved at an extraordinary general meeting. The amendment took effect as of the same day. The amendment includes, among others, (i) according to the PRC Company Law and the Constitution of the Communist Party of China, the company shall set up the CPC organizations and working bodies with adequate staff and funds; the CPC organizations shall play the role of the core of leadership and political center of the company. The board of directors of the company shall take the CPC organization's advices before it determines such material matters as the orientations of the company's reform and development, key objectives and tasks and major work arrangements. With respect to appointment of management of the company, the CPC organizations shall consider and provide their comments and suggestions on the candidates nominated by the board of directors or the president, or the CPC organizations may recommend candidates to the board of directors and the president; (ii) a cumulative voting system of the Company is implemented for election of directors and supervisors at general meeting; and (iii) the tenure of re-elected independent directors cannot exceed six years.

The following is a summary based on the significant provisions of our Articles of Association. For details, you should read our amended and restated Articles of Association filed with SEC on October 26, 2017.

Objectives and Purposes

We are a joint stock limited company established in accordance with the PRC Company Law and certain other laws and regulations of the PRC. We are registered with the PRC State Administration for Industry and Commerce with a business license number being 1000001003252. Article 11 of our articles of association provides that our objectives are to comply with the rules of the market, to continuously explore business models which are suitable for the development of the Company, to fully utilize every resource of the Company, to place emphasis on personnel training and technological development, to provide the society with competitive products, and to use its best endeavors to maximize its profits. Article 11 of our articles of association provides that our scope of businesses includes, among other things, exploration and production of oil and natural gas; storage and sale of crude oil and refined oil; production, sale and storage of refined oil, petrochemical and chemical products; import and export; construction and operation of oil and natural gas pipelines; technical development, consultation and service for oil exploration and production, petrochemistry and related engineering; sale of materials, equipment and machines necessary for production and construction of oil and gas, petrochemicals and pipelines construction; the sale and warehousing of lubricating oil, fuel oil, bitumen, chemical fertilizers, auto parts, commodities and agricultural materials, etc.

Directors

Our directors shall be elected at our shareholders' general meeting. Our directors shall be elected for a term of three years and may serve consecutive terms upon re-election, except that independent directors may only serve a maximum of two terms. Our directors are not required to hold any shares in us, and there is no age limit requirement for the retirement or non-retirement of our directors.

Where a director is in any way, directly or indirectly, materially interested in a proposal, arrangement or contract (other than his contract of service with the Company), he shall declare the nature and extent of his

interests to the board of directors at the earliest opportunity, whether or not the proposal, arrangement or contract therefor is subject to the approval of the board of directors. Unless the interested director discloses his interests to the board of directors and the proposal, arrangement or contract is approved by the board of directors at a meeting in which the interested director, is not counted as part of the quorum and abstain from voting, the proposal, arrangement or contract in which that director is materially interested is voidable at the discretion of the Company except as against a bona fide party thereto who does not have knowledge of the breach of duty by the interested director. For this purposes, a director is deemed to be interested a proposal, arrangement or contract in which his associate is interested. Where a director gives to the board of directors a notice in writing stating that, by reason of the facts specified in the notice, he is interested in a proposal, arrangement or contract which may subsequently be entered into by the Company, that notice shall be deemed to be a sufficient declaration of his interests so far as the content stated in such notice is concerned, provided that such notice shall have been given before the date on which the entering into the relevant contract or arrangement is first taken into consideration by the Company.

Matters relating to the remuneration of our directors shall be determined by the shareholders' general meeting.

We shall not directly or indirectly make a loan to or provide any security for a director, unless the provision by the Company of a loan or a security or any other funds to a director to meet expenditure incurred or to be incurred by him for the sake of the Company or for the purpose of enabling him to perform his duties properly, in accordance with the terms of a service contract approved by the shareholders in a general meeting. If the ordinary business scope of the Company includes the provision of loans and security, the Company may make a loan to or provide a security to a director on normal commercial terms.

Dividends

Dividend shall be paid twice a year. The final dividends of the Company shall be decided by the shareholders by way of an ordinary resolution. The shareholders may by way of an ordinary resolution authorize the board of directors to decide on the interim dividends. The Company may pay any dividends in cash, shares or otherwise in such other way as permitted by laws and regulations. The Company will tend to pay any such dividends in cash over other methods of payment. The Company shall pay cash dividends for the year in which both the net profit attributable to the parent company and the cumulative undistributed profit are positive and so long as the cash flows of the Company may support its normal course of operation and sustainable development. Any such cash dividends shall not be less than 30% of the net profit attributable to the parent company for that year. If the shareholders' general meeting passes motions in connection with the distribution of cash dividend, allotment of bonus shares, or conversion of capital common reserve fund into share capital, the Company shall implement detailed plans thereof within two months after the conclusion of such shareholders' general meeting. If a shareholder has not claimed his dividends six years after such dividends has been declared in accordance with the Articles of Association, such shareholder is deemed to forfeit his right to claim such dividends.

When the Company distributes its after-tax profits for a given year, it shall allocate 10% of profits to its statutory common reserve fund. The Company shall no longer be required to make allocations to its statutory common reserve fund once the aggregate amount of such reserve reaches 50% or more of its registered capital. If the Company's statutory common reserve fund is insufficient to make up its losses of the previous years, such losses shall be made up from the profit for the current year before the Company makes allocations to the statutory common reserve fund. The Company may, if so resolved by the shareholders' meeting, make allocations to the discretionary common reserve fund from after-tax profits after making allocations to the statutory common reserve fund from the after-tax profits. The Company's after-tax profits remaining after it has made up its losses and made allocations to its common reserve fund shall be distributed in proportion to the shareholdings of its shareholders. If the shareholders' meeting distributes profits before the Company has made up its losses and made allocations to the statutory common reserve fund, the profits distributed must be returned to the Company.

Shareholders' Rights

A shareholder of the Company is a person who lawfully holds shares of the Company and whose name (title) is entered in the register of shareholders. Shareholders who hold shares of the same class shall enjoy the same rights. Article 49 set forth the rights of shareholders of ordinary shares such as the right to (i) receive dividends and other distributions in proportion to the number of shares held; (ii) propose, convene, preside over, attend or appoint a proxy to attend shareholders' general meetings and to vote thereat in accordance with laws; (iii) supervise management over business operations and present proposals or to raise queries; (iv) transfer, donate or pledge shares; (v) obtain financial information and other company information; (vi) participate in the distribution of residual assets of the Company in proportion to the number of shares held, in the event of the termination or liquidation of the Company; etc.

If the content of a resolution of a shareholders' general meeting or the board of directors violates any laws or administrative regulations, a shareholder has the right to file a petition with the court to invalidate the resolution. If the procedure for convening or the method of voting at a shareholders' general meeting or a meeting of the board of directors violates any laws, administrative regulations or the Company's Articles of Association, or if the contents of a resolution breaches the Company's Articles of Association, a shareholder may file a petition with the court to revoke the resolution within 60 days from the date on which the resolution was passed. If a director or any other senior officers violated any laws, administrative regulations or the Company's Articles of Association in the course of performing his or her duties to the Company, and thereby caused the Company to incur a loss, a shareholder or shareholders who individually or jointly hold one per cent (1%) or more of the Company's shares for more than one hundred and eighty (180) consecutive days may request in writing the supervisory committee to initiate proceedings in the court. If the supervisory committee has violated the laws, administrative regulations or the Articles of Association in the course of performing its duties to the Company, and thereby caused the Company to incur a loss, shareholder(s) may request in writing the board of directors to initiate proceedings in the court in respect thereof. If the supervisory committee or the board of directors refuses to initiate proceedings after receipt of a written request from the shareholder(s) as mentioned in the preceding paragraph, or fails to initiate proceedings within 30 days of the date of receipt of the request, or under urgent circumstances where failure to promptly initiate proceedings would cause irreparable harm to the Company's interests, the shareholders mentioned in the preceding paragraph are entitled to directly initiate proceedings in the court in their own name in the interests of the Company.

Shareholders' General Meetings

Shareholders' general meetings shall be convened by the board of directors. Annual general meetings are held once every year and within 6 months from the end of the preceding financial year. The board of directors shall convene an extraordinary general meeting within 2 months of the occurrence of any one of the events set forth in Article 63.

A 45-days prior written notice should be given to all of the shareholders whose names appear in the share register. A shareholder who intends to attend the meeting shall deliver to the Company his written reply concerning his attendance at such meeting 20 days before the date of the meeting. Shareholder(s) holding 3% or more of the total voting shares of the Company shall have the right to propose motions in writing to the convener 10 days prior to the date of such meeting. Any shareholder who is entitled to attend and vote at a general meeting shall be entitled to appoint one or more persons as his proxies to attend and vote on his behalf.

A shareholder (including a proxy), when voting at a general meeting, may exercise such voting rights as are attached to the voting shares which he represents, except where the cumulative voting system is adopted for voting on the election of directors and supervisors, each share shall have one vote. The voting on the election of directors and supervisors at the general meeting shall apply the cumulative voting system, which means that each share held by a shareholder shall have the same number of voting rights as the number of directors and supervisors to be elected and the voting rights held by a shareholder can be collectively exercised. At any

shareholders' general meeting, a resolution shall be decided on a show of hands unless voting by way of a poll is required under the listing rules or demanded by the following persons before or after any vote by a show of hands: (i) the chairman of the meeting; (ii) at least two shareholders present in person or by proxy entitled to vote thereat; (iii) one or more shareholders present in person or by proxy who represent(s), individually or in aggregate, 10% or more of all shares carrying the right to vote at the meeting.

An ordinary resolution must be passed by votes representing one-half or more of the voting rights represented by the shareholders (including proxies) present at the general meeting. The following matters shall be resolved by an ordinary resolution: (i) work reports of the board of directors and the supervisory committee; (ii) annual profit distribution plans and loss recovery plans formulated by the board of directors; (iii) appointment or removal of members of the board of directors and members of the supervisory committee, their remuneration and manner of payment; (iv) annual budgets and final accounts, balance sheets and profit and loss accounts and other financial statements of the Company; (v) matters other than those which are required by the laws, administrative regulations or the Company's Articles of Association to be adopted by a special resolution.

A special resolution must be passed by votes representing two-thirds or more of the voting rights represented by the shareholders (including proxies) present at the general meeting. The following matters shall be resolved by a special resolution: (i) increase or reduction in the share capital of the Company and the issue of shares of any class, warrants and other similar securities by the Company; (ii) issue of debentures of the Company; (iii) division, merger, dissolution and liquidation of the Company; (iv) amendment of the Company's Articles of Association; (v) acquisition or disposal of major assets in one year or provision of securities for third parties which exceeds 30% of the latest audited total assets of the Company; (vi) stock incentive plans; (vii) any other matters considered by the shareholders at general meeting, and resolved by way of an ordinary resolution, to be of a nature which may have a material impact on the Company and should be adopted by a special resolution in accordance with the laws, administrative regulations and the Company's Articles of Association.

Where any shareholders request for the convention of an extraordinary general meeting or a class meeting the following procedures shall be followed: (i) shareholders who individually or in aggregate hold not less than 10% of the Company's shares with voting right shall have the right to request in writing the board of directors to convene an extraordinary general meeting or a class meeting. The board of directors shall, according to the laws, administrative regulations and the Company's Articles of Association, give written feedback of consenting to or refusing the convening of such extraordinary shareholders' general meeting within 10 days after it has received the request. If the board of directors consents to convene an extraordinary general meeting or a class meeting, it shall give notice for such shareholders' general meeting within five days after it has so resolved. The consent of the concerned shareholders shall be obtained if any change is to be made to the request in the notice. If the board of directors refuses to convene an extraordinary general meeting or a class meeting, or it fails to give any feedback within 10 days after it has received the request, the shareholders who individually or in aggregate hold not less 10% of the Company's shares shall have the right to request in writing the supervisory committee to convene the extraordinary general meeting or class meeting; and (ii) If the supervisory committee consents to convene the extraordinary general meeting or the class meeting, it shall give the notice for such shareholders' general meeting within five days after it has received the request. The consent of the concerned shareholders shall be obtained if any change is to be made to the request in the notice. If the supervisory committee fails to give notice of convening the shareholders' general meeting within the provided time limit, the supervisory committee shall be deemed to have failed to convene and preside the shareholders' general meeting, and the shareholders who individually or in aggregate hold not less than 10% of the Company's shares for more than 90 consecutive days may at their own discretion convene and preside such a meeting.

The general meeting may authorize the board of directors to carry out matters on their behalf, with clear and specific authorization. An ordinary resolution of the shareholders' general meeting shall be passed by affirmative votes representing at least 50% of the voting rights represented by the shareholders (including shareholders' proxies) present at the meeting. A special resolution of the shareholders' general meeting shall be passed by affirmative votes representing at least two-thirds of the voting rights represented by the shareholders (including shareholders' proxies) present at the meeting.

Special Procedures for Voting by a Class of Shareholders and Modification of Rights

In addition to holders of other classes of shares, the holders of the domestic-invested shares and holders of overseas-listed foreign-invested shares shall be deemed to be holders of different classes of shares. Rights conferred on any class of shareholders (“class rights”) may not be varied or abrogated save with the approval of a special resolution of shareholders at a general meeting and by the class shareholders affected at a separate meeting. Article 96 set forth the circumstances which shall be deemed to be variation or abrogation of the rights attaching to a particular class of shares, including but not limited to increasing or decreasing the number of shares of that class, reducing or removing preferential rights attached to shares of that class to receive dividends or the distribution of assets in the event that the Company is liquidated, etc. Shareholders of the affected class, whether or not otherwise having the right to vote at shareholders’ general meetings, have the right to vote at class meetings in respect of certain matters listed in Article 96, but interested shareholder(s) shall not be entitled to vote at such class meetings. Resolutions of a class meeting shall be passed by votes representing two-thirds or more of the voting rights of shareholders of that class present at the relevant meeting who are entitled to vote. Written notice of a class meeting shall be given to all shareholders who are registered as holders of that class in the register of shareholders 45 days before the date of the class meeting. A shareholder who intends to attend the class meeting shall deliver his written reply in respect thereof to the Company 20 days before the date of the class meeting. The special procedures for approval by separate class shareholders shall not apply to the circumstances where the Company issues, upon the approval by a special resolution of its shareholders at a general meeting, either separately or concurrently once every 12 months, not more than 20% of each of its existing issued Domestic-Invested Shares and Overseas-Listed Foreign-Invested Shares.

Share Capital

The Company must have ordinary shares at all times. Subject to the applicable government approvals, the Company may create different classes of shares. Each share of the same class shall carry the same rights and the same benefits. The Company may, based on its operating and development needs, authorize the increase of its capital pursuant to the Articles of Association. The Company may increase its capital by public or non-public offering of shares; by allotting bonus shares to its existing shareholders; by converting common reserve fund into share capital; by any other means which is stipulated by law and administrative regulation and approved the relevant government authorities. Unless otherwise stipulated in the relevant laws or administrative regulations, shares of the Company shall be freely transferable and are not subject to any lien. Domestic-invested shares and overseas-listed foreign-invested shares shall be purchased, sold, donated, inherited and charged on in accordance with the PRC laws and the Company’s Articles of Association. The Company may not accept its own shares as the subject matter of a pledge. Subject to certain conditions, the Company has the power to sell the shares of a shareholder who is untraceable and retain the payment. According to the procedures provided in the Company’s Articles of Association, the Company may reduce its registered capital. The Company may, in accordance with the procedures set out in the Company’s Articles of Association and with the approval of the relevant governing authorities, repurchase its issued shares under certain circumstances. The repurchase may be made by a general offer, stock exchange, off-market agreement, etc. The Company must obtain prior approval of the shareholders in a general meeting (in the manner stipulated in the Company’s Articles of Association) before it can repurchase shares outside of the stock exchange by means of an off-market agreement.

Material Contracts

We have not entered into any material contracts other than in the ordinary course of business and other than those described under “Item 4 — Information on the Company”, “Item 7 — Major Shareholders and Related Party Transactions” or elsewhere in this Form annual report.

Foreign Exchange Controls

The Renminbi currently is not a freely convertible currency. We receive most of our revenues in Renminbi. A portion of our Renminbi revenues must be converted into other currencies to meet our foreign currency obligations, including:

- debt service on foreign currency-denominated debt;
- external capital expenditures and equity investment;
- purchases of imported equipment and materials; and
- payment of any dividends declared with respect to the H Shares.

Under the existing foreign exchange regulations in China, we may undertake current account foreign exchange transactions, including the payment of dividends, without prior approval from the State Administration of Foreign Exchange by producing commercial documents evidencing such transactions, provided that they are processed through Chinese banks licensed to engage in foreign exchange transactions.

Foreign exchange transactions under the capital account, including principal payments with respect to foreign currency-denominated obligations, continue to be subject to limitations and require the prior approval of the State Administration of Foreign Exchange. These limitations could affect our ability to obtain foreign exchange through debt financing, or to obtain foreign exchange for capital expenditures.

We have been, and will continue to be, affected by changes in exchange rates in connection with our ability to meet our foreign currency obligations and will be affected by such changes in connection with our ability to pay dividends on the H Shares in Hong Kong dollars and on ADSs in U.S. dollars. We believe that we have or will be able to obtain sufficient foreign exchange to continue to satisfy these obligations. We do not engage in any financial contract or other arrangement to hedge our currency exposure.

We are not aware of any other PRC laws, decrees or regulations that restrict the export or import of capital or that affect the remittance of dividends, interest or other payments to non-resident holders.

Taxation

The following discussion addresses the main PRC and United States federal income tax consequences of the ownership of H Shares or ADSs purchased held by the investor as capital assets.

PRC Taxation

Dividends and Individual Investors

Pursuant to the Individual Income Tax Law of the PRC, all foreign individuals are subject to a 20% withholding tax on dividends paid by a PRC company on its shares listed overseas, or Overseas Shares, unless specifically exempt by the financial authority of the State Council of the PRC. However, pursuant to the *Notice on the Collection of Individual Income Tax after the Abolishment of Guoshuifa [1993] No. 045*, or Circular 348, issued by the State General Administration of Taxation of the PRC on June 28, 2011, foreign individual shareholders holding H Shares, or individual H shareholders, in a PRC company listed in Hong Kong may be subject to different levels of withholding taxes on dividends based on the tax treaties of their home countries with China. Individual H shareholders, who are residents of Hong Kong or Macau or who enjoy a 10% tax rate on dividends based on the tax treaties of their home countries with China, are subject to a withholding tax rate of 10% with respect to the H-share dividends they receive. For those individual H shareholders whose home countries have tax treaties with China prescribing a tax rate on dividends lower than 10%, the PRC company, whose shares are held by such individual H shareholders, need to make tax filings on behalf of the individual

H shareholders in order for them to enjoy such tax treatment. For individual H shareholders whose home countries have tax treaties with China prescribing a tax rate on dividends between 10% and 20%, the PRC company, whose shares are held by such individual H shareholders, shall withhold the individual income tax at the agreed-upon tax rate. For individual H shareholders whose home countries have no tax treaties with China or whose home countries have tax treaties with China prescribing a tax rate on dividends higher than 20%, the PRC company shall withhold the tax at a rate of 20%.

Dividends and Foreign Enterprises

Pursuant to the *Enterprise Income Tax Law of the PRC* and the implementing rules thereunder, the *Circular on Issues Concerning the Withholding of Corporate Income Tax by PRC Resident Enterprises from Dividends Payable to H Share Non-resident Corporate Shareholders*, and the *Measures for the Administration of the Enjoyment by Non-residents of the Treatments under the Tax Treaties*, when paying any of its H share non-resident corporate shareholders any dividends, we withhold the corporate income tax from such dividends at a rate of 10%. For an H share non-resident corporate shareholder whose home country has a tax treaty with China prescribing a tax rate on dividends lower than 10%, such H share non-resident corporate shareholder may, by itself or through an agent or us, make filings with the competent taxation authority for the treatment under the applicable tax treaty and present the documents evidencing that such shareholder is qualified to be a beneficial owner as defined under the applicable tax treaty.

Tax Treaties

If you are a tax resident or citizen of a country that has entered into a double-taxation treaty with the PRC, you may be entitled to a reduction in the amount of tax withheld, if any, imposed on the payment of dividends. The PRC currently has such treaties with a number of countries, including but not limited to:

- the United States;
- Australia;
- Canada;
- France;
- Germany;
- Japan;
- Malaysia;
- Singapore;
- the United Kingdom; and
- the Netherlands.

Under certain treaties, the rate of withholding tax imposed by China's taxation authorities may be reduced. Pursuant to the *Measures for the Administration of the Enjoyment by Non-residents of the Treatments under the Tax Treaties* promulgated by the State Administration of Taxation on August 27, 2015, non-PRC residents are entitled to the applicable benefit under tax treaties when they make tax filings or upon withholding by third parties and no prior approvals of the taxation authorities are required.

Capital Gains

The *Individual Income Tax Law of the PRC*, provides for a capital gains tax of 20% on individuals. The *Provisions for Implementing the Individual Income Tax Law of the PRC*, provides that the measures to levy individual income tax on the gains realized on the sale of shares will be made in the future by the Ministry of

Finance and subject to the approval of the State Council. However, the Ministry of Finance has not so far promulgated a specific taxation method to levy tax on the capital gains realized by individual holders of H Shares or ADSs from sale of shares. If in the future such specific taxation method is promulgated, an individual holder of H Shares or ADSs may be subject to a 20% tax on capital gains under the *Individual Income Tax Law of the PRC* as amended from time to time, unless exempted or reduced by an applicable double taxation treaty or relevant PRC law or regulation.

Under the *Enterprise Income Tax Law of the PRC*, capital gains realized by foreign enterprises which are non-resident enterprises in the PRC upon the sale of Overseas Shares by PRC companies are generally subject to a PRC withholding tax levied at a rate of 10%, unless exempted or reduced pursuant to an applicable double-taxation treaty or other exemptions.

Shanghai-Hong Kong Stock Connect

In April 2014, China launched the Shanghai-Hong Kong Stock Connect Program, which is a cross-boundary investment channel that connects the Shanghai Stock Exchange and the Hong Kong Stock Exchange. Under the program, investors in each market are able to trade shares on the other market using their local brokers and clearing agencies. In accordance with the current PRC tax policies, foreign investors are temporarily exempt from income tax on capital gains derived from the trading of A-shares under the program and will be subject to a 10% withholding tax on the dividends received under the program. For a shareholder whose home country has tax treaty with China prescribing a tax rate on dividends lower than 10%, such shareholder may by itself or through an agent or the withholding agent, apply to the competent taxation authority for the treatment under the applicable tax treaty and present the documents evidencing that such shareholder is qualified to be a beneficial owner as defined under the applicable tax treaty.

Additional PRC Tax Considerations

Under the Provisional Regulations of the People's Republic of China Concerning the Stamp Duty, a stamp duty is not imposed by the PRC on the transfer of shares, such as the H Shares or ADSs, of PRC publicly traded companies that take place outside of China.

United States Federal Income Taxation

The following is a general discussion of the material United States federal income tax consequences of purchasing, owning and disposing of the H Shares or ADSs if you are a U.S. holder, as defined below, and hold the H Shares or ADSs as capital assets within the meaning of Section 1221 of the Internal Revenue Code of 1986, as amended, or the Code. This discussion does not address all of the tax consequences relating to the purchase, ownership and disposition of the H Shares or ADSs, and does not take into account U.S. holders who may be subject to special rules including:

- tax-exempt entities;
- certain insurance companies;
- broker-dealers;
- traders in securities that elect to mark to market;
- U.S. expatriates;
- U.S. holders liable for alternative minimum tax;
- U.S. holders that own (directly, indirectly, or constructively) 10% or more of the voting power or value of our equity;
- U.S. holders that hold as part of a straddle or a hedging or conversion transaction; or
- U.S. holders whose functional currency is not the U.S. dollar.

This discussion is based on the Code, its legislative history, final, temporary and proposed United States Treasury regulations promulgated thereunder, published rulings and court decisions as in effect on the date hereof, all of which are subject to change, or changes in interpretation, possibly with retroactive effect. In addition, this discussion is based in part upon representations of the depositary and the assumption that each obligation in the deposit agreement and any related agreements will be performed according to its terms.

You are a “U.S. holder” if you are:

- a citizen or resident of the United States for United States federal income tax purposes;
- a corporation, or other entity treated as a corporation for United States federal income tax purposes, created or organized under the laws of the United States, or any state thereof or the District of Columbia;
- an estate the income of which is subject to United States federal income tax without regard to its source; or
- a trust:
 - subject to the primary supervision of a United States court and the control of one or more United States persons; or
 - that has elected to be treated as a United States person under applicable United States Treasury regulations.

If a partnership (or other entity treated as a partnership for United States federal income tax purposes) holds the H Shares or ADSs, the tax treatment of a partner generally will depend on the status of the partner and the activities of the partnership. If you are a partner of a partnership that holds the H Shares or ADSs, we urge you to consult your tax advisors regarding the consequences of the purchase, ownership and disposition of the H Shares or ADSs.

This discussion does not address any aspects of United States taxation other than federal income taxation.

We urge you to consult your tax advisors regarding the United States federal, state, local and non-United States tax consequences of the purchase, ownership and disposition of the H Shares or ADSs.

In general, if you hold American depositary receipts evidencing ADSs, you will be treated as owner of the H Shares represented by the ADSs. The following discussion assumes that we are not a passive foreign investment company, or PFIC, as discussed under “PFIC Rules” below.

Distributions on the H Shares or ADSs

The gross amount of any distribution (without reduction for any PRC tax withheld) we make on the H Shares or ADSs out of our current or accumulated earnings and profits (as determined for United States federal income tax purposes) will be includible in your gross income as dividend income when the distribution is actually or constructively received by you, in the case of the H Shares, or by the depositary in the case of ADSs. Because we do not intend to determine our earnings and profits on the basis of United States federal income tax principles, any distribution paid will generally be treated as a “dividend” for United States federal income tax purposes. Subject to certain limitations, dividends paid to non-corporate U.S. holders, including individuals, currently are eligible for a reduced rate of taxation if we are deemed to be a “qualified foreign corporation” for United States federal income tax purposes. A qualified foreign corporation includes:

- a foreign corporation that is eligible for the benefits of a comprehensive income tax treaty with the United States that includes an exchange of information program; or

- a foreign corporation if its stock with respect to which a dividend is paid (or ADSs backed by such stock) is readily tradable on an established securities market within the United States (as determined for United States federal income tax purposes),

but does not include an otherwise qualified foreign corporation that is a PFIC in the taxable year that the dividend is paid or in the prior taxable year. We believe that we will be a qualified foreign corporation so long as we are not a PFIC and we are considered eligible for the benefits of the Agreement between the Government of the United States of America and the Government of the People's Republic of China for the Avoidance of Double Taxation and the Prevention of Tax Evasion with Respect to Taxes on Income, or the Treaty. Our status as a qualified foreign corporation, however, may change.

Distributions that exceed our current and accumulated earnings and profits will be treated as a return of capital to you to the extent of your tax basis in the H Shares or ADSs and thereafter as capital gains. Any dividend will not be eligible for the dividends-received deduction generally allowed to United States corporations with respect to dividends received from United States corporations. The amount of any distribution of property other than cash will be the fair market value of such property on the date of such distribution.

If we make a distribution paid in HK dollars, you will be considered to receive the U.S. dollar value of the distribution determined at the spot HK dollar/ U.S. dollar rate on the date such distribution is received by you or by the depository, regardless of whether you or the depository convert the distribution into U.S. dollars. Any gain or loss resulting from currency exchange fluctuations during the period from the date the dividend payment is includible in your income to the date you or the depository convert the distribution into U.S. dollars will be treated as United States source ordinary income or loss for foreign tax credit limitation purposes.

Subject to various limitations, any PRC tax withheld from distributions in accordance with PRC law, as limited by the Treaty, as discussed under “— PRC Taxation,” will be deductible or creditable against your United States federal income tax liability. For foreign tax credit limitation purposes, dividends paid on the H Shares or ADSs will be foreign source income, and will be treated as “passive category income” or, in the case of some U.S. holders, “general category income.” You may not be able to claim a foreign tax credit (and instead may claim a deduction) for non-United States taxes imposed on dividends paid on the H Shares or ADSs if you (i) have held the H Shares or ADSs for less than a specified minimum period during which you are not protected from risk of loss with respect to such Shares, or (ii) are obligated to make payments related to the dividends (for example, pursuant to a short sale).

Sale, Exchange or Other Disposition

Upon a sale, exchange or other disposition of the H Shares or ADSs, you will recognize a capital gain or loss for United States federal income tax purposes in an amount equal to the difference between the U.S. dollar value of the amount realized and your tax basis, determined in U.S. dollars, in such H Shares or ADSs. Any gain or loss will generally be United States source gain or loss for foreign tax credit limitation purposes. Capital gain of certain non-corporate U.S. holders, including individuals, is generally taxed at a reduced rate where the property has been held more than one year. Your ability to deduct capital losses is subject to limitations. If any PRC tax is withheld from your gain on a sale, exchange or other disposition of H Shares or ADSs, as discussed under “— PRC Taxation,” such tax would only be creditable against your United States federal income tax liability to the extent that you have foreign source income. However, in the event that such PRC tax is withheld, a U.S. holder that is eligible for the benefits of the Treaty may be able to treat the gain as foreign source income for foreign tax credit satisfaction purposes. You are urged to consult your tax advisors regarding the United States federal income tax consequences if PRC tax is withheld from your gain on the sale, exchange or other disposition of H Shares or ADSs, including the availability of a foreign tax credit under your particular circumstances.

If you are paid in a currency other than U.S. dollars, any gain or loss resulting from currency exchange fluctuations during the period from the date of the payment resulting from the sale, exchange or other disposition

to the date you convert the payment into U.S. dollars will be treated as United States source ordinary income or loss for foreign tax credit limitation purposes.

PFIC Rules

In general, a foreign corporation is a PFIC for United States federal income tax purposes for any taxable year in which, after applying relevant look-through rules with respect to the income and assets of subsidiaries:

- 75% or more of its gross income consists of passive income, such as dividends, interest, rents and royalties; or
- 50% or more of the average quarterly value of its assets consists of assets that produce, or are held for the production of, passive income.

For this purpose, passive income generally includes dividends, interest, certain types of rents and royalties, annuities, net gains from the sale or exchange of property producing such income, net gains from commodity transactions, net foreign currency gains and net income from notional principal contracts. In addition, cash, cash equivalents, securities held for investment purposes, and certain other similar assets are generally categorized as passive assets.

We believe that we did not meet either of the PFIC tests in the taxable year that ended December 31, 2018 and believe that we will not meet either of the PFIC tests in the current or subsequent taxable years and therefore will not be treated as a PFIC for such periods. We must make a separate determination after the close of each taxable year as to whether we were a PFIC for that year. Accordingly, there can be no assurance that we will not be a PFIC in the current or subsequent taxable years.

If we were a PFIC in any taxable year that you held the H Shares or ADSs, you generally would be subject to special rules with respect to “excess distributions” made by us on the H Shares or ADSs and with respect to gain from your disposition of the H Shares or ADSs. An “excess distribution” generally is defined as the excess of the distributions you receive with respect to the H Shares or ADSs in any taxable year over 125% of the average annual distributions you have received from us during the shorter of the three preceding years or your holding period for the H Shares or ADSs. Generally, you would be required to allocate any excess distribution or gain from the disposition of the H Shares or ADSs ratably over your holding period for the H Shares or ADSs. The portion of the excess distribution or gain allocated to a prior taxable year, other than a year prior to the first year in which we became a PFIC, would be taxed at the highest United States federal income tax rate on ordinary income in effect for such taxable year, and you would be subject to an interest charge on the resulting tax liability, determined as if the tax liability had been due with respect to such particular taxable years. The portion of the excess distribution or gain that is not allocated to prior taxable years, together with the portion allocated to the years prior to the first year in which we became a PFIC, would be included in your gross income for the taxable year of the excess distribution or disposition and taxed as ordinary income.

The foregoing rules with respect to excess distributions and dispositions may be avoided or reduced if you are eligible for and timely make a valid “mark-to-market” election. If your H Shares or ADSs were treated as shares regularly traded on a “qualified exchange” for United States federal income tax purposes and a valid and timely mark-to-market election was made, in calculating your taxable income for each taxable year, you generally would be required to take into account as ordinary income or loss the difference, if any, between the fair market value and the adjusted tax basis of your H Shares or ADSs at the end of your taxable year. However, the amount of loss you would be allowed is limited to the extent of the net amount of previously included income as a result of the mark-to-market election. The New York Stock Exchange on which the ADSs are traded is a qualified exchange for United States federal income tax purposes.

Alternatively, a timely election to treat us as a qualified electing fund under Section 1295 of the Code could be made to avoid the foregoing rules with respect to excess distributions and dispositions. You should be aware,

however, that if we become a PFIC, we do not intend to satisfy record keeping requirements that would permit you to make a qualified electing fund election.

If you own the H Shares or ADSs during any year that we are a PFIC, you must annually file Internal Revenue Service, or IRS, Form 8621 (or any other form subsequently specified by the United States Treasury Department), subject to certain exceptions based on the value of PFIC stock held. We encourage you to consult your own tax advisor concerning the United States federal income tax consequences of holding the H Shares or ADSs that would arise if we were considered a PFIC.

Backup Withholding and Information Reporting

In general, information reporting requirements will apply to dividends with respect to the H Shares or ADSs or the proceeds of the sale, exchange or other disposition of the H Shares or ADSs paid within the United States, and in some cases, outside of the United States, other than to various exempt recipients, including corporations. In addition, you may, under some circumstances, be subject to “backup withholding” with respect to dividends paid on the H Shares or ADSs or the proceeds of any sale, exchange or other disposition of the H Shares or ADSs, unless you:

- are a corporation or fall within various other exempt categories, and, when required, demonstrate this fact; or
- provide a correct taxpayer identification number on a properly completed IRS Form W-9 or a substitute form, certify that you are exempt from backup withholding and otherwise comply with applicable requirements of the backup withholding rules.

Backup withholding is not an additional tax. Any amount withheld under the backup withholding rules generally will be creditable against your United States federal income tax liability provided that you furnish the required information to the IRS in a timely manner and you may obtain a refund of any excess amounts withheld under the backup withholding rules by filing the appropriate claim for refund with the IRS in a timely manner and furnishing any required information. If you do not provide a correct taxpayer identification number you may be subject to penalties imposed by the IRS.

In addition, certain U.S. holders who are individuals that hold certain foreign financial assets (which may include the H Shares or ADSs) may be required to report information relating to such assets, subject to certain exceptions. You should consult your own tax advisors regarding the effect, if any, of this requirement on your ownership and disposition of the H Shares or ADSs.

Documents on Display

You may find our annual reports on Form 20-F, the exhibits and other documents filed with the SEC on its website www.sec.gov.

The Commission allows us to “incorporate by reference” the information we file with the Commission. This means that we can disclose important information to you by referring you to another document filed separately with the Commission. The information incorporated by reference is considered to be part of this annual report on Form 20-F.

Item 11 — *QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK*

In the normal course of business, we hold or issue various financial instruments which expose us to interest rate and foreign exchange rate risks. Additionally, our operations are affected by certain commodity price movements. We historically have not used derivative instruments for hedging or trading purposes. Such activities

are subject to policies approved by our senior management. Substantially all of the financial instruments we hold are for purposes other than trading. We regard an effective market risk management system as an important element of our treasury function and are currently enhancing our systems. A primary objective of our market risk management is to implement certain methodologies to better measure and monitor risk exposures.

The following discussions and tables, which constitute “forward-looking statements” that involve risks and uncertainties, summarize our market-sensitive financial instruments including fair value, maturity and contract terms. Such discussions address market risk only and do not present other risks which we face in the normal course of business.

Interest Rate Risk

Our interest risk exposure arises from changing interest rates. The tables below provide information about our financial instruments including various debt obligations that are sensitive to changes in interest rates. The tables present principal cash flows and related weighted-average interest rates at expected maturity dates. Weighted-average variable rates are based on effective rates as of December 31, 2016, 2017 and 2018. The information is presented in Renminbi equivalents, our reporting currency.

Foreign Exchange Rate Risk

We conduct our business primarily in Renminbi. However, a portion of our RMB revenues are converted into other currencies to meet foreign currency financial instrument obligations and to pay for imported equipment and other materials. Foreign currency payments for imported equipment represented 1.1%, 3.2% and 3.5% of our total payments for equipment in 2016, 2017 and 2018, respectively. Foreign currency payments for other imported materials represented 0.02%, 0.01% and 0.0002% of our total payments for materials in 2016, 2017 and 2018, respectively.

The Renminbi is not a freely convertible currency. Limitation in foreign exchange transactions imposed by the PRC government could cause future exchange rates to vary significantly from current or historical exchange rates.

The tables below provide information about our financial instruments including foreign currency denominated debt instruments that are sensitive to foreign currency exchange rates. The tables below summarize such information by presenting principal cash flows and related weighted-average interest rates at expected maturity dates in RMB equivalents, using the exchange rates in effect as of December 31, 2016, 2017 and 2018, respectively.

December 31, 2018

	Expected Maturity Date							Percentage to Total Long-Term Borrowings	Fair Value
	2019	2020	2021	2022	2023	Thereafter	Total		
(RMB equivalent in millions, except percentages)									
Long term debt									
Loans in RMB									
Fixed Rate Loan Amount	36,351	10,583	1,310	26,585	2,626	20,114	97,569	28.30%	94,272
Average interest rate	4.31%	3.99%	4.43%	3.66%	4.30%	4.58%	—	—	—
Variable Rate Loan Amount	32,508	3,091	28,339	165	266	7,624	71,993	20.88%	71,993
Average interest rate	3.94%	4.53%	4.08%	4.85%	4.89%	4.11%	—	—	—
Loans in Euro									
Fixed Rate Loan Amount	13	—	—	—	—	52	65	0.02%	166
Average interest rate	2.00%	—	—	—	—	0.95%	—	—	—
Variable Rate Loan Amount	—	2,354	—	—	—	—	2,354	0.68%	2,354
Average interest rate	—	2.35%	—	—	—	—	—	—	—
Loans in United States Dollar									
Fixed Rate Loan Amount	36	36	36	17	9	110	244	0.07%	206
Average interest rate	1.17%	1.17%	1.17%	0.75%	0.09%	0.04%	—	—	—
Variable Rate Loan Amount	2,483	48,621	12,752	12,890	—	—	76,746	22.26%	76,746
Average interest rate	2.58%	4.55%	4.71%	4.04%	—	—	—	—	—
Loans in Japanese Yen									
Fixed Rate Loan Amount	8	—	3	3	3	6	23	0.01%	27
Average interest rate	2.40%	—	2.30%	2.30%	2.30%	0.36%	—	—	—
Variable Rate Loan Amount	—	—	—	—	—	—	—	—	—
Average interest rate	—	—	—	—	—	—	—	—	—
Loans in Hong Kong Dollar									
Variable Rate Loan Amount	664	6	2	1	—	—	673	0.20%	673
Average interest rate	2.57%	2.00%	2.00%	2.00%	—	—	—	—	—
Debentures in Canadian Dollar									
Fixed Rate Loan Amount	—	—	—	—	—	—	—	—	—
Average interest rate	—	—	—	—	—	—	—	—	—
Variable Rate Loan Amount	—	—	—	—	—	—	—	—	—
Average interest rate	—	—	—	—	—	—	—	—	—
Debentures in United States Dollar									
Fixed Rate Loan Amount	—	—	—	—	—	—	—	—	—
Average interest rate	—	—	—	—	—	—	—	—	—
Debentures in RMB									
Fixed Rate Loan Amount	3,307	2,000	31,000	2,000	8,300	6,700	53,307	15.46%	52,287
Average interest rate	1.63%	4.30%	3.09%	4.90%	4.24%	3.96%	—	—	—
Medium term note in RMB									
Fixed Rate Loan Amount	—	—	35,000	—	—	—	35,000	10.15%	34,458
Average interest rate	—	—	2.20%	—	—	—	—	—	—
Medium term note in United State Dollar									
Fixed Rate Loan Amount	—	3,410	—	—	—	3,408	6,818	1.98%	6,696
Average interest rate	—	2.87%	—	—	—	3.76%	—	—	—
Total	75,370	70,101	108,442	41,661	11,204	38,014	344,792	100.00%	339,878

December 31, 2017

	Expected Maturity Date							Percentage to Total Long-Term Borrowings	Fair Value
	2018	2019	2020	2021	2022	Thereafter	Total		
(RMB equivalent in millions, except percentages)									
Long term debt									
Loans in RMB									
Fixed Rate Loan Amount	244	35,999	6,044	13,109	23,083	30,594	109,073	29.37%	92,939
Average interest rate	3.28%	4.33%	4.30%	3.51%	3.86%	4.56%	—	—	—
Variable Rate Loan Amount	33,142	6,750	2,802	66	232	6,650	49,642	13.37%	49,642
Average interest rate	3.80%	4.03%	4.57%	4.55%	4.74%	3.98%	—	—	—
Loans in Euro									
Fixed Rate Loan Amount	13	21	8	—	—	49	91	0.02%	113
Average interest rate	—	—	—	—	—	4.08%	—	—	—
Variable Rate Loan Amount	—	—	2,341	—	—	—	2,341	0.63%	2,341
Average interest rate	—	—	2.35%	—	—	—	—	—	—
Loans in United States Dollar									
Fixed Rate Loan Amount	36	36	36	36	18	106	268	0.07%	240
Average interest rate	1.11%	1.11%	1.11%	1.11%	0.68%	0.05%	—	—	—
Variable Rate Loan Amount	12,084	13,140	38,577	218	14,522	115	78,656	21.18%	78,656
Average interest rate	3.53%	3.68%	3.78%	4.13%	3.62%	4.35%	—	—	—
Loans in Japanese Yen									
Fixed Rate Loan Amount	17	4	3	3	3	7	37	0.01%	41
Average interest rate	—	—	—	—	—	—	—	—	—
Variable Rate Loan Amount	—	—	—	—	—	—	—	—	—
Average interest rate	—	—	—	—	—	—	—	—	—
Loans in Hong Kong Dollar									
Variable Rate Loan Amount	—	620	—	—	—	—	620	0.17%	620
Average interest rate	—	—	—	—	—	—	—	—	—
Debentures in Canadian Dollar									
Fixed Rate Loan Amount	—	—	—	—	—	—	—	—	—
Average interest rate	—	—	—	—	—	—	—	—	—
Variable Rate Loan Amount	—	—	—	—	—	—	—	—	—
Average interest rate	—	—	—	—	—	—	—	—	—
Debentures in United States Dollar									
Fixed Rate Loan Amount	—	—	—	—	—	—	—	—	—
Average interest rate	—	—	—	—	—	—	—	—	—
Debentures in RMB									
Fixed Rate Loan Amount	16,000	3,230	2,000	31,000	2,000	15,000	69,230	18.64%	62,631
Average interest rate	4.47%	1.61%	4.30%	—	4.90%	4.12%	—	—	—
Medium term note in RMB									
Fixed Rate Loan Amount	20,000	—	20,000	15,000	—	—	55,000	14.81%	50,333
Average interest rate	4.03%	—	3.85%	3.45%	—	—	—	—	—
Medium term note in United State Dollar									
Fixed Rate Loan Amount	—	—	3,218	—	—	3,218	6,436	1.73%	6,151
Average interest rate	—	—	2.89%	—	—	3.76%	—	—	—
Total	81,536	59,800	75,029	59,432	39,858	55,739	371,394	100.00%	343,707

December 31, 2016

	Expected Maturity Date							Percentage to Total Long-Term Borrowings	Fair Value	
	2017	2018	2019	2020	2021	Thereafter	Total			
(RMB equivalent in millions, except percentages)										
Long term debt										
Loans in RMB										
Fixed Rate Loan Amount	9,796	245	36,317	10,112	3,110	40,143	99,723	22.45%	97,691	
Average interest rate	3.83%	3.27%	4.35%	3.96%	2.09%	4.61%	—	—	—	
Variable Rate Loan Amount	13,193	33,639	6,634	70	218	31,998	85,752	19.30%	85,752	
Average interest rate	3.94%	3.81%	4.05%	4.86%	4.89%	3.93%	—	—	—	
Loans in Euro										
Fixed Rate Loan Amount	12	24	24	16	9	6	91	0.02%	106	
Average interest rate	2.03%	2.67%	2.67%	2.96%	3.72%	3.56%	—	—	—	
Variable Rate Loan Amount	—	—	—	2,197	—	—	2,197	0.49%	2,197	
Average interest rate	—	—	—	2.35%	—	—	—	—	—	
Loans in United States Dollar										
Fixed Rate Loan Amount	38	39	38	38	38	130	321	0.07%	297	
Average interest rate	1.12%	1.09%	1.12%	1.12%	1.12%	0.14%	—	—	—	
Variable Rate Loan Amount	13,732	20,494	14,684	41,596	779	368	91,653	20.63%	91,653	
Average interest rate	2.33%	3.13%	3.27%	3.22%	5.66%	3.99%	—	—	—	
Loans in Japanese Yen										
Fixed Rate Loan Amount	14	22	7	4	3	7	57	0.01%	60	
Average interest rate	2.52%	2.38%	2.46%	2.00%	2.66%	2.26%	—	—	—	
Variable Rate Loan Amount	—	—	—	—	—	—	—	—	—	
Average interest rate	—	—	—	—	—	—	—	—	—	
Loans in Hong Kong Dollar										
Variable Rate Loan Amount	—	—	666	—	—	—	666	0.15%	666	
Average interest rate	—	—	2.27%	—	—	—	—	—	—	
Debentures in Canadian Dollar										
Fixed Rate Loan Amount	—	—	—	—	—	—	—	—	—	
Average interest rate	—	—	—	—	—	—	—	—	—	
Variable Rate Loan Amount	—	—	—	—	—	—	—	—	—	
Average interest rate	—	—	—	—	—	—	—	—	—	
Debentures in United States Dollar										
Fixed Rate Loan Amount	—	—	—	—	—	—	—	—	—	
Average interest rate	—	—	—	—	—	—	—	—	—	
Debentures in RMB										
Fixed Rate Loan Amount	16,000	16,000	3,350	—	31,000	17,000	83,350	18.76%	81,637	
Average interest rate	4.55%	4.47%	1.63%	—	3.09%	4.21%	—	—	—	
Medium term note in RMB										
Fixed Rate Loan Amount	18,630	20,000	—	20,000	15,000	—	73,630	16.57%	71,999	
Average interest rate	4.21%	4.03%	—	3.85%	3.45%	—	—	—	—	
Medium term note in United State Dollar										
Fixed Rate Loan Amount	—	—	—	3,431	—	3,431	6,862	1.55%	6,747	
Average interest rate	—	—	—	2.88%	—	3.75%	—	—	—	
Total	71,415	90,463	61,720	77,464	50,157	93,083	444,302	100.00%	438,805	

See “Item 3 — Key Information — Risk Factors — Risks Related to Pricing and Exchange Rate”.

Commodity Price Risk

We are engaged in a wide range of petroleum-related activities and purchase certain quantity of oil from the international market to meet our demands. The prices of crude oil and refined products in the international market are affected by various factors such as changes in global and regional politics and economy, the demand and supply of crude oil and refined products, as well as unexpected events and disputes with international repercussions. The domestic crude oil price is determined with reference to the international price of crude oil whereby the prices of domestic refined products were allowed to adjust more in line with the prices in the

international crude oil market. Other than certain subsidiaries of our company, we generally do not use any derivative instruments to evade such price risks. See “Item 3 — Key Information — Risk Factors — Risks Related to Pricing and Exchange Rate”.

Item 12 — DESCRIPTION OF SECURITIES OTHER THAN EQUITY SECURITIES

Fees paid by our ADS holders

The Bank of New York Mellon, the depositary of our ADS program, collects its fees for delivery and surrender of ADSs directly from investors depositing shares or surrendering ADSs for the purpose of withdrawal or from intermediaries acting for them. The depositary collects fees for making distributions to investors by deducting those fees from the amounts distributed or by selling a portion of distributable property to pay the fees. The depositary may refuse to deliver ADSs or the deposited shares or provide any distributions until its fees for those services are paid.

Persons Depositing or Withdrawing Shares Must Pay:	For:
\$5.00 (or less) per 100 ADSs (or portion thereof)	Issuance of ADSs, including issuances resulting from a distribution of shares or rights or other property
	Cancellation of ADSs for the purpose of withdrawal, including if the deposit agreement terminates
\$0.02 (or less) per ADS (or portion thereof)	Any cash distribution to ADS holders
A fee equivalent to the fee that would be payable if securities distributed to you had been shares and the shares had been deposited for issuance of ADSs	Distribution of securities distributed to holders of deposited securities which are distributed by the depositary to ADS holders
Registration or transfer fees	Transfer and registration of shares on our share register to or from the name of the depositary or its agent when you deposit or withdraw shares
Expenses of the depositary	Cable, telex and facsimile transmissions (when expressly provided in the deposit agreement)
	Converting foreign currency to U.S. dollars
Taxes and other governmental charges the depositary or the custodian have to pay on any ADS or share underlying an ADS, for example, stock transfer taxes, stamp duty or withholding taxes	As necessary
Any charges incurred by the depositary or its agents for servicing the deposited securities	As necessary

Fees and Payments from the Depositary to Us

In the year ended December 31, 2018, we received from the depositary a reimbursement of US\$356,417.58, net of withholding tax, for our continuing annual stock exchange listing fees and our expenses incurred in connection with investor relationship programs. In addition, the depositary has agreed to reimburse us certain amount per year of the facility, including but not limited to, investor relations expenses or any other American depositary receipts program related expenses. The amount of such reimbursements is subject to certain limits.

PART II

Item 13 — DEFAULTS, DIVIDENDS ARREARAGES AND DELINQUENCIES

None.

Item 14 — MATERIAL MODIFICATIONS TO THE RIGHTS TO SECURITY HOLDERS AND USE OF PROCEEDS

None.

Item 15 — CONTROLS AND PROCEDURES

Evaluation of the Management on Disclosure Controls and Procedures

Our Chairman, who currently performs the function of Chief Executive Officer, and our Chief Financial Officer, after evaluating the effectiveness of our disclosure controls and procedures (as defined in the United States Exchange Act Rules 13a-15(e) and 15d(e)) as of the end of the period covered by this annual report, have concluded that, as of such date, our company's disclosure controls and procedures were effective to ensure that material information required to be disclosed in the reports that we file and furnish under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission's rules and regulations and that such information is accumulated and communicated to our company's management, including our principal executive and financial officers, as appropriate, to allow timely decisions regarding required disclosure.

Management's Report on Internal Control over Financial Reporting

Our company's management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Exchange Act Rules 13a-15(f). Under the supervision and with the participation of our company's management, including our principal executive officer and principal financial officer, our company evaluated the effectiveness of its internal control over financial reporting based on criteria established in the framework in *Internal Control — Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, our company's management has concluded that our internal control over financial reporting was effective as of December 31, 2018.

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 and procedures may deteriorate.

The effectiveness of our company's internal control over financial reporting as of December 31, 2018 has been audited by KPMG Huazhen LLP, our company's independent registered public accountants, as stated below.

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
PetroChina Company Limited:

Opinion on Internal Control over Financial Reporting

We have audited PetroChina Company Limited and subsidiaries' (the "Company") 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 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.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated statements of financial position of the Company as of December 31,

2018 and 2017, the related consolidated statements of comprehensive income, changes in equity, and cash flows for each of the years in the three-year period ended as of December 31, 2018, and the related notes (collectively, the consolidated financial statements), and our report dated April 29, 2019 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible 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 internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. 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 audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 Huazhen LLP**
Beijing, China
April 29, 2019

Changes in Internal Control over Financial Reporting

During the year ended December 31, 2018, there were no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our company's internal control over financial reporting. On May 14, 2013, the COSO published an updated Internal Control — Integrated Framework (2013) and related illustrative documents. We adopted the new framework in 2014.

Item 16A — AUDIT COMMITTEE FINANCIAL EXPERT

Our audit committee is composed of two non-executive independent directors, Mr. Lin Boqiang and Mr. Zhang Biyi, and one non-executive director, Mr. Liu Yuezhen. See “Item 6 — Directors, Senior Management and Employees — Board Practices — Audit Committee”. Mr. Zhang Biyi, our non-executive independent director has been confirmed as a “financial expert” as defined in Item 16A of Form 20-F.

Item 16B — CODE OF ETHICS

We adopted our code of business conduct and ethics for senior management on March 23, 2004 and our code of business conduct and ethics for employees on March 2, 2005 and have disclosed the content of both codes on our website.

These two Codes of Ethics may be accessed as follows:

1. From our main web page, first click on “Investor Relations”.
2. Next, click on “Corporate Governance Structure”.
3. Finally, click on “Code of Ethics for Senior Management” or “Code of Ethics for Employees of PetroChina Company Limited”.

Item 16C — PRINCIPAL ACCOUNTANT FEES AND SERVICES

KPMG Huazhen LLP served as our independent accountant for the fiscal years of 2017 and 2018. The office of KPMG Huazhen LLP is located at 8th Floor, KPMG Tower, Oriental Plaza, 1 East Chang An Avenue, Beijing.

The following table presents the aggregate fees paid by us (not including our subsidiaries) for professional audit services, tax and other services rendered by KPMG Huazhen LLP to us for each of the years ended December 31, 2017 and 2018, respectively.

	December 31,	
	2017	2018
	RMB	RMB
	(In millions)	
Audit fees	53	53
Audit-related fees	—	—
Tax fees	—	—
All other fees	—	—
Total	<u>53</u>	<u>53</u>

The auditors’ remuneration above represented the annual fees paid by us for the years indicated. The remuneration did not include fees of RMB52 million (2017: RMB52 million) paid by our subsidiaries to KPMG Huazhen LLP and its network firms which primarily included audit fees of RMB43 million (2017: RMB40 million), audit-related fees of RMB6 million (2017: RMB8 million) and tax fees of RMB2 million (2017: RMB3 million), and other service fees of RMB1 million (2017: RMB1 million), respectively.

Audit Committee Pre-approved Policies and Procedures

Currently, all audit services to be provided by our independent registered public accountant, KPMG Huazhen LLP, must be approved by our audit committee.

During the year ended December 31, 2018, services relating to all non-audit related fees provided to us by KPMG Huazhen LLP were approved by our audit committee in accordance with the de minimis exception to the pre-approval requirement provided by paragraph (c)(7)(i)(C) of Rule 2-01 of Regulation S-X.

Item 16D — EXEMPTIONS FROM LISTING STANDARDS FOR AUDIT COMMITTEES

We rely on an exemption contained in paragraph (b)(1)(iv)(D) of Rule 10A-3 under the Securities and Exchange Act of 1934, as amended, from the New York Stock Exchange listing requirement that each member of the audit committee of a listed issuer must be independent. Our single non-independent audit committee member, who is a representative of CNPC, has only observer status and is not entitled to take any action at the audit committee of our board of directors, which qualifies us for the exemption from the independence requirements available under paragraph (b)(1)(iv)(D) of Rule 10A-3. See “Item 6 — Directors, Senior Management and Employees — Board Practice — Audit Committee.” We believe our reliance on this exemption does not have any adverse effect on the ability of our audit committee to act independently.

Item 16E — PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

Not applicable.

Item 16F — CHANGE IN REGISTRANT’S CERTIFYING ACCOUNTANT

Not applicable.

Item 16G — CORPORATE GOVERNANCE

We are incorporated under the laws of the PRC, with A Shares publicly traded on the Shanghai Stock Exchange, or the SSE, and H Shares publicly traded on the Hong Kong Stock Exchange, or the HKSE, and American Deposit Shares representing H Shares on the NYSE. As a result, our corporate governance framework is subject to the mandatory provisions of the PRC Company Law and the Corporate Governance Rules as well as the securities laws, regulations and the listing rules of Hong Kong and the United States.

The following discussion summarizes the significant differences between our corporate governance practices and those that would apply to a U.S. domestic issuer under the NYSE corporate governance rules.

Director Independence

Under the NYSE corporate governance rule 303A.01, a listed company must have a majority of independent directors on its board of directors. A company of which more than 50% of the voting power is held by an individual, a group or another company, or a controlled company, is not required to comply with this requirement. We are not required under the PRC Company Law and the HKSE Listing Rules to have a majority of independent directors on our board of directors. As of the date of this report, five of our 10 directors were independent non-executive directors.

Under the NYSE corporate governance rule 303A.03, the non-management directors of a listed company must meet at regularly scheduled executive sessions without management. There are no mandatory requirements under the PRC Company Law and the HKSE Listing Rules that a listed company should hold, and we currently do not hold, such executive sessions.

Nominating/Corporate Governance Committee

Under the NYSE corporate governance rule 303A.04, a listed company must have a nominating/corporate governance committee composed entirely of independent directors, with a written charter that covers certain

minimum specified duties, but a controlled company is not required to comply with this requirement. The Corporate Governance Code as amended by the Stock Exchange of Hong Kong provides that issuers shall establish a nominating committee, and a majority of which should be independent non-executive directors and the chairman shall be served by an independent non-executive director or the board chairman. We are not required under the PRC Company Law to have a nominating/corporate governance committee. We set up a nominating committee in August 2015, which consists of the chairman of our board of directors and two independent directors.

Compensation Committee

Under the NYSE corporate governance rule 303A.05, a listed company must have a compensation committee composed entirely of independent directors, with a written charter that covers certain minimum specified duties. A controlled company is not required to comply with this requirement. We are not required under the PRC Company Law to have a compensation committee. Under the Corporate Governance Code of the HKSE Listing Rules, a listed company must have a remuneration committee composed of a majority of independent non-executive directors, with a written term of references that covers certain minimum specified duties.

We currently do not have a compensation committee composed entirely of independent directors. However, we have an evaluation and remuneration committee including a majority of independent non-executive directors.

Corporate Governance Guidelines

Under the NYSE corporate governance rule 303A.09, a listed company must adopt and disclose corporate governance guidelines that cover certain minimum specified subjects. We are not required under the PRC Company Law and the HKSE Listing Rules to have, and we do not currently have, formal corporate governance guidelines. However, we have the Articles of Association, the Rules and Procedures of Board of Directors and the Trial Implementation Rules for Compensation of Senior Management that address the following subjects:

- director qualification standards and responsibilities;
- key board committee responsibilities;
- director compensation; and
- director orientation and continuing education.

In 2009, we formulated the Administrative Measures on Independent Directors, the Administrative Rules on Holding of Company Shares by Directors, Supervisors and Senior Management, the Administrative Measures on Investor's Relationship and the rules and procedures of the Audit Committee, the Performance Review and Compensation Committee, the Investment and Development Committee, and the Safety and Environmental Protection Committee. All these policies have further enhanced our corporate governance system and can ensure the better performance of duties of directors, supervisors, senior managers and committee members. In 2015, we set up a nominating committee and formulated the Rules of Procedures of the Nominating Committee.

In 2017, we revised our articles of association according to relevant regulatory requirements. We added the cumulative voting provisions, and defined the role of the CPC's core leadership in the articles of association. Our by-laws with respect to general meeting, board of directors and supervisory committee were also amended in line with the amendment to the articles.

Code of Business Conduct and Ethics

Under the NYSE corporate governance rule 303A.10, a listed company must adopt and disclose its code of business conduct and ethics for directors, officers and employees, and promptly disclose any waivers of the code

for directors or executive officers. See “Item 16B — Code of Ethics”. We are not required under the PRC Company Law and the HKSE Listing Rules to have, and we do not currently have, a code of business conduct and ethics for directors. However, pursuant to the HKSE Listing Rules, all of our directors must comply with the Model Code for Securities Transactions by Directors of Listed Companies (the “Model Code”) as set out in the Listing Rules. The Model Code sets forth required standards with which the directors of a listed company must comply in securities transactions of the listed company.

CEO Certification Requirements

Under the NYSE corporate governance rule 303A.12(a), each listed company’s 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 is not required under the PRC Company Law and the HKSE Listing Rules to submit, and our CEO does not currently submit, such certification. Instead, our chairman, who performs the duties of the CEO, does the certification.

Item 16H — MINE SAFETY DISCLOSURE

Not applicable.

PART III

Item 17— FINANCIAL STATEMENTS

We have elected to provide the financial statements and related information specified in Item 18 in lieu of Item 17.

Item 18 — FINANCIAL STATEMENTS

See page F-1 to F-70 following Item 19.

Item 19 — EXHIBITS

(a) See Item 18 for a list of the financial statements as part of this annual report.

(b) Exhibits to this annual report.

Exhibit Number	Description of Exhibits
1.1	Articles of Association (as amended on October 26, 2017) (English translation) ⁽³⁾
4.1	Non-competition Agreement between CNPC and PetroChina (English translation) ⁽¹⁾
4.2	Trademark Licensing Contract between CNPC and PetroChina (English translation) ⁽¹⁾
4.3	Patent and Know-how Licensing Contract between CNPC and PetroChina (English translation) ⁽¹⁾
4.4	Computer Software Licensing Contract between CNPC and PetroChina (English translation) ⁽¹⁾
4.5	Contract for Transfer of Rights under Production Sharing Contracts between CNPC and PetroChina (English translation) ⁽¹⁾
4.6	Contract for the Supervision of Certain Sales Enterprises between CNPC and PetroChina (English translation) ⁽¹⁾
4.7	Comprehensive Products and Services Agreement, dated August 24, 2017, between CNPC and PetroChina ⁽⁴⁾
4.8	Land Lease Agreement, dated August 24, 2017, between CNPC and PetroChina ⁽⁴⁾

Exhibit Number	Description of Exhibits
4.9	Building Lease Agreement, dated August 24, 2017, between CNPC and PetroChina ⁽⁴⁾
4.10*	Annual Crude Oil Mutual Supply Framework Agreement, dated December 26, 2018, between China Petroleum and Chemical Corporation and PetroChina (English translation)
8.1*	List of major subsidiaries
11.1	Code of Ethics for Senior Management ⁽²⁾
11.2	Code of Ethics for Employees ⁽²⁾
12.1*	Certification of Chief Executive Officer required by Section 302 of the Sarbanes-Oxley Act of 2002
12.2*	Certification of Chief Financial Officer required by Section 302 of the Sarbanes-Oxley Act of 2002
13.1*	Certification of Chief Executive Officer required by 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
13.2*	Certification of Chief Financial Officer required by 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
15.1*	Reserves Report for the year ended on December 31, 2018 prepared by DeGolyer and MacNaughton
15.2*	Reserves Audit Report for the year ended on December 31, 2018 prepared by DeGolyer and MacNaughton
15.3*	Reserves Report for the year ended on December 31, 2018 prepared by Ryder Scott
15.4*	Reserves Report for the year ended on December 31, 2018 prepared by GLJ Petroleum Consultants
15.5*	Reserves Report for the year ended on December 31, 2018 prepared by McDaniel & Associates Consultants, Ltd.
15.6*	Consent Letter of Ryder Scott
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

* To be filed as exhibits to this Form 20-F.

- (1) Paper filing; incorporated by reference to our Registration Statement on Form F-1 (File No. 333-11566) filed with the Commission, as declared effective on March 29, 2000.
- (2) Incorporated by reference to our annual report on Form 20-F for the fiscal year ended December 31, 2004 (File No. 1-15006) filed with the Commission.
- (3) Incorporated by reference to our report on Form 6-K (File No. 1-15006) filed with the Commission on October 26, 2017.
- (4) Incorporated by reference to our annual report on Form 20-F for the fiscal year ended December 31, 2017 (File No. 1-15006) filed with the Commission.

SIGNATURE

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

PETROCHINA COMPANY LIMITED

/s/Wu Enlai

Name: Wu Enlai

Title: Secretary to Board of Directors

Date: April 29, 2019

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Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
PetroChina Company Limited:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated statements of financial position of PetroChina Company Limited and subsidiaries (the Company) as of December 31, 2018 and 2017, the related consolidated statements of comprehensive income, changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements 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 three-year period ended December 31, 2018, in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), 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, and our report dated April 29, 2019 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the 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 audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits 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 audits 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. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG Huazhen LLP

We have served as the Company's auditor since 2013.

Beijing, China
April 29, 2019

PETROCHINA COMPANY LIMITED
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
For the Years Ended December 31, 2018, 2017 and 2016
(Amounts in millions, except for the per share data)

	<u>Notes</u>	<u>2018</u>	<u>2017</u> ^{Note}	<u>2016</u> ^{Note}
		<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
REVENUE	6	2,353,588	2,015,890	1,616,903
OPERATING EXPENSES				
Purchases, services and other		(1,539,010)	(1,285,716)	(959,640)
Employee compensation costs	8	(144,027)	(125,384)	(117,662)
Exploration expenses, including exploratory dry holes		(18,726)	(23,884)	(18,576)
Depreciation, depletion and amortization		(231,929)	(237,375)	(218,147)
Selling, general and administrative expenses		(73,986)	(77,042)	(74,255)
Taxes other than income taxes	9	(217,267)	(198,022)	(189,608)
Other (expenses)/ income, net		(7,646)	(745)	21,620
TOTAL OPERATING EXPENSES		(2,232,591)	(1,948,168)	(1,556,268)
PROFIT FROM OPERATIONS		120,997	67,722	60,635
FINANCE COSTS				
Exchange gain		12,475	8,217	12,828
Exchange loss		(11,330)	(9,311)	(11,571)
Interest income		3,769	2,901	2,491
Interest expense	10	(22,352)	(22,408)	(23,348)
TOTAL NET FINANCE COSTS		(17,438)	(20,601)	(19,600)
SHARE OF PROFIT OF ASSOCIATES AND JOINT VENTURES		11,647	5,968	4,105
PROFIT BEFORE INCOME TAX EXPENSE	7	115,206	53,089	45,140
INCOME TAX EXPENSE	12	(42,790)	(16,296)	(15,768)
PROFIT FOR THE YEAR		72,416	36,793	29,372
OTHER COMPREHENSIVE INCOME				
Items that will not be reclassified to profit or loss				
Fair value loss from financial assets measured at fair value through other comprehensive income		(201)	—	—
Items that are or may be reclassified subsequently to profit or loss				
Currency translation differences		(2,667)	(431)	9,404
Fair value loss from available-for-sale financial assets, net of tax		—	(608)	(128)
Share of the other comprehensive income of associates and joint ventures accounted for using the equity method		220	(326)	313
OTHER COMPREHENSIVE INCOME, NET OF TAX		(2,648)	(1,365)	9,589
TOTAL COMPREHENSIVE INCOME FOR THE YEAR		69,768	35,428	38,961
PROFIT FOR THE YEAR ATTRIBUTABLE TO:				
Owners of the Company		52,591	22,798	7,857
Non-controlling interests		19,825	13,995	21,515
		72,416	36,793	29,372
TOTAL COMPREHENSIVE INCOME FOR THE YEAR ATTRIBUTABLE TO:				
Owners of the Company		47,627	23,685	15,814
Non-controlling interests		22,141	11,743	23,147
		69,768	35,428	38,961
BASIC AND DILUTED EARNINGS PER SHARE ATTRIBUTABLE TO OWNERS OF THE COMPANY(RMB)	13	0.29	0.12	0.04

The accompanying notes are an integral part of these financial statements.

Note: The Group has initially applied IFRS 15 and IFRS 9 at January 1, 2018. Under the transition methods chosen, comparative information is not restated (see Note 3(aa)).

PETROCHINA COMPANY LIMITED
CONSOLIDATED STATEMENTS OF FINANCIAL POSITION
As of December 31, 2018 and 2017
(Amounts in millions)

	Notes	2018	2017^{Note}
		RMB	RMB
NON-CURRENT ASSETS			
Property, plant and equipment	15	1,705,901	1,702,813
Investments in associates and joint ventures	16	89,362	81,159
Available-for-sale financial assets	17	—	1,917
Financial assets measured at fair value through other comprehensive income	18	738	—
Advance operating lease payments	20	78,240	73,896
Intangible and other non-current assets	21	98,298	92,941
Deferred tax assets	32	23,498	26,724
Time deposits with maturities over one year		3,101	—
TOTAL NON-CURRENT ASSETS		1,999,138	1,979,450
CURRENT ASSETS			
Inventories	22	174,586	144,669
Accounts receivable	23	58,507	53,143
Prepayments and other current assets	24	88,594	72,014
Notes receivable	25	16,308	19,215
Time deposits with maturities over three months but within one year		9,535	13,344
Cash and cash equivalents	26	85,598	122,777
TOTAL CURRENT ASSETS		433,128	425,162
CURRENT LIABILITIES			
Accounts payable and accrued liabilities	27	297,828	343,819
Contract liabilities	28	68,076	—
Income taxes payable		5,728	9,533
Other taxes payable		77,016	47,898
Short-term borrowings	29	137,738	175,417
TOTAL CURRENT LIABILITIES		586,386	576,667
NET CURRENT LIABILITIES		(153,258)	(151,505)
TOTAL ASSETS LESS CURRENT LIABILITIES		1,845,880	1,827,945
EQUITY			
EQUITY ATTRIBUTABLE TO OWNERS OF THE COMPANY:			
Share capital	30	183,021	183,021
Retained earnings		732,182	712,437
Reserves	31	299,083	298,062
TOTAL EQUITY ATTRIBUTABLE TO OWNERS OF THE COMPANY		1,214,286	1,193,520
NON-CONTROLLING INTERESTS		196,372	187,799
TOTAL EQUITY		1,410,658	1,381,319
NON-CURRENT LIABILITIES			
Long-term borrowings	29	269,422	289,858
Asset retirement obligations	33	132,780	131,546
Deferred tax liabilities	32	17,015	12,660
Other long-term obligations		16,005	12,562
TOTAL NON-CURRENT LIABILITIES		435,222	446,626
TOTAL EQUITY AND NON-CURRENT LIABILITIES		1,845,880	1,827,945

The accompanying notes are an integral part of these financial statements.

Note: The Group has initially applied IFRS 15 and IFRS 9 at January 1, 2018. Under the transition methods chosen, comparative information is not restated (see Note 3(aa)).

PETROCHINA COMPANY LIMITED
CONSOLIDATED STATEMENTS OF CASH FLOWS
For the Years Ended December 31, 2018, 2017 and 2016
(Amounts in millions)

	<u>2018</u>	<u>2017</u> ^{Note}	<u>2016</u> ^{Note}
	RMB	RMB	RMB
CASH FLOWS FROM OPERATING ACTIVITIES			
Profit for the year	72,416	36,793	29,372
Adjustments for:			
Income tax expense	42,790	16,296	15,768
Depreciation, depletion and amortization	231,929	237,375	218,147
Capitalized exploratory costs charged to expense	8,579	9,455	9,689
Safety fund reserve	608	327	1,614
Share of profit of associates and joint ventures	(11,647)	(5,968)	(4,105)
Provision for impairment of receivables, net	15	3,254	1,609
Write down in inventories, net	4,078	1,069	2,634
Impairment of available-for-sale financial assets	—	—	(2)
Impairment of other non-current assets	77	3,784	115
Loss on disposal of property, plant and equipment	16,759	4,939	7,972
Gain on disposal of other non-current assets	(501)	(108)	(37)
Gain on disposal of subsidiaries	(45)	(613)	(24,674)
Dividend income	(52)	—	(60)
Interest income	(3,769)	(2,901)	(2,491)
Interest expense	22,352	22,408	23,348
Changes in working capital:			
Accounts receivable, prepayments and other current assets	(9,203)	(2,779)	5,281
Inventories	(34,110)	1,141	(22,638)
Accounts payable and accrued liabilities	49,177	65,229	16,825
Contract liabilities	900	—	—
CASH FLOWS GENERATED FROM OPERATIONS	<u>390,353</u>	<u>389,701</u>	<u>278,367</u>
Income taxes paid	<u>(38,788)</u>	<u>(23,046)</u>	<u>(13,188)</u>
NET CASH FLOWS FROM OPERATING ACTIVITIES	<u><u>351,565</u></u>	<u><u>366,655</u></u>	<u><u>265,179</u></u>

The accompanying notes are an integral part of these financial statements.

PETROCHINA COMPANY LIMITED
CONSOLIDATED STATEMENTS OF CASH FLOWS (CONTINUED)
For the Years Ended December 31, 2018, 2017 and 2016
(Amounts in millions)

	<u>2018</u> <u>RMB</u>	<u>2017</u> ^{Note} <u>RMB</u>	<u>2016</u> ^{Note} <u>RMB</u>
CASH FLOWS FROM INVESTING ACTIVITIES			
Capital expenditures	(267,220)	(229,239)	(181,054)
Acquisition of investments in associates and joint ventures	(2,911)	(3,901)	(2,008)
Acquisition of financial assets measured at fair value through other comprehensive income	(2)	—	—
Acquisition of available-for-sale financial assets	—	(16)	(400)
Prepayments on long-term operating leases	(3,856)	(3,928)	(2,586)
Acquisition of intangible assets and other non-current assets	(4,668)	(3,837)	(5,781)
Payments to non-controlling interests due to acquisition of subsidiaries	(16)	(1,106)	—
Proceeds from disposal of property, plant and equipment	1,616	1,146	2,127
Proceeds from disposal of other non-current assets	224	921	991
Interest received	2,953	2,227	2,079
Dividends received	5,438	7,181	10,505
Decrease / (increase) in time deposits with maturities over three months	710	(12,994)	240
NET CASH FLOWS USED FOR INVESTING ACTIVITIES	<u>(267,732)</u>	<u>(243,546)</u>	<u>(175,887)</u>
CASH FLOWS FROM FINANCING ACTIVITIES			
Repayments of short-term borrowings	(634,987)	(578,129)	(458,780)
Repayments of long-term borrowings	(119,240)	(195,984)	(285,519)
Interest paid	(19,026)	(19,590)	(19,276)
Dividends paid to non-controlling interests	(15,207)	(12,621)	(2,401)
Dividends paid to owners of the Company	(27,369)	(19,626)	(8,450)
Payments to non-controlling interests due to capital reduction of subsidiaries	(86)	—	(1)
Increase in short-term borrowings	601,689	601,862	460,478
Increase in long-term borrowings	88,500	128,390	247,429
Capital contribution from non-controlling interests	2,211	1,470	940
Decrease in other long-term obligations	—	(497)	(1,427)
NET CASH FLOWS USED FOR FINANCING ACTIVITIES	<u>(123,515)</u>	<u>(94,725)</u>	<u>(67,007)</u>
TRANSLATION OF FOREIGN CURRENCY	<u>2,503</u>	<u>(3,538)</u>	<u>2,873</u>
(Decrease) / increase in cash and cash equivalents	(37,179)	24,846	25,158
Cash and cash equivalents at beginning of the year	122,777	97,931	72,773
Cash and cash equivalents at end of the year	<u>85,598</u>	<u>122,777</u>	<u>97,931</u>

The accompanying notes are an integral part of these financial statements.

Note: The Group has initially applied IFRS 15 and IFRS 9 at January 1, 2018. Under the transition methods chosen, comparative information is not restated (see Note 3(aa)).

PETROCHINA COMPANY LIMITED
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
For the Years Ended December 31, 2018, 2017 and 2016
(Amounts in millions)

	Attributable to Owners of the Company				Non-controlling Interests	Total Equity
	Share Capital	Retained Earnings	Reserves	Subtotal		
	RMB	RMB	RMB	RMB	RMB	RMB
Balance at January 1, 2016	183,021	711,755	284,940	1,179,716	164,318	1,344,034
Profit for the year ended December 31, 2016	—	7,857	—	7,857	21,515	29,372
Other comprehensive income for the year ended December 31, 2016	—	—	7,957	7,957	1,632	9,589
Special reserve-safety fund reserve	—	—	1,540	1,540	74	1,614
Dividends	—	(8,450)	—	(8,450)	(4,282)	(12,732)
Equity transaction with non-controlling interests in subsidiaries	—	—	224	224	(2,061)	(1,837)
Capital contribution from non-controlling interests	—	—	—	—	1,087	1,087
Other	—	35	145	180	1,428	1,608
Balance at December 31, 2016	183,021	711,197	294,806	1,189,024	183,711	1,372,735
Balance at January 1, 2017	183,021	711,197	294,806	1,189,024	183,711	1,372,735
Profit for the year ended December 31, 2017	—	22,798	—	22,798	13,995	36,793
Other comprehensive income for the year ended December 31, 2017	—	—	887	887	(2,252)	(1,365)
Special reserve-safety fund reserve	—	—	178	178	149	327
Transfer to reserves	—	(1,929)	1,929	—	—	—
Dividends	—	(19,626)	—	(19,626)	(10,404)	(30,030)
Equity transaction with non-controlling interests in subsidiaries	—	—	289	289	649	938
Capital contribution from non-controlling interests	—	—	—	—	2,584	2,584
Other	—	(3)	(27)	(30)	(633)	(663)
Balance at December 31, 2017	183,021	712,437	298,062	1,193,520	187,799	1,381,319
Balance at January 1, 2018 ^{Note}	183,021	712,437	298,062	1,193,520	187,799	1,381,319
Profit for the year ended December 31, 2018	—	52,591	—	52,591	19,825	72,416
Other comprehensive income for the year ended December 31, 2018	—	—	(4,964)	(4,964)	2,316	(2,648)
Special reserve-safety fund reserve	—	—	465	465	143	608
Transfer to reserves	—	(5,476)	5,476	—	—	—
Dividends	—	(27,369)	—	(27,369)	(15,423)	(42,792)
Equity transaction with non-controlling interests in subsidiaries	—	—	13	13	(24)	(11)
Capital contribution from non-controlling interests	—	—	—	—	2,300	2,300
Disposal of subsidiaries	—	—	—	—	(879)	(879)
Other	—	(1)	31	30	315	345
Balance at December 31, 2018	183,021	732,182	299,083	1,214,286	196,372	1,410,658

The accompanying notes are an integral part of these financial statements.

Note: The Group has initially applied IFRS 15 and IFRS 9 at January 1, 2018. Under the transition methods chosen, comparative information is not restated (see Note 3(aa)).

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS

(All amounts in millions, except for the per share data and otherwise stated)

1 ORGANIZATION AND PRINCIPAL ACTIVITIES

PetroChina Company Limited (the “Company”) was established as a joint stock company with limited liability on November 5, 1999 by China National Petroleum Corporation as the sole proprietor in accordance with the approval Guo Jing Mao Qi Gai [1999] No. 1024 “Reply on the approval of the establishment of PetroChina Company Limited” from the former State Economic and Trade Commission of the People’s Republic of China (“China” or “PRC”). CNPC restructured (“the Restructuring”) and injected its core business and the related assets and liabilities into the Company. 中国石油天然气集团公司 was renamed 中国石油天然气集团有限公司 (“CNPC” before and after the change of name) on December 19, 2017. CNPC is a wholly state-owned company registered in China. The Company and its subsidiaries are collectively referred to as the “Group”.

The Group is principally engaged in (i) the exploration, development and production and marketing of crude oil and natural gas; (ii) the refining of crude oil and petroleum products, production and marketing of primary petrochemical products, derivative petrochemical products and other chemical products; (iii) the marketing of refined products and trading business; and (iv) the transmission of natural gas, crude oil and refined products and the sale of natural gas (Note 39).

2 BASIS OF PREPARATION

The consolidated financial statements and the statement of financial position of the Company have been prepared in accordance with the International Financial Reporting Standards (“IFRSs”) as issued by the International Accounting Standards Board (“IASB”). The consolidated financial statements and the statement of financial position of the Company have been prepared under the historical cost convention except as disclosed in the accounting policies below.

The preparation of financial statements in conformity with IFRSs requires the use of estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the statement of financial position and the reported amounts of revenues and expenses during the reporting period. Although these estimates are based on management’s best knowledge of current events and actions, actual results may ultimately differ from those estimates. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 5.

3 SUMMARY OF PRINCIPAL ACCOUNTING POLICIES

(a) Basis of consolidation

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has right to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity.

A subsidiary is consolidated from the date on which control is transferred to the Group and is no longer consolidated from the date that control ceases. The acquisition method of accounting is used to account for the acquisition of subsidiaries except for business combinations under common control. The consideration transferred for the acquisition of a subsidiary is the fair values of the assets transferred, the liabilities incurred and the equity interests issued by the Group. The consideration transferred includes the fair value of any asset or liability resulting from a contingent consideration arrangement. Acquisition-related costs are expensed as

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

incurred. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. On an acquisition-by-acquisition basis, the Group recognizes any non-controlling interests in the acquiree either at fair value or at the non-controlling interests' proportionate share of the acquiree's net assets.

The excess of the consideration transferred, the amount of any non-controlling interests in the acquiree and the acquisition-date fair value of any previous equity interest in the acquiree over the fair value of the identifiable net assets is recorded as goodwill. If this is less than the fair value of the net assets of the subsidiary acquired in the case of a bargain purchase, the difference is recognized directly in the statement of comprehensive income.

An acquisition of a business which is a business combination under common control is accounted for in a manner similar to a uniting of interests whereby the assets and liabilities acquired are accounted for at carryover predecessor values to the other party to the business combination with all periods presented as if the operations of the Group and the business acquired have always been combined. The difference between the consideration paid by the Group and the net assets or liabilities of the business acquired is adjusted against equity.

Intercompany transactions, balances and unrealized gains on transactions between group companies are eliminated. Unrealized losses are also eliminated. Where necessary, accounting policies of subsidiaries have been changed to ensure consistency with the policies adopted by the Group.

For purpose of the presentation of the Company's statement of financial position, investments in subsidiaries are accounted for at cost less impairment. Cost is adjusted to reflect changes in consideration arising from contingent consideration amendments. Cost also includes direct attributable costs of investment.

A listing of the Group's principal subsidiaries is set out in Note 19.

(b) Investments in associates

Associates are entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. Investments in associates are accounted for by the equity method of accounting in the consolidated financial statements of the Group and are initially recognized at cost.

Under this method of accounting, the Group's share of the post-acquisition profits or losses of associates is recognized in profit or loss and its share of post-acquisition movements in other comprehensive income is recognized in other comprehensive income. The cumulative post-acquisition movements are adjusted against the carrying amounts of the investments. When the Group's share of losses in an associate equals or exceeds its interest in the associate, including any other unsecured receivables, the Group does not recognize further losses, unless it has incurred obligations or made payments on behalf of the associate.

Unrealized gains on transactions between the Group and its associates are eliminated to the extent of the Group's interest in the associates; unrealized losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. The Group's investment in associates includes goodwill identified on acquisition, net of any accumulated impairment loss and is tested for impairment as part of the overall balance. Goodwill represents the excess of the cost of an acquisition over the fair value of the Group's share of the net identifiable assets of the acquired associate at the date of acquisition. Accounting policies of associates have been changed where necessary to ensure consistency with the policies adopted by the Group.

A listing of the Group's principal associates is shown in Note 16.

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

(c) Investments in joint ventures

Joint ventures are arrangements in which the Group with one or more parties have joint control, whereby the Group has rights to the net assets of the arrangements, rather than rights to their assets and obligations for their liabilities. The Group's interests in joint ventures are accounted for by the equity method of accounting (Note 3(b)) in the consolidated financial statements.

A listing of the Group's principal joint ventures is shown in Note 16.

(d) Transactions with non-controlling interests

Transactions with non-controlling interests are treated as transactions with owners in their capacity as owners of the Group. Gains and losses resulting from disposals to non-controlling interests are recorded in equity. The differences between any consideration paid and the relevant share of the carrying value of net assets of the subsidiary acquired resulting from the purchase of non-controlling interests, are recorded in equity.

When the Group ceases to have control or significant influence, any retained interest in the entity is remeasured to its fair value, with the change in carrying amount recognized in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognized in other comprehensive income in respect of that entity are accounted for as if the Group had directly disposed of the related assets or liabilities. This may mean that amounts previously recognized in other comprehensive income are reclassified to profit or loss.

If the ownership interest in an associate is reduced but significant influence is retained, only a proportionate share of the amounts previously recognized in other comprehensive income are reclassified to profit or loss where appropriate.

(e) Foreign currencies

Items included in the financial statements of each entity in the Group are measured using the currency of the primary economic environment in which the entity operates ("the functional currency"). Most assets and operations of the Group are located in the PRC (Note 39), and the functional currency of the Company and most of the consolidated subsidiaries is the Renminbi ("RMB"). The consolidated financial statements are presented in the presentation currency of RMB.

Foreign currency transactions of the Group are accounted for at the exchange rates prevailing at the respective dates of the transactions; monetary assets and liabilities denominated in foreign currencies are translated at exchange rates at the date of the statement of financial position; gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities are recognized in profit or loss.

For the Group entities that have a functional currency different from the Group's presentation currency, assets and liabilities for each statement of financial position presented are translated at the closing rate at the date of the statement of financial position. Income and expenses for each statement of comprehensive income presented are translated at the average exchange rates for each period and the resulting exchange differences are recognized in other comprehensive income.

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

(f) Property, plant and equipment

Property, plant and equipment, including oil and gas properties (Note 3(g)), are initially recorded in the consolidated statement of financial position at cost where it is probable that they will generate future economic benefits. Cost represents the purchase price of the asset and other costs incurred to bring the asset into existing use. Subsequent to their initial recognition, property, plant and equipment are carried at cost less accumulated depreciation, depletion and amortization (including any impairment).

Depreciation, to write off the cost of each asset, other than oil and gas properties (Note 3(g)), to their residual values over their estimated useful lives is calculated using the straight-line method.

The Group uses the following estimated useful lives, estimated residual value ratios and annual depreciation rates for depreciation purposes:

	<u>Estimated useful lives</u>	<u>Estimated residual value ratio %</u>	<u>Annual depreciation rate %</u>
Buildings	8 to 40 years	5	2.4 to 11.9
Equipment and Machinery	4 to 30 years	3 to 5	3.2 to 24.3
Motor Vehicles	4 to 14 years	5	6.8 to 23.8
Other	5 to 12 years	5	7.9 to 19.0

No depreciation is provided on construction in progress until the assets are completed and ready for use.

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

Property, plant and equipment, including oil and gas properties (Note 3(g)), are reviewed for possible impairment when events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the carrying amount of a cash generating unit exceeds the higher of its fair value less costs to sell and its value in use. Value in use is the estimated net present value of future cash flows to be derived from the cash generating unit.

Gains and losses on disposals of property, plant and equipment are determined by reference to their carrying amounts and are recorded in the profit or loss.

Interest and other costs on borrowings to finance the construction of property, plant and equipment, including oil and gas properties (Note 3(g)), are capitalized during the period of time that is required to complete and prepare the asset for its intended use. Costs for repairs and maintenance activities are expensed as incurred except for costs of components that result in improvements or betterments which are capitalized as part of property, plant and equipment and depreciated over their useful lives.

(g) Oil and gas properties

The successful efforts method of accounting is used for oil and gas exploration and production activities. Under this method, all costs for development wells, support equipment and facilities, and proved mineral interests in oil and gas properties are capitalized. Geological and geophysical costs are expensed when incurred. Costs of exploratory wells are capitalized pending determination of whether the wells find proved oil and gas reserves. Proved oil and gas reserves are the estimated quantities of crude oil and natural gas, which, by analysis

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

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 regulation before the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether the estimate is a deterministic estimate or probabilistic estimate. Existing economic conditions include prices and costs at which economic producibility from a reservoir is to be determined. The price shall be the average price during the 12-month period before the ending date of the period covered by the proved oil and gas reserve 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. The costs shall be that prevailing at the end of the period.

Exploratory wells in areas not requiring major capital expenditures are evaluated for economic viability within one year of completion of drilling. The related well costs are expensed as dry holes if it is determined that such economic viability is not attained. Otherwise, the related well costs are reclassified to oil and gas properties and are subject to impairment review (Note 3(f)). For exploratory wells that are found to have economically viable reserves in areas where major capital expenditure will be required before production can commence, the related well costs remain capitalized only if additional drilling is underway or firmly planned. Otherwise the related well costs are expensed as dry holes. The Group does not have any significant costs of unproved properties capitalized in oil and gas properties.

The Ministry of Natural Resources in China issues production licenses to applicants on the basis of the reserve reports approved by relevant authorities.

The cost of oil and gas properties is amortized at the field level based on the units of production method. Units of production rates are based on oil and gas reserves estimated to be recoverable from existing facilities based on the current terms of the Group's production licenses.

(h) Intangible assets and goodwill

Expenditures on acquired patents, trademarks, technical know-how and licenses are capitalized at historical cost and amortized using the straight-line method over their estimated useful lives. Intangible assets are not subsequently revalued. The carrying amount of each intangible asset is reviewed annually and adjusted for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized whenever the carrying amount of an asset exceeds its recoverable amount and is recognized in profit or loss. The recoverable amount is measured as the higher of fair value less costs to sell and value in use. Value in use is the estimated net present value of future cash flows to be derived from the asset.

Goodwill arises on the acquisition of subsidiaries and represents the excess of the consideration transferred over the interest in net fair value of the net identifiable assets, liabilities and contingent liabilities of the acquiree and the amount of any non-controlling interests in the acquiree.

Goodwill impairment reviews are undertaken annually or more frequently if events or changes in circumstances indicate a potential impairment. The carrying value of goodwill is compared to the recoverable amount, which is the higher of value in use and the fair value less costs to sell. Any impairment is recognized immediately as an expense and is not subsequently reversed.

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(i) Financial instruments

(a) Recognition and initial measurement

Accounts receivable and debt securities issued are initially recognized when they are originated. All other financial assets and financial liabilities are initially recognized when the Group becomes a party to the contractual provisions of the instrument.

A financial asset (unless it is a accounts receivable without a significant financing component) or financial liability is initially measured at fair value plus, for an item not at Fair value through profit or loss (“FVTPL”), transaction costs that are directly attributable to its acquisition or issue. An accounts receivable without a significant financing component is initially measured at the transaction price.

(b) Classification and subsequent measurement

Financial assets – Policy applicable from January 1, 2018

On initial recognition, a financial asset is classified as measured at: amortized cost; Fair value through other comprehensive income (“FVOCI”) – debt investment; FVOCI – equity investment; or FVTPL.

Financial assets are not reclassified subsequent to their initial recognition unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is to hold assets to collect contractual cashflows; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

A debt investment is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Group may irrevocably elect to present subsequent changes in the investment’s fair value in other comprehensive income (“OCI”). This election is made on an investment-by-investment basis.

All financial assets not classified as measured at amortized cost or FVOCI as described above are measured at FVTPL. This includes all derivative financial assets.

The Group makes an assessment of the objective of the business model in which a financial asset is held at a portfolio level because this best reflects the way the business is managed and information is provided to management.

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For the purposes of this assessment whether contractual cash flows are solely payments of principal and interest, ‘principal’ is defined as the fair value of the financial asset on initial recognition. ‘Interest’ is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs (e.g. liquidity risk and administrative costs), as well as a profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, the Group considers the contractual terms of the instrument. This includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition.

Detailed accounting policies for subsequent measurement of financial assets are set out below:

Financial assets at FVTPL	These assets are subsequently measured at fair value. Net gains and losses, including any interest or dividend income, are recognized in profit or loss.
Financial assets at amortized cost	These assets are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairment are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.
Debt investments at FVOCI	These assets are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in profit or loss. Other net gains and losses are recognized in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.
Equity investments at FVOCI	These assets are subsequently measured at fair value. Dividends are recognized as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in OCI and are never reclassified to profit or loss.

Financial assets – Policy applicable before January 1, 2018

Financial assets are classified into the following categories: financial assets at fair value through profit or loss, held-to-maturity investments, loans and receivables and available-for-sale financial assets. The classification depends on the purpose for which the financial assets were acquired. Management determines the classification of its financial assets at initial recognition. The Group has principally loans and receivables and available-for-sale financial assets and limited financial assets at fair value through profit or loss.

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. They are included in current assets, except for those with maturities greater than 12 months after the date of the statement of financial position, which are classified as non-current assets.

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Available-for-sale financial assets are non-derivatives that are either designated in this category or not classified in any of the other categories; these are included in non-current assets unless management intends to dispose of the investment within 12 months of the date of the statement of financial position.

Financial assets at fair value through profit or loss are financial assets held for trading. A financial asset is classified in this category if acquired principally for the purpose of selling in the short-term. Derivatives are also categorized as held for trading unless they are designated as hedges. Assets in this category are classified as current assets if expected to be settled within 12 months; otherwise, they are classified as non-current.

Regular purchases and sales of financial assets are recognized on the trade-date, the date on which the Group commits to purchase or sell the asset. Investments are initially recognized at fair value plus transaction costs for all financial assets not carried at fair value through profit or loss. Financial assets carried at fair value through profit or loss are initially recognized at fair value, and transaction costs are expensed in profit or loss.

Available-for-sale financial assets are measured at fair value except where there are no quoted market prices in active markets and the fair values cannot be reliably measured using valuation techniques. Available-for-sale financial assets that do not have quoted market prices in active markets and whose fair value cannot be reliably measured are carried at cost. Changes in the fair value of monetary and non-monetary securities classified as available for sale are recognized in OCI. Financial assets at fair value through profit or loss are subsequently carried at fair value. Gains or losses arising from changes in the fair value of the “financial assets at fair value through profit or loss” category are presented in the statement of comprehensive income within “other income, net” in the period in which they arise.

(c) Derecognition

Financial assets

The Group derecognizes a financial asset when the contractual rights to the cash flows from the financial asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which the Group neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Group enters into transactions whereby it transfers assets recognized in its statement of financial position, but retains either all or substantially all of the risks and rewards of the transferred assets. In these cases, the transferred assets are not derecognized.

Financial liabilities

The Group derecognizes a financial liability when its contractual obligations are discharged or canceled, or expire. The Group also derecognizes a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognized at fair value.

On derecognition of a financial liability, the difference between the carrying amount extinguished and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

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(d) Offsetting

Financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Group currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

(j) Impairment for financial assets

Policy applicable from January 1, 2018

The Group recognizes loss allowances for expected credit losses (“ECLs”) on:

- financial assets measured at amortized cost;
- debt investments measured at FVOCI; and
- contract assets.

The Group measures loss allowances at an amount equal to lifetime ECLs, except for the financial assets for which credit risk (i.e. the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition, which are measured as 12-month ECLs. When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating ECLs, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort.

Loss allowances for accounts receivable are always measured at an amount equal to lifetime ECLs. The maximum period considered when estimating ECLs is the maximum contractual period over which the Group is exposed to credit risk.

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (i.e. the difference between the cash flows due to the entity in accordance with the contract and the cash flows that the Group expects to receive). ECLs are discounted at the effective interest rate of the financial asset.

At each reporting date, the Group assesses whether financial assets carried at amortized cost and debt securities at FVOCI are credit-impaired. A financial asset is ‘credit-impaired’ when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Loss allowances for financial assets measured at amortized cost are deducted from the gross carrying amount of the assets. Impairment losses on trade and other receivables are presented under ‘Selling, general and administrative expenses’, similar to the presentation under IAS 39, and not presented separately in the statement of profit or loss and OCI due to materiality considerations.

The gross carrying amount of a financial asset is written off when the Group has no reasonable expectations of recovering a financial asset in its entirety or a portion thereof. For customers, the Group individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. The Group expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Group’s procedures for recovery of amounts due.

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Policy applicable before January 1, 2018

The Group assesses at the end of each reporting period whether there is objective evidence that a financial asset is impaired. The amount of the impairment loss is measured as the difference between the carrying amount of the available-for-sale financial asset and the present value of the estimated cash flows. For accounts receivable, the provision of impairment is established if there is objective evidence that the Group will not be able to collect amount due according to the original terms of the receivables. The factors the Group considers when assessing whether an accounts receivable is impaired include but are not limited to significant financial difficulties of the customer, probability that the debtor will enter bankruptcy or financial reorganization and default or delinquency in payments. The amount of the provision is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the original effective interest rate.

(k) Leases

Leases of property, plant and equipment where the Group assumes substantially all the benefits and risks of ownership are classified as finance leases. The Group has no significant finance leases.

Leases of assets under which a significant portion of the risks and benefits of ownership are effectively retained by the lessors are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessors) are expensed on a straight-line basis over the lease terms. Payments made to the Ministry of Natural Resources to secure land use rights (excluding mineral properties) are treated as operating leases. Land use rights are generally obtained through advance lump-sum payments and the terms of use range up to 50 years.

(l) Inventories

Inventories include oil products, chemical products and materials and supplies which are stated at the lower of cost and net realizable value. Cost is primarily determined by the weighted average cost method. The cost of finished goods comprises raw materials, direct labor, other direct costs and related production overheads, but excludes borrowing costs. Net realizable value is the estimated selling price in the ordinary course of business, less the cost of completion and selling expenses.

(m) Contract costs

Contract costs are either the incremental costs of obtaining a contract with a customer or the costs to fulfill a contract with a customer which are not capitalized as inventory (Note 3(l)), property, plant and equipment (Note 3(f)), oil and gas properties (Note 3(g)) or intangible assets (Note 3(h)).

Incremental costs of obtaining a contract are those costs that the Group incurs to obtain a contract with a customer that it would not have incurred if the contract had not been obtained. Incremental costs of obtaining a contract are capitalized when incurred if the costs relate to revenue which will be recognized in a future reporting period and the costs are expected to be recovered, unless the expected amortization period is one year or less from the date of initial recognition of the asset, in which case the costs are expensed when incurred. Other costs of obtaining a contract are expensed when incurred.

Costs to fulfill a contract are capitalized if the costs relate directly to an existing contract or to a specifically identifiable anticipated contract; generate or enhance resources that will be used to provide goods or services in the future; and are expected to be recovered.

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Capitalized contract costs are stated at cost less accumulated amortization and impairment losses. Impairment losses are recognized to the extent that the carrying amount of the contract cost asset exceeds the net of (i) remaining amount of consideration that the Group expects to receive in exchange for the goods or services to which the asset relates, less (ii) any costs that relate directly to providing those goods or services that have not yet been recognized as expenses.

Amortization of capitalized contract costs is charged to profit or loss when the revenue to which the asset relates is recognized.

(n) Contract assets and contract liabilities

A contract asset is recognized when the Group recognizes revenue before being unconditionally entitled to the consideration under the payment terms set out in the contract. Contract assets are assessed for ECLs in accordance with the policy set out in Note 3(j) and are reclassified to receivables when the right to the consideration has become unconditional (Note 3(o)).

A contract liability is recognized when the customer pays consideration before the Group recognizes the related revenue. A contract liability would also be recognized if the Group has an unconditional right to receive consideration before the Group recognizes the related revenue. In such cases, a corresponding receivable would also be recognized (Note 3(o)).

When the contract includes a significant financing component, the contract balance includes interest accrued under the effective interest method (Note 3(t)).

(o) Accounts receivable

Accounts receivable are recognized when the Group has an unconditional right to receive consideration. A right to receive consideration is unconditional if only the passage of time is required before payment of that consideration is due (Note 3(n)).

Receivables are stated at amortized cost using the effective interest method less allowance for credit losses (Note 3(j)).

(p) Cash and cash equivalents

Cash and cash equivalents comprise cash in hand, deposits held with banks and highly liquid investments with original maturities of three months or less from the time of purchase.

(q) Accounts payable

Accounts payable are recognized initially at fair value and subsequently measured at amortized cost unless the effect of discounting would be immaterial, in which case they are stated at cost.

(r) Borrowings

Borrowings are recognized initially at fair value, net of transaction costs incurred. In subsequent periods, borrowings are stated at amortized cost using the effective interest method. Interest expense is recognized in accordance with the Group's accounting policy for borrowing costs.

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General and specific borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

All other borrowing costs are recognized in profit or loss in the period in which they are incurred.

Borrowings are classified as current liabilities unless the Group has unconditional rights to defer settlements of the liabilities for at least 12 months after the reporting period.

(s) *Share capital*

Incremental costs directly attributable to the issue of ordinary shares are recognized as a deduction from equity. Income tax relating to transaction costs of an equity transaction is accounted for in accordance with IAS 12 “Income Taxes”.

(t) *Interest income and interest expense*

Interest income or expense is recognized using the effective interest method.

The ‘effective interest rate’ is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to:

- the gross carrying amount of the financial asset; or
- the amortized cost of the financial liability.

In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortized cost of the liability. However, for financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by applying the effective interest rate to the amortized cost of the financial asset. If the asset is no longer credit-impaired, then the calculation of interest income reverts to the gross basis.

(u) *Taxation*

Income tax expense comprises current and deferred tax. It is recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

The Group has determined that interest and penalties related to income taxes, including uncertain tax treatments, do not meet the definition of income taxes, and therefore accounted for them under IAS 37 “Provisions, Contingent Liabilities and Contingent Assets”.

(a) *Current tax*

Current tax comprises the expected tax payable or receivable on the taxable income or loss for the year and any adjustment to the tax payable or receivable in respect of previous years. The amount of current tax payable or receivable is the best estimate of the tax amount expected to be paid or received that reflects uncertainty related

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to income taxes, if any. It is measured using tax rates enacted or substantively enacted at the reporting date. Current tax also includes any tax arising from dividends.

Current tax assets and liabilities are offset only if certain criteria are met.

(b) Deferred tax

Deferred tax is provided in full, using the liability method, for temporary differences arising between the tax bases of assets and liabilities and their carrying values in the financial statements. However, deferred tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred tax is determined using tax rates that have been enacted or substantively enacted by the date of the statement of financial position and are expected to apply to the period when the related deferred tax asset is realized or deferred tax liability is settled.

The principal temporary differences arise from depreciation on oil and gas properties and equipment and provision for impairment of receivables, inventories, investments and property, plant and equipment. Deferred tax assets relating to the carry forward of unused tax losses are recognized to the extent that it is probable that future taxable income will be available against which the unused tax losses can be utilized.

(c) Taxes other than income tax

The Group also incurs various other taxes and levies that are not income taxes. “Taxes other than income taxes”, which form part of operating expenses, primarily comprise consumption tax (Note 9), resource tax (Note 9), crude oil special gain levy (Note 9), urban construction tax and education surcharges.

(v) Revenue recognition

Income is classified by the Group as revenue when it arises from the sale of goods, the provision of services in the ordinary course of the Group’s business.

Revenue is recognized when control over a product or service is transferred to the customer at the amount of promised consideration to which the Group is expected to be entitled, excluding those amounts collected on behalf of third parties. Revenue excludes value added tax or other sales taxes and is after deduction of any trade discounts.

Where the contract contains a financing component more than 12 months, interest income is accrued or interest expense is accrued separately under the effective interest method. The Group does not adjust the consideration for any effects of a significant financing component if the period of financing is 12 months or less.

(w) Provisions

Provisions are recognized when the Group has present legal or constructive obligations as a result of past events, it is probable that an outflow of resources will be required to settle the obligations, and reliable estimates of the amounts can be made.

Provision for future decommissioning and restoration is recognized in full on the installation of oil and gas properties. The amount recognized is the present value of the estimated future expenditure determined in accordance with local conditions and requirements. A corresponding addition to the related oil and gas properties

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of an amount equivalent to the provision is also created. This is subsequently depreciated as part of the costs of the oil and gas properties. Any change in the present value of the estimated expenditure other than due to passage of time which is regarded as interest expense, is reflected as an adjustment to the provision and oil and gas properties.

Provision for onerous contracts is measured at the present value of the lower of the expected cost of terminating the contract and the expected net cost of continuing with the contract. Before a provision is established, the Group recognizes any impairment loss on the assets associated with that contract.

(x) *Research and development*

Research expenditure incurred is recognized as an expense. Costs incurred on development projects are recognized as intangible assets to the extent that such expenditure is expected to generate future economic benefits.

(y) *Retirement benefit plans*

The Group contributes to various employee retirement benefit plans organized by PRC municipal and provincial governments under which it is required to make monthly contributions to these plans at prescribed rates for its employees in China. The relevant PRC municipal and provincial governments undertake to assume the retirement benefit obligations of existing and future retired employees of the Group in China. The Group has similar retirement benefit plans for its employees in its overseas operations. Contributions to these PRC and overseas plans (“defined contribution plan”) are charged to expense as incurred. In addition, the Group joined the corporate annuity plan approved by relevant PRC authorities. Contribution to the annuity plan is charged to expense as incurred. The Group currently has no additional material obligations outstanding for the payment of retirement and other post-retirement benefits of employees in the PRC or overseas other than what described above.

(z) *Related parties*

- (a) A person, or a close member of that person’s family, is related to the Group if that person:
 - (i) has control or joint control over the Group;
 - (ii) has significant influence over the Group; or
 - (iii) is a member of the key management personnel of the Group or the Group’s parent.
- (b) An entity is related to the Group if any of the following conditions applies:
 - (i) The entity and the Group are members of the same group (which means that each parent, subsidiary and fellow subsidiary is related to the others).
 - (ii) One entity is an associate or joint venture of the other entity (or an associate or joint venture of a member of a group of which the other entity is a member).
 - (iii) Both entities are joint ventures of the same third party.
 - (iv) One entity is a joint venture of a third entity and the other entity is an associate of the third entity.
 - (v) The entity is a post-employment benefit plan for the benefit of employees of either the Group or an entity related to the Group.

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- (vi) The entity is controlled or jointly controlled by a person identified in (a).
- (vii) A person identified in (a) (i) has significant influence over the entity or is a member of the key management personnel of the entity (or of a parent of the entity).
- (viii) The entity, or any member of a group of which it is a part, provides key management personnel services to the Group or to the Group's parent.

Close members of the family of a person are those family members who may be expected to influence, or be influenced by, that person in their dealings with the entity.

(aa) New accounting standards developments

(a) New and amended standards adopted by the Group

The Group has initially adopted IFRS 15 and IFRS 9 from January 1, 2018. A number of other new standards are effective from January 1, 2018 but they do not have a material effect on the Group's financial statements.

Due to the transition methods chosen by the Group in applying these standards, comparative information throughout these financial statements has not been restated to reflect the requirements of the new standards.

(i) IFRS 15 “Revenue from contracts with customers”

IFRS 15 establishes a comprehensive framework for determining whether, how much and when revenue is recognized. It replaced IAS 18 “Revenue” (“IAS 18”), IAS 11 “Construction Contracts” (“IAS 11”) and related interpretations. Under IFRS 15, revenue is recognized when a customer obtains control of the goods or services. Determining the timing of the transfer of contract – at point time or over time – requires judgment.

The Group has adopted IFRS 15 using the cumulative effect method (without practical expedients), with the effect of initially applying this standard recognized at the date of initial application (i.e. January 1, 2018). Accordingly, the information presented for 2017 has not been restated – i.e. it is presented, as previously reported, under IAS 18, IAS 11 and related interpretations.

The impacts of adopting IFRS 15 on the Group's statement of financial position as at December 31, 2018 was that the advances from customers for transfer of goods (or rendering of services) is transferred out from “Advances from customers” as previously included in “Accounts payable and accrued liabilities” to “Contract liabilities”. There was no material impact on the Group's statement of comprehensive income and statement of cash flows for the year ended December 31, 2018.

(ii) IFRS 9 “Financial Instruments”

IFRS 9 sets out requirements for recognizing and measuring financial assets, financial liabilities and some contracts to buy or sell non-financial items. This standard replaces IAS 39 “Financial Instruments: Recognition and Measurement” (“IAS 39”).

Expected impacts of the new requirements on the Group's financial statements are as follow:

Classification and measurement of financial assets and financial liabilities

The classification of financial assets under IFRS 9 is generally based on the business model in which a financial asset is managed and its contractual cash flow characteristics. IFRS 9 eliminates the previous IAS 39

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categories of held to maturity, loans and receivables and available for sale. IFRS 9 largely retains the existing requirements in IAS 39 for the classification and measurement of financial liabilities.

As for the classification and measurement of financial instruments, financial assets used to be carried at amortized costs and those at FVTPL shall continue to maintain their existing classification and measurement methods after adopting IFRS 9. As for the non-trading equity instrument investments used to be classified as “Available-for-sale financial assets”, the Group chooses to irrevocably designate them as carried at FVOCI (not to be carried forward into current profit or loss in the future).

Impairment of financial assets

IFRS 9 replaces the ‘incurred loss’ model in IAS 39 with an ‘expected credit loss’ model. The new impairment model applies to financial assets measured at amortized cost, debt investments at FVOCI and contract assets.

Subject to the new standards on financial instruments, the Group has made an assessment on the gap between the original carrying amount and the carrying amount at the date of adoption of the new standards. The adoption of the new standard exerts no material impact on the retained earnings and other comprehensive income as at January 1, 2018.

Transition

Changes in accounting policies resulting from the adoption of IFRS 9 have been applied retrospectively, except the Group has used an exemption not to restate comparative information for prior periods with respect to classification and measurement (including impairment) requirements. There is no differences in the carrying amounts of financial assets and financial liabilities resulting from the adoption of IFRS 9 are recognized in retained earnings and reserves as at January 1, 2018.

(b) Standards issued but not yet effective

A number of new standards are effective for annual periods beginning after January 1, 2018 and earlier application is permitted; however, the Group has not early adopted the new or amended standards in preparing these consolidated financial statements.

Of those standards that are not yet effective, IFRS 16 is expected to have a material impact on the Group’s financial statements in the period of initial application.

(i) IFRS 16 “Leases”

The Group is required to adopt IFRS 16 Leases from January 1, 2019. The Group has assessed the estimated impact that initial application of IFRS 16 will have on its consolidated financial statements, as described below. The actual impacts of adopting the standard on January 1, 2019 may change because:

- the Group has not finalized the testing and assessment of controls over its new IT systems; and
- the new accounting policies are subject to change until the Group presents its first financial statements that include the date of initial application.

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IFRS 16 introduces a single, on-balance lease sheet accounting model for lessees. A lessee recognizes a right-of-use asset representing its right to use the underlying asset and a lease liability representing its obligation to make lease payments. There are recognition exemptions for short-term leases and leases of low-value items.

IFRS 16 replaces existing leases guidance including 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”.

Leases in which the Group is a lessee

The Group will recognize new assets and liabilities for its operating leases of land, buildings and equipment. The nature of expenses related to those leases will now change because the Group will recognize a depreciation charge for right-of-use assets and interest expense on lease liabilities.

Previously, the Group recognized operating lease expense on a straight-line basis over the term of the lease, and recognized assets and liabilities only to the extent that there was a timing difference between actual lease payments and the expense recognized.

In addition, the Group will no longer recognize provisions for operating leases that it assesses to be onerous as described in Note 3(w). Instead, the Group will include the payments due under the lease in its lease liability.

No significant impact is expected for the Group’s finance leases.

Based on the information currently available, the Group estimates that it will recognize additional lease liabilities of at least RMB 100,000 as at January 1, 2019.

Transition

The Group plans to apply IFRS 16 initially on January 1, 2019, using the modified retrospective approach. Therefore, the cumulative effect of adopting IFRS 16 will be recognized as an adjustment to the opening balance of retained earnings at January 1, 2019, with no restatement of comparative information.

The Group plans to apply the practical expedient to grandfather the definition of a lease on transition. This means that it will apply IFRS 16 to all contracts entered into before January 1, 2019 and identified as leases in accordance with IAS 17 and IFRIC 4.

4 FINANCIAL RISK AND CAPITAL MANAGEMENT

4.1 Financial risk factors

The Group’s activities expose it to a variety of financial risks, including market risk, credit risk and liquidity risk.

(a) Market risk

Market risk is the possibility that changes in foreign exchange rates, interest rates and the prices of oil and gas products will adversely affect the value of assets, liabilities and expected future cash flows.

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

(i) Foreign exchange risk

The Group conducts its domestic business primarily in RMB, but maintains a portion of its assets in other currencies to pay for imported crude oil, imported equipment and other materials and to meet foreign currency financial liabilities. The Group is exposed to currency risks arising from fluctuations in various foreign currency exchange rates against the RMB. The RMB is not a freely convertible currency and is regulated by the PRC government. Limitations on foreign exchange transactions imposed by the PRC government could cause future exchange rates to vary significantly from current or historical exchange rates.

Additionally, the Group operates internationally and foreign exchange risk arises from future acquisitions and commercial transactions, recognized assets and liabilities and net investments in foreign operations. Certain entities in the Group might use currency derivatives to manage such foreign exchange risk.

(ii) Interest rate risk

The Group has no significant interest rate risk on interest-bearing assets. The Group's exposure to interest rate risk arises from its borrowings. The Group's borrowings at floating rates expose the Group to cash flow interest rate risk and its borrowings at fixed rates expose the Group to fair value interest rate risk. However, the exposure to interest rate risk is not material to the Group. A detailed analysis of the Group's borrowings, together with their respective interest rates and maturity dates, is included in Note 29.

(iii) Price risk

The Group is engaged in a wide range of oil and gas products-related activities. Prices of oil and gas products are affected by a wide range of global and domestic factors which are beyond the control of the Group. The fluctuations in such prices may have favorable or unfavorable impacts on the Group.

The Group uses derivative financial instruments, including commodity futures, commodity swaps and commodity options, to hedge some price risks efficiently.

(b) Credit risk

Credit risk arises from cash and cash equivalents, time deposits with banks and credit exposure to customers with outstanding receivable balances.

A substantial portion of the Group's cash at bank and time deposits are placed with the major state-owned banks and financial institutions in China and management believes that the credit risk is low.

The Group performs ongoing assessment of the credit quality of its customers and sets appropriate credit limits taking into account the financial position and past history of defaults of customers. The aging analysis of accounts receivable (net of impairment of accounts receivable) is presented in Note 23. The Group measures loss allowance for accounts receivable at an amount equal to lifetime ECLs. The ECLs were calculated based on historical actual credit loss experience. The rates were considered the differences between economic conditions during the period over which the historical data has been collected, current conditions and the Group's view of economic conditions over the expected lives of the receivables. The Group performed the calculation of ECL rates by the operating segment and geography.

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The following table provides information about the exposure to credit risk and ECLs for accounts receivable as at December 31, 2018.

	Gross carrying amount	Impairment provision on individual basis	Impairment provision on provision matrix basis		Loss allowance
			Weighted - average loss rate	Impairment provision	
	RMB	RMB	%	RMB	RMB
Current (not past due)	55,957	50	0.1%	80	130
Within 1 year past due	2,067	80	0.5%	9	89
1 to 2 years past due	496	52	7.4%	33	85
2 to 3 years past due	723	547	35.2%	62	609
Over 3 years past due	3,317	2,830	63.7%	310	3,140
Total	62,560	3,559		494	4,053

The carrying amounts of cash and cash equivalents, time deposits placed with banks, accounts receivable, other receivables and notes receivable included in the consolidated statement of financial position represent the Group's maximum exposure to credit risk. No other financial assets carry a significant exposure to credit risk.

The Group has no significant concentration of credit risk.

(c) Liquidity risk

Liquidity risk is the risk that the Group will encounter difficulty in meeting obligations associated with financial liabilities.

In managing its liquidity risk, the Group has access to funding at market rates through equity and debt markets, including using undrawn committed borrowing facilities to meet foreseeable borrowing requirements.

Given the low level of gearing and continued access to funding, the Group believes that its liquidity risk is not material.

Analysis of the Group's borrowings based on the remaining period at the date of the statement of financial position to the contractual maturity dates is presented in Note 29.

4.2 Capital management

The Group's objectives when managing capital are to safeguard its ability to continue as a going concern, optimize returns for owners and to minimize its cost of capital. In meeting its objectives of managing capital, the Group may issue new shares, adjust its debt levels or the mix between short-term and long-term borrowings.

The Group monitors capital on the basis of the gearing ratio which is calculated as interest-bearing borrowings / (interest-bearing borrowings + total equity). The gearing ratio at December 31, 2018 is 22.4% (December 31, 2017: 25.2%).

4.3 Fair value estimation

The methods and assumptions applied in determining the fair value of each class of financial assets and financial liabilities of the Group at December 31, 2018 and 2017 are disclosed in the respective accounting policies.

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NOTES TO THE FINANCIAL STATEMENTS — (Continued)

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The carrying amounts of the following financial assets and financial liabilities approximate their fair value as all of them are short-term in nature: cash and cash equivalents, time deposits with maturities over three months but within one year, accounts receivable, other receivables, notes receivable, trade payables, other payables and short-term borrowings. The fair values of fixed rate long-term borrowings are likely to be different from their respective carrying amounts. Analysis of the fair values and carrying amounts of long-term borrowings is presented in Note 29.

The equity investments that are not held for trading are measured at fair value at the end of the reporting period. The fair value of such equity investments are mainly categorized into level 1 of the fair value hierarchy which are based on the unadjusted quoted prices in active markets for identical assets or liabilities as inputs used in the valuation techniques.

5 CRITICAL ACCOUNTING ESTIMATES AND JUDGMENTS

Estimates and judgments are regularly evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

The matters described below are considered to be the most critical in understanding the estimates and judgments that are involved in preparing the Group's consolidated financial statements.

(a) Estimation of oil and gas reserves

Estimates of oil and natural gas reserves are key elements in the Group's investment decision-making process. They are also an important element in testing for impairment. Changes in proved oil and gas reserves, particularly proved developed reserves, will affect unit-of-production depreciation, depletion and amortization recorded in the Group's consolidated financial statements for property, plant and equipment related to oil and gas production activities. A reduction in proved developed reserves will increase depreciation, depletion and amortization charges. Proved oil and gas reserves estimates are subject to revision, either upward or downward, based on new information, such as from development drilling and production activities or from changes in economic factors, including product prices, contract terms, evolution of technology or development plans, etc.

(b) Estimation of impairment of property, plant and equipment

Property, plant and equipment, including oil and gas properties, are reviewed for possible impairments when events or changes in circumstances indicate that the carrying amount may not be recoverable. Determination as to whether and how much an asset is impaired involves management estimates and judgments such as the future price of crude oil, refined and chemical products, the operation costs, the product mix, production volumes and the oil and gas reserves. However, the impairment reviews and calculations are based on assumptions that are consistent with the Group's business plans taking into account current economic conditions. Favorable changes to some assumptions, or not updating assumptions previously made, may allow the Group to avoid the need to impair any assets or make it necessary to reverse an impairment loss recognized in prior periods, whereas unfavorable changes may cause the assets to become impaired. For example, when the assumed future price and production volume of crude oil used for the expected future cash flows are different from the actual price and production volume of crude oil respectively experienced in future, the Group may either over or under recognize the impairment losses for certain assets.

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

(c) Estimation of asset retirement obligations

Provision is recognized for the future decommissioning and restoration of oil and gas properties. The amount of the provision recognized is the present values of the estimated future expenditures. The estimation of the future expenditures is based on current local conditions and requirements, including legal requirements, technology, price levels, etc. In addition to these factors, the present values of these estimated future expenditures are also impacted by the estimation of the economic lives of oil and gas properties and estimates of discount rates. Changes in any of these estimates will impact the operating results and the financial position of the Group over the remaining economic lives of the oil and gas properties.

(d) Deferred tax assets

According to the requirements of the competent tax authority, the Company paid income taxes of its branches in the eastern and western regions in aggregate. The tax losses recorded by the branches in the eastern region has given rise to deferred tax assets, which may be recoverable from future taxable profits generated by the branches in the eastern region. Any policy adjustments may increase or decrease the amount of tax expenses of the Company.

6 REVENUE

Revenue mainly represents revenues from the sale of crude oil, natural gas, refined products and chemical products. The revenue information for the year ended December 31, 2018 is as follows:

Type of Category	Exploration and Production	Refining and Chemicals	Marketing	Natural Gas and Pipeline	Head Office and Other	Total
Type of goods and services						
Crude oil	477,512	—	440,560	—	—	918,072
Natural gas	104,927	—	222,387	256,810	—	584,124
Refined products	21,276	702,572	1,315,959	—	—	2,039,807
Chemical products	—	164,229	—	—	—	164,229
Pipeline transportation business	—	—	—	70,068	—	70,068
Non-oil sales in gas stations	—	—	22,274	—	—	22,274
Others	54,768	7,153	1,722	35,545	2,372	101,560
Intersegment elimination	(539,295)	(692,660)	(280,639)	(34,156)	(606)	(1,547,356)
Revenue from contracts with customers	<u>119,188</u>	<u>181,294</u>	<u>1,722,263</u>	<u>328,267</u>	<u>1,766</u>	<u>2,352,778</u>
Other revenue						810
Total						<u>2,353,588</u>
Geographical Region						
Mainland China	41,791	181,294	963,061	328,267	1,766	1,516,179
Others	<u>77,397</u>	<u>—</u>	<u>759,202</u>	<u>—</u>	<u>—</u>	<u>836,599</u>
Revenue from contracts with customers	<u>119,188</u>	<u>181,294</u>	<u>1,722,263</u>	<u>328,267</u>	<u>1,766</u>	<u>2,352,778</u>
Other revenue						810
Total						<u>2,353,588</u>

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

7 PROFIT BEFORE INCOME TAX EXPENSE

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
Items credited and charged in arriving at the profit before income tax expense include:			
<u>Credited</u>			
Dividend income from financial assets measured at fair value through other comprehensive income	52	—	—
Dividend income from available-for-sale financial assets	—	42	60
Reversal of provision for impairment of receivables	1,370	37	62
Reversal of write down in inventories	77	49	75
Government grants ⁽ⁱ⁾	11,774	9,102	8,509
Gain on disposal of investment in subsidiaries	45	613	24,674
<u>Charged</u>			
Amortization of intangible and other assets	4,894	4,495	4,896
Auditors' remuneration ⁽ⁱⁱ⁾	53	53	53
Cost of inventories recognized as expense	1,805,656	1,560,361	1,217,131
Provision for impairment of receivables	1,385	3,291	1,671
Loss on disposal of property, plant and equipment	16,759	4,939	7,972
Operating lease expenses	20,180	20,073	19,027
Research and development expenses	14,093	12,323	11,227
Write down in inventories	4,155	1,118	2,709

- (i) Comprises proportionate refund of import value-added tax relating to the import of natural gas (including liquefied natural gas) provided by the PRC government and value-added tax refund upon levy for pipeline transportation service over which portion of value-added tax actual tax burden exceeds 3%. This value-added tax refund is applicable from January 1, 2011 to December 31, 2020 and available when the import prices of the natural gas and liquefied natural gas imported under any State-sanctioned pipelines are higher than their prescribed selling prices.
- (ii) The auditors' remuneration above represents the annual audit fees paid by the Company. This remuneration does not include fees of RMB 52 paid by subsidiaries to the Company's current auditor and its network firms which primarily relates to audit, tax compliance and other advisory services (2017: RMB 52, 2016: RMB 66).

8 EMPLOYEE COMPENSATION COSTS

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
Wages, salaries and allowances	95,492	82,639	75,461
Social security costs	48,535	42,745	42,201
	<u>144,027</u>	<u>125,384</u>	<u>117,662</u>

Social security costs mainly represent contributions to plans for staff welfare organized by the PRC municipal and provincial governments and others including contributions to the retirement benefit plans (Note 34).

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(All amounts in millions, except for the per share data and otherwise stated)

9 TAXES OTHER THAN INCOME TAXES

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
Consumption tax	149,455	142,708	140,268
Resource tax	24,339	18,000	14,472
Crude oil special gain levy	4,750	—	—
Other	38,723	37,314	34,868
	<u>217,267</u>	<u>198,022</u>	<u>189,608</u>

10 INTEREST EXPENSE

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
Interest on			
Bank loans	2,044	1,569	891
Other loans	16,037	17,394	19,910
Accretion expense (Note 33)	5,678	5,453	5,126
Less: Amounts capitalized	(1,407)	(2,008)	(2,579)
	<u>22,352</u>	<u>22,408</u>	<u>23,348</u>

Amounts capitalized are borrowing costs that are attributable to the construction of a qualifying asset. The average interest rate used to capitalize such general borrowing cost was 4.28% per annum for the year ended December 31, 2018 (2017: 4.28% per annum, 2016: 4.28% per annum).

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11 EMOLUMENTS OF DIRECTORS AND SUPERVISORS

Details of the emoluments of directors and supervisors for the years ended December 31, 2018, 2017 and 2016 are as follows:

Name	2018				2017	2016
	Fee for directors and supervisors	Salaries, allowances and other benefits	Contribution to retirement benefit scheme	Total	Total	Total
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
Chairman:						
Mr. Wang Yilin	—	—	—	—	—	—
Vice chairmen:						
Mr. Zhang Jianhua ⁽ⁱ⁾	—	553	80	633	—	—
Mr. Wang Dongjin ⁽ⁱⁱ⁾	—	373	36	409	823	774
Executive directors:						
Mr. Zhao Zhengzhang ⁽ⁱⁱⁱ⁾	—	—	—	—	159	759
Mr. Hou Qijun ⁽ⁱⁱⁱ⁾	—	740	148	888	648	—
Non-executive directors:						
Mr. Yu Baocai ^(iv)	—	—	—	—	—	—
Mr. Shen Diancheng ^(vi)	—	—	—	—	—	—
Mr. Liu Yuezheng	—	—	—	—	—	—
Mr. Liu Hongbin ^(v)	—	—	—	—	—	679
Mr. Duan Liangwei ^(vi)	—	—	—	—	—	—
Mr. Qin Weizhong ^(vi)	—	—	—	—	—	—
Mr. Chen Zhiwu ^(vii)	—	—	—	—	—	234
Mr. Richard H. Matzke ^(vii)	—	—	—	—	—	241
Mr. Lin Boqiang	365	—	—	365	250	281
Mr. Zhang Biyi	399	—	—	399	250	278
Ms. Elsie Leung Oi-sie ^(vii)	334	—	—	334	220	—
Mr. Tokuchi Tatsuhito ^(vii)	334	—	—	334	226	—
Mr. Simon Henry ^(vii)	340	—	—	340	213	—
	<u>1,772</u>	<u>—</u>	<u>—</u>	<u>1,772</u>	<u>1,159</u>	<u>1,713</u>
Supervisors:						
Mr. Xu Wenrong ^(viii)	—	—	—	—	—	—
Mr. Guo Jinping ^(viii)	—	—	—	—	—	—
Mr. Zhang Fengshan	—	—	—	—	—	—
Mr. Li Qingyi ^(viii)	—	—	—	—	—	—
Mr. Jia Yimin ^(viii)	—	—	—	—	—	—
Mr. Jiang Lifu	—	—	—	—	—	—
Mr. Lu Yaozhong ^(viii)	—	—	—	—	—	—
Mr. Wang Liang ^(x)	—	—	—	—	—	—
Mr. Yao Wei ^(ix)	—	—	—	—	—	469
Mr. Liu Hehe ^(ix)	—	—	—	—	—	352
Mr. Yang Hua ^(viii)	—	—	—	—	250	862
Mr. Fu Suotang ^(viii)	—	877	90	967	571	—
Mr. Li Jiamin	—	778	72	850	810	707
Mr. Liu Xianhua ^(ix)	—	675	68	743	733	528
Mr. Li Wendong ^(ix)	—	847	113	960	884	670
	<u>—</u>	<u>3,177</u>	<u>343</u>	<u>3,520</u>	<u>3,248</u>	<u>3,588</u>
	<u>1,772</u>	<u>4,843</u>	<u>607</u>	<u>7,222</u>	<u>6,037</u>	<u>6,834</u>

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- (i) Mr. Zhang Jianhua was elected as the vice chairman and non-executive director from October 28, 2016. Mr. Zhang Jianhua was elected as the president and executive director from June 5, 2018. Mr. Zhang Jianhua ceased being the president and executive director from November 14, 2018.
- (ii) Mr. Wang Dongjin ceased being the president and executive director from April 2, 2018.
- (iii) Mr. Zhao Zhengzhang ceased being the executive director from June 8, 2017. Mr. Hou Qijun was elected as the executive director from June 8, 2017. Mr. Hou Qijun was elected as the president from March 21, 2019.
- (iv) Mr. Yu Baocai ceased being the non-executive director from June 7, 2018.
- (v) Mr. Liu Hongbin ceased being the vice chairman and was transferred from the executive director to the non-executive director from October 28, 2016, besides, received no emoluments from the Company since the next day.
- (vi) Mr. Shen Diancheng ceased being the non-executive director from June 8, 2017. Mr. Duan Liangwei and Mr. Qin Weizhong were elected as the non-executive directors from June 8, 2017. Mr. Qin Weizhong ceased being the non-executive director from April 15, 2019.
- (vii) Mr. Chen Zhiwu and Mr. Richard H. Matzke ceased being the independent non-executive directors from June 8, 2017. Ms. Elsie Leung Oi-sie, Mr. Tokuchi Tatsuhito and Mr. Simon Henry were elected as the independent non-executive directors from June 8, 2017.
- (viii) Mr. Xu Wenrong was elected as an non-executive director from May 25, 2016. Mr. Xu Wenrong ceased being the non-executive director from June 8, 2017. Mr. Xu Wenrong was elected as the Chairman of the Supervisory Committee and Mr. Lu Yaozhong was elected as the supervisor from June 8, 2017. Mr. Guo Jinping, Mr. Li Qingyi and Mr. Jia Yimin ceased being the supervisors from June 8, 2017. Mr. Yang Hua ceased being the staff supervisor from June 8, 2017. Mr. Fu Suotang were elected as the staff supervisor from June 8, 2017.
- (ix) Mr. Li Wendong and Mr. Liu Xianhua were elected as the staff supervisors, besides, Mr. Yao Wei and Mr. Liu Hehe ceased being the staff supervisors from May 17, 2016.
- (x) Mr. Wang Liang was elected as the supervisor from October 26, 2017.
- (xi) The emoluments above are all pre-tax amounts.

None of the directors and supervisors has waived their remuneration during the year ended December 31, 2018. (2017: None of the directors and supervisors has waived their remuneration during the year ended December 31, 2017. 2016: None of the directors and supervisors has waived their remuneration during the year ended December 31, 2016)

The five highest paid individuals in the Company for the year ended December 31, 2018 include one supervisor whose emolument was reflected in the analysis shown above and the note; and four senior managements whose allowances and other benefits were RMB 0.912, RMB 0.899, RMB 0.866 and RMB 0.847, respectively, and whose contribution to retirement benefit scheme were RMB 0.148, RMB 0.148, RMB 0.148 and RMB 0.148, respectively.

The five highest paid individuals in the Company for the year ended December 31, 2017 include two supervisors whose emoluments are reflected in the analysis shown above and the note; and three senior managements whose allowances and other benefits were RMB 0.823, RMB 0.823 and RMB 0.732, respectively, and whose contribution to retirement benefit scheme were RMB 0.127, RMB 0.127 and RMB 0.127, respectively.

The five highest paid individuals in the Company for the year ended December 31, 2016 include two supervisors whose emoluments are reflected in the analysis shown above and the note; and three senior managements whose allowances and other benefits were RMB 0.783, RMB 0.783 and RMB 0.775, respectively,

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and whose contribution to retirement benefit scheme were RMB 0.122, RMB 0.122 and RMB 0.108, respectively.

During 2018, 2017 and 2016, the Company did not incur any severance payment to any director for loss of office or any payment as inducement to any director to join the Company.

12 INCOME TAX EXPENSE

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
Current taxes	34,983	23,835	19,762
Deferred taxes (Note 32)	7,807	(7,539)	(3,994)
	<u>42,790</u>	<u>16,296</u>	<u>15,768</u>

In accordance with the relevant PRC income tax rules and regulations, the PRC corporate income tax rate applicable to the Group is principally 25%. Operations of the Group in western regions in China qualified for certain tax incentives in the form of a preferential income tax rate of 15% through the year 2020.

The tax on the Group's profit before taxation differs from the theoretical amount that would arise using the corporate income tax rate in the PRC applicable to the Group is as follows:

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
Profit before income tax expense	115,206	53,089	45,140
Tax calculated at a tax rate of 25%	28,802	13,272	11,285
Tax return true-up	554	1,275	1,887
Effect of income taxes from international operations in excess of taxes at the PRC statutory tax rate	4,414	693	1,797
Effect of preferential tax rate	(3,855)	(5,058)	(2,418)
Tax effect of income not subject to tax	(3,278)	(3,401)	(4,935)
Tax effect of expenses not deductible for tax purposes	8,278	5,018	1,155
Tax effect of temporary differences and losses unrecognized as deferred tax assets	7,875	4,497	6,997
Income tax expense	<u>42,790</u>	<u>16,296</u>	<u>15,768</u>

13 BASIC AND DILUTED EARNINGS PER SHARE

Basic and diluted earnings per share for the years ended December 31, 2018, 2017 and 2016 have been computed by dividing profit for the year attributable to owners of the Company by 183,021 million shares issued and outstanding for the year.

There are no potentially dilutive ordinary shares.

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14 DIVIDENDS

	<u>2018</u> <u>RMB</u>	<u>2017</u> <u>RMB</u>	<u>2016</u> <u>RMB</u>
Interim dividends attributable to owners of the Company for 2018 (a)	16,252	—	—
Proposed final dividends attributable to owners of the Company for 2018 (b)	16,472	—	—
Interim dividends attributable to owners of the Company for 2017 (c)	—	12,676	—
Final dividends attributable to owners of the Company for 2017 (d)	—	11,117	—
Interim dividends attributable to owners of the Company for 2016 (e)	—	—	3,899
Final dividends attributable to owners of the Company for 2016 (f)	—	—	6,957
	<u>32,724</u>	<u>23,793</u>	<u>10,856</u>

- (a) Interim dividends attributable to owners of the Company in respect of 2018 of RMB 0.08880 yuan per share amounting to a total of RMB 16,252. The dividends were not paid before June 30, 2018 and were not recognized as liability as of June 30, 2018, as they were declared after the date of the statement of financial position. The dividends were paid on September 21, 2018 (A shares) and November 1, 2018 (H shares).
- (b) At the 1st meeting of the Board in 2019, the Board of Directors proposed final dividends attributable to owners of the Company in respect of 2018 of RMB 0.09 yuan per share amounting to a total of RMB 16,472. These consolidated financial statements do not reflect this dividend payable as the final dividends were proposed after the reporting period and will be accounted for in equity as an appropriation of retained earnings for the year ended December 31, 2018 when approved at the forthcoming Annual General Meeting.
- (c) Interim dividends attributable to owners of the Company in respect of 2017 of RMB 0.06926 yuan per share amounting to a total of RMB 12,676. The dividends were not paid before June 30, 2017 and were not recognized as liability as of June 30, 2017, as they were declared after the date of the statement of financial position. The dividends were paid on September 15, 2017 (A shares) and October 27, 2017 (H shares).
- (d) Final dividends attributable to owners of the Company in respect of 2017 of RMB 0.06074 yuan per share amounting to a total of RMB 11,117 and were paid on June 21, 2018 (A shares) and July 26, 2018 (H shares).
- (e) Interim dividends attributable to owners of the Company in respect of 2016 of RMB 0.02131 yuan per share amounting to a total of RMB 3,899. The dividends were not paid before June 30, 2016 and were not recognized as liability as of June 30, 2016, as they were declared after the date of the statement of financial position. The dividends were paid on September 21, 2016 (A shares) and October 28, 2016 (H shares).
- (f) Final dividends attributable to owners of the Company in respect of 2016 of RMB 0.03801 yuan per share amounting to a total of RMB 6,957 were paid on June 22, 2017 (A shares) and July 27, 2017 (H shares).

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(All amounts in millions, except for the per share data and otherwise stated)

15 PROPERTY, PLANT AND EQUIPMENT

Year Ended December 31, 2018	Buildings	Oil and Gas Properties	Equipment and Machinery	Motor Vehicles	Other	Construction in Progress	Total
	RMB	RMB	RMB	RMB	RMB	RMB	RMB
Cost							
At beginning of the year	226,107	2,011,329	1,058,011	28,990	32,631	199,873	3,556,941
Additions	650	10,217	3,584	1,113	649	238,691	254,904
Transfers	15,880	146,012	42,223	—	1,539	(205,654)	—
Disposals or write offs	(6,415)	(57,281)	(12,425)	(2,184)	(506)	(8,579)	(87,390)
Currency translation differences	(90)	3,089	373	(8)	(233)	2,263	5,394
At end of the year	236,132	2,113,366	1,091,766	27,911	34,080	226,594	3,729,849
Accumulated depreciation and impairment							
At beginning of the year	(93,765)	(1,199,741)	(519,089)	(20,296)	(18,230)	(3,007)	(1,854,128)
Charge for the year and others	(9,995)	(131,023)	(49,281)	(1,629)	(1,875)	—	(193,803)
Impairment charge	(759)	(19,856)	(3,937)	(37)	(2,066)	(3,270)	(29,925)
Disposals or write offs or transfers	4,095	42,218	9,923	1,676	358	55	58,325
Currency translation differences	78	(4,505)	(52)	10	99	(47)	(4,417)
At end of the year	(100,346)	(1,312,907)	(562,436)	(20,276)	(21,714)	(6,269)	(2,023,948)
Net book value							
At end of the year	135,786	800,459	529,330	7,635	12,366	220,325	1,705,901

Year Ended December 31, 2017	Buildings	Oil and Gas Properties	Equipment and Machinery	Motor Vehicles	Other	Construction in Progress	Total
	RMB	RMB	RMB	RMB	RMB	RMB	RMB
Cost							
At beginning of the year	214,710	1,909,213	990,832	29,227	22,268	229,371	3,395,621
Additions	1,042	9,193	3,995	824	528	204,159	219,741
Transfers	13,913	124,257	75,284	—	10,506	(223,960)	—
Disposals or write offs	(3,280)	(21,746)	(11,061)	(1,032)	(441)	(9,455)	(47,015)
Currency translation differences	(278)	(9,588)	(1,039)	(29)	(230)	(242)	(11,406)
At end of the year	226,107	2,011,329	1,058,011	28,990	32,631	199,873	3,556,941
Accumulated depreciation and impairment							
At beginning of the year	(85,323)	(1,063,500)	(469,475)	(19,467)	(11,971)	(6,340)	(1,656,076)
Charge for the year and others	(9,968)	(150,178)	(49,509)	(1,754)	(1,857)	—	(213,266)
Impairment charge	(659)	(3,961)	(10,300)	(3)	(2,715)	(309)	(17,947)
Disposals or write offs or transfers	2,075	11,426	9,663	921	(1,699)	3,664	26,050
Currency translation differences	110	6,472	532	7	12	(22)	7,111
At end of the year	(93,765)	(1,199,741)	(519,089)	(20,296)	(18,230)	(3,007)	(1,854,128)
Net book value							
At end of the year	132,342	811,588	538,922	8,694	14,401	196,866	1,702,813

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(All amounts in millions, except for the per share data and otherwise stated)

The Group's exploration and production segment determines whether there are any indications of impairment for the oil blocks according to the Group's guidance of identification of impairment indications for oil and gas properties, performs the impairment tests on those oil blocks with indications of impairment, and reports the results to the Group's internal professional team (including operation and finance team) for further overall assessment and evaluation. The final results of the impairment tests have been submitted to the Group's management for review and approval. The Group recorded impairment losses amounting to RMB 19,856 and RMB 2,904 related to oil and gas properties and construction in progress respectively under the exploration and production segment for the year ended December 31, 2018 (2017: RMB 3,961 related to oil and gas properties under the exploration and production segment, 2016: RMB 711 and RMB 44 related to oil and gas properties and construction in progress respectively under the exploration and production segment) due to the higher production costs and significant drop in the economic benefits of certain oil blocks at the late stage of production. The carrying amount of those impaired oil and gas properties was written down to their respective recoverable amounts, which were determined based on the present values of the expected future cash flows of the assets. The Group referred to the weighted average cost of capital of the oil and gas industry when determining discount rate, and made relevant adjustments according to specific risks in different countries or regions. In 2018, the after-tax discount rates adopted by most oil blocks of the Group ranged from 7.3% to 11.5% (2017: 7.6% to 11.0%, 2016: 7.1% to 10.3%).

The Group recorded impairment losses amounting to RMB 3,937 for the year ended December 31, 2018 related to petrochemical and refinery production facilities (2017: RMB 10,300 primarily related to certain petrochemical production facilities, 2016: RMB 8,502 primarily related to certain petrochemical and liquefied natural gas production facilities). The impairment of these properties is mainly due to the higher production cost and MTBE and etherification plant discontinued in accordance with the national regulations for promoting ethanol for vehicle fuel. The carrying amount of these assets has been reduced to the recoverable amount.

The following table indicates the changes to the Group's exploratory well costs, which are included in construction in progress, for the years ended December 31, 2018, 2017 and 2016.

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
At beginning of the year	22,843	21,421	20,177
Additions to capitalized exploratory well costs pending the determination of proved reserves	28,045	25,165	21,847
Reclassified to wells, facilities, and equipment based on the determination of proved reserves	(15,404)	(14,288)	(10,914)
Capitalized exploratory well costs charged to expense	(8,579)	(9,455)	(9,689)
At end of the year	<u>26,905</u>	<u>22,843</u>	<u>21,421</u>

The following table provides an aging of capitalized exploratory well costs based on the date the drilling was completed.

	<u>December 31, 2018</u>	<u>December 31, 2017</u>
	<u>RMB</u>	<u>RMB</u>
One year or less	17,542	15,231
Over one year	9,363	7,612
Balance at December 31	<u>26,905</u>	<u>22,843</u>

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(All amounts in millions, except for the per share data and otherwise stated)

Capitalized exploratory well costs over one year are principally related to wells that are under further evaluation of drilling results or pending completion of development planning to ascertain economic viability.

16 INVESTMENTS IN ASSOCIATES AND JOINT VENTURES

The summarized financial information of the Group's principal associates and joint ventures, including the aggregated amounts of assets, liabilities, revenue, profit or loss and the interest held by the Group were as follows:

Name	Country of Incorporation	Registered Capital	Principal Activities	Interest Held	
				Direct%	Indirect%
Dalian West Pacific Petrochemical Co., Ltd.	PRC	USD 258million	Production and sale of petroleum and petrochemical products	28.44	—
China Petroleum Finance Co., Ltd.	PRC	8,331	Deposits, loans, settlement, lending, bills acceptance discounting, guarantee and other banking business	32.00	—
CNPC Captive Insurance Co., Ltd.	PRC	5,000	Property loss insurance, liability insurance, credit insurance and deposit insurance; as well as the application of the above insurance reinsurance and insurance capital business	49.00	—
China Marine Bunker (PetroChina) Co., Ltd.	PRC	1,000	Oil import and export trade and transportation, sale and storage	—	50.00
Arrow Energy Holdings Pty Ltd.	Australia	AUD 2	Exploration, development and sale of coal seam gas	—	50.00
Trans-Asia Gas Pipeline Co., Ltd.	PRC	5,000	Main contractor, investment holding, investment management, investment consulting, enterprise management advisory, technology development, promotion and technology consulting	—	50.00

Dividends received or receivable from associates and joint ventures were RMB 6,558 in 2018 (2017: RMB 7,034, 2016: RMB 10,172).

In 2018, investments in associates and joint ventures of RMB 207 (2017: RMB 96, 2016: RMB 101) were disposed of, resulting in a gain of RMB 7 (2017: a gain of RMB 6, 2016: a loss of RMB 40).

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NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

In 2018, the share of profit and other comprehensive income in all individually immaterial associates and joint ventures accounted for using equity method in aggregate was profit of RMB 8,996 (2017: profit of RMB 3,235, 2016: profit of RMB 2,738) and RMB 480 (2017: loss of RMB 845, 2016: loss of RMB 204), respectively.

Interest in Associates

Summarized financial information in respect of the Group's principal associates and reconciliation to carrying amount is as follows:

	Dalian West Pacific Petrochemical Co., Ltd.		China Petroleum Finance Co., Ltd.		CNPC Captive Insurance Co., Ltd.	
	December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
	RMB	RMB	RMB	RMB	RMB	RMB
Percentage ownership interest (%)	28.44	28.44	32.00	32.00	49.00	49.00
Current assets	4,833	5,326	173,948	169,389	10,493	9,386
Non-current assets	3,880	4,141	285,805	309,481	2,928	2,764
Current liabilities	10,013	12,108	378,472	394,064	7,184	6,097
Non-current liabilities	84	333	16,317	24,977	—	1
Net (liabilities) / assets	(1,384)	(2,974)	64,964	59,829	6,237	6,052
Group's share of net assets	—	—	20,788	19,145	3,056	2,965
Goodwill	—	—	349	349	—	—
Carrying amount of interest in associates	—	—	21,137	19,494	3,056	2,965

Summarized statement of comprehensive income and dividends received by the Group are as follows:

	Dalian West Pacific Petrochemical Co., Ltd.			China Petroleum Finance Co., Ltd.			CNPC Captive Insurance Co., Ltd.		
	2018	2017	2016	2018	2017	2016	2018	2017	2016
	RMB	RMB	RMB	RMB	RMB	RMB	RMB	RMB	RMB
Revenue	37,385	27,716	19,029	8,520	8,520	8,555	706	654	563
Profit for the year	1,558	2,602	1,475	7,554	7,286	7,524	315	364	302
Other comprehensive income	—	—	—	651	(1,395)	655	—	1	2
Total comprehensive income	1,558	2,602	1,475	8,205	5,891	8,179	315	365	304
Group's share of total comprehensive income	—	—	—	2,626	1,885	3,628	154	179	149
Dividends received by the Group	—	—	—	983	815	7,203	63	27	—

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NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

Interest in Joint Ventures

Summarized statement of financial position as included in their own financial statements, adjusted for fair value adjustments and differences in accounting policies in respect of the Group's principal joint ventures and reconciliation to carrying amount is as follows:

	China Marine Bunker (PetroChina) Co., Ltd.		Arrow Energy Holdings Pty Ltd.		Trans-Asia Gas Pipeline Co., Ltd.	
	December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
	RMB	RMB	RMB	RMB	RMB	RMB
Percentage ownership interest (%)	50.00	50.00	50.00	50.00	50.00	50.00
Non-current assets	1,893	1,942	24,162	25,429	34,584	31,527
Current assets	7,313	6,449	627	540	3,330	3,957
Including: cash and cash equivalents	1,368	1,277	95	91	81	3,955
Non-current liabilities	152	232	19,772	21,569	2,100	2,100
Including: Non-current financial liabilities excluding trade and other payables and provisions	20	—	16,604	17,890	2,100	2,100
Current liabilities	6,091	5,309	4,624	583	267	343
Including: Current financial liabilities excluding trade and other payables and provisions	3,796	1,894	4,169	192	—	—
Net assets	<u>2,963</u>	<u>2,850</u>	<u>393</u>	<u>3,817</u>	<u>35,547</u>	<u>33,041</u>
Net assets attributable to owners of the Company	2,702	2,630	393	3,817	35,547	33,041
Group's share of net assets	1,351	1,315	197	1,909	17,774	16,521
Elimination of transactions with the Group	<u>—</u>	<u>—</u>	<u>(58)</u>	<u>(52)</u>	<u>—</u>	<u>—</u>
Carrying amount of interest in joint ventures	<u>1,351</u>	<u>1,315</u>	<u>139</u>	<u>1,857</u>	<u>17,774</u>	<u>16,521</u>

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(All amounts in millions, except for the per share data and otherwise stated)

Summarized statement of comprehensive income as included in their own financial statements, adjusted for fair value adjustments and differences in accounting policies and dividends received by the Group is as follows:

	China Marine Bunker (PetroChina) Co., Ltd.			Arrow Energy Holdings Pty Ltd.			Trans-Asia Gas Pipeline Co., Ltd.		
	2018	2017	2016	2018	2017	2016	2018	2017	From the closing date to Dec 31, 2016
	RMB	RMB	RMB	RMB	RMB	RMB	RMB	RMB	RMB
Revenue	43,924	31,770	23,336	1,529	1,449	1,135	14	16	84
Depreciation, depletion and amortization	(90)	(93)	(92)	(825)	(883)	(624)	(4)	(3)	(3)
Interest income	18	12	9	2	2	5	59	65	55
Interest expense	(96)	(39)	(45)	(1,285)	(1,300)	(1,307)	(46)	(43)	(32)
Income tax expense	(37)	(44)	(47)	—	—	—	10	—	(1)
Net profit / (loss)	126	116	101	(1,897)	(5,518)	(3,718)	1,931	4,612	(620)
Total comprehensive income	151	87	171	(3,435)	(3,445)	(3,402)	2,505	4,502	(514)
Group's share of total comprehensive income	<u>76</u>	<u>43</u>	<u>68</u>	<u>(1,718)</u>	<u>(1,723)</u>	<u>(1,701)</u>	<u>1,253</u>	<u>2,251</u>	<u>(257)</u>
Dividends received by the Group	8	—	9	—	—	—	—	—	—

17 AVAILABLE-FOR-SALE FINANCIAL ASSETS

	December 31, 2017
	RMB
Available-for-sale financial assets	2,251
Less: Impairment losses	<u>(334)</u>
	<u>1,917</u>

“Available-for-sale financial assets” were reclassified as “Financial assets measured at fair value through other comprehensive income” upon the initial adoption of IFRS 9 at January 1, 2018 (see Note 3(aa)(a)(ii)).

18 FINANCIAL ASSETS MEASURED AT FAIR VALUE THROUGH OTHER COMPREHENSIVE INCOME

	December 31, 2018
	RMB
China Pacific Insurance (Group) Co.,Ltd.	139
Chengdu Huaqi Houpu Holding Co.,Ltd.	114
Other items	<u>485</u>
	<u>738</u>

The above equity investments are planned to be held for a long term by the Group for strategic purpose, the Group designates them as financial assets at fair value through other comprehensive income. “Available-for-sale financial assets” were reclassified as “Financial assets measured at fair value through other comprehensive

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NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

income” upon the initial adoption of IFRS 9 at January 1, 2018 (see Note 3(aa)(a)(ii)). Dividends amounting to RMB 52 were received on these investments during the year ended December 31, 2018.

19 SUBSIDIARIES

The principal subsidiaries of the Group are:

<u>Company Name</u>	<u>Country of Incorporation</u>	<u>Registered Capital</u>	<u>Type of Legal Entity</u>	<u>Attributable Equity Interest %</u>	<u>Voting Rights%</u>	<u>Principal Activities</u>
Daqing Oilfield Company Limited	PRC	47,500	Limited liability company	100.00	100.00	Exploration, production and sale of crude oil and natural gas
CNPC Exploration and Development Company Limited ⁽ⁱ⁾	PRC	16,100	Limited liability company	50.00	57.14	Exploration, production and sale of crude oil and natural gas outside the PRC
PetroChina Hong Kong Limited	Hong Kong	HKD 7,592 million	Limited liability company	100.00	100.00	Investment holding. The principal activities of its subsidiaries, associates and joint ventures are the exploration, production and sale of crude oil in and outside the PRC as well as natural gas sale and transmission in the PRC
PetroChina International Investment Company Limited	PRC	31,314	Limited liability company	100.00	100.00	Investment holding. The principal activities of its subsidiaries and joint ventures are the exploration, development and production of crude oil, natural gas, oil sands and coalbed methane outside the PRC
PetroChina International Company Limited	PRC	18,096	Limited liability company	100.00	100.00	Marketing of refined products and trading of crude oil and petrochemical products, storage, investment in refining, chemical engineering, storage facilities, service station, and transportation facilities and related business in and outside the PRC

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(All amounts in millions, except for the per share data and otherwise stated)

<u>Company Name</u>	<u>Country of Incorporation</u>	<u>Registered Capital</u>	<u>Type of Legal Entity</u>	<u>Attributable Equity Interest %</u>	<u>Voting Rights%</u>	<u>Principal Activities</u>
PetroChina Pipelines Co., Ltd.	PRC	80,000	Limited liability company	72.26	72.26	Oil and gas pipeline transportation, investment holding, import and export of goods, agency of import and export, import and export of technology, technology promotion service, professional contractor, main contractor

- (i) The Company consolidated the financial statements of the entity because it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity.

Summarized financial information in respect of the Group's principal subsidiaries with significant non-controlling interests is as follows:

	<u>CNPC Exploration and Development Company Limited</u>		<u>PetroChina Pipelines Co., Ltd.</u>	
	<u>December 31, 2018</u>	<u>December 31, 2017</u>	<u>December 31, 2018</u>	<u>December 31, 2017</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
Percentage ownership interest (%)	50.00	50.00	72.26	72.26
Current assets	21,463	24,722	4,604	2,882
Non-current assets	166,155	133,328	224,163	232,842
Current liabilities	14,525	13,273	7,531	6,059
Non-current liabilities	25,967	13,211	6,095	8,408
Net assets	<u>147,126</u>	<u>131,566</u>	<u>215,141</u>	<u>221,257</u>

Summarized statement of comprehensive income is as follows:

	<u>CNPC Exploration and Development Company Limited</u>			<u>PetroChina Pipelines Co., Ltd.</u>		
	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
Revenue	45,618	37,304	28,196	43,062	43,627	41,794
Profit from continuing operations	15,563	3,696	24,153	19,436	17,891	20,420
Total comprehensive income	17,528	(1,050)	30,391	19,436	17,891	20,420
Profit attributable to non-controlling interests	8,844	2,390	12,414	5,392	4,963	5,664
Dividends paid to non-controlling interests	2,038	1,420	444	7,174	3,569	—

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NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

Summarized statement of cash flows is as follows:

	CNPC Exploration and Development Company Limited			PetroChina Pipelines Co., Ltd.		
	2018	2017	2016	2018	2017	2016
	RMB	RMB	RMB	RMB	RMB	RMB
Net cash inflow from operating activities	22,467	18,545	9,053	29,701	31,160	30,270
Net cash (outflow) / inflow from investing activities	(33,466)	(12,304)	(18,036)	(2,701)	2,869	14,799
Net cash inflow/(outflow) from financing activities	7,865	(4,296)	(2,248)	(25,919)	(36,190)	(47,624)
Effect of foreign exchange rate changes on cash and cash equivalents	(1,350)	(2,183)	748	—	—	—
Net (decrease) / increase in cash and cash equivalents	(4,484)	(238)	(10,483)	1,081	(2,161)	(2,555)
Cash and cash equivalents at the beginning of the year	17,982	18,220	28,703	148	2,309	4,864
Cash and cash equivalents at the end of the year	13,498	17,982	18,220	1,229	148	2,309

20 ADVANCE OPERATING LEASE PAYMENTS

	December 31, 2018	December 31, 2017
	RMB	RMB
Land use rights	58,858	55,095
Advance lease payments	19,382	18,801
	<u>78,240</u>	<u>73,896</u>

Advance operating lease payments are amortized over the related lease terms using the straight-line method.

21 INTANGIBLE AND OTHER NON-CURRENT ASSETS

	December 31, 2018			December 31, 2017		
	Cost	Accumulated amortization, including impairment losses	Net	Cost	Accumulated amortization, including impairment losses	Net
	RMB	RMB	RMB	RMB	RMB	RMB
Patents and technical know-how	7,674	(6,016)	1,658	7,476	(5,620)	1,856
Computer software	11,741	(8,636)	3,105	10,638	(7,749)	2,889
Goodwill ⁽ⁱ⁾	46,020	(3,747)	42,273	45,643	(3,709)	41,934
Other	21,526	(8,035)	13,491	20,128	(7,207)	12,921
Intangible assets	<u>86,961</u>	<u>(26,434)</u>	60,527	<u>83,885</u>	<u>(24,285)</u>	59,600
Other assets			<u>37,771</u>			<u>33,341</u>
			<u>98,298</u>			<u>92,941</u>

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(All amounts in millions, except for the per share data and otherwise stated)

- (i) Goodwill primarily relates to the acquisition of Singapore Petroleum Company, Petroineos Trading Limited and PetroChina United Pipelines Co., Ltd., completed in 2009, 2011 and 2015, respectively. The recoverable amount of all cash-generating units has been determined based on value-in-use calculations. These calculations use post-tax cash flow projections based on financial budgets prepared by management. The post-tax discount rates range from 8.9% to 11.0% (2017: 8.9%-10.5%), and reflect specific risks relating to the cash-generating unit. Based on the estimated recoverable amount, the impairment charge of the Group for the year ended December 31, 2018 amounted to RMB 38 (2017: RMB 3,709 primarily related to goodwill of PetroChina United Pipelines Co., Ltd.).

22 INVENTORIES

	December 31, 2018	December 31, 2017
	RMB	RMB
Crude oil and other raw materials	56,548	48,936
Work in progress	13,773	12,811
Finished goods	109,067	83,908
Spare parts and consumables	53	170
	<u>179,441</u>	<u>145,825</u>
Less: Write down in inventories	<u>(4,855)</u>	<u>(1,156)</u>
	<u><u>174,586</u></u>	<u><u>144,669</u></u>

23 ACCOUNTS RECEIVABLE

	December 31, 2018	December 31, 2017
	RMB	RMB
Accounts receivable	62,560	57,914
Less: Provision for impairment of receivables	<u>(4,053)</u>	<u>(4,771)</u>
	<u><u>58,507</u></u>	<u><u>53,143</u></u>

The aging analysis of accounts receivable (net of impairment of accounts receivable) based on the invoice date (or date of revenue recognition, if earlier), at December 31, 2018 and 2017 is as follows:

	December 31, 2018	December 31, 2017
	RMB	RMB
Within 1 year	57,377	51,051
Between 1 and 2 years	837	1,203
Between 2 and 3 years	108	379
Over 3 years	<u>185</u>	<u>510</u>
	<u><u>58,507</u></u>	<u><u>53,143</u></u>

The Group offers its customers credit terms up to 90 days.

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NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

Movements in the provision for impairment of accounts receivable are as follows:

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
At beginning of the year	4,771	2,023	523
Provision for impairment of accounts receivable	561	2,813	1,633
Reversal of provision for impairment of accounts receivable	(1,178)	(7)	(36)
Receivables written off as uncollectible	(101)	(58)	(97)
At end of the year	<u>4,053</u>	<u>4,771</u>	<u>2,023</u>

24 PREPAYMENTS AND OTHER CURRENT ASSETS

	<u>December 31, 2018</u>	<u>December 31, 2017</u>
	<u>RMB</u>	<u>RMB</u>
Other receivables	18,888	16,535
Advances to suppliers	17,801	10,384
	36,689	26,919
Less: Provision for impairment	(3,412)	(2,824)
	33,277	24,095
Value-added tax to be deducted	42,153	39,203
Prepaid expenses	1,064	951
Prepaid income taxes	1,261	—
Other current assets	10,839	7,765
	<u>88,594</u>	<u>72,014</u>

25 NOTES RECEIVABLE

Notes receivable represent mainly bills of acceptance issued by banks for the sale of goods and performance of services. All notes receivable are due within one year.

26 CASH AND CASH EQUIVALENTS

The weighted average effective interest rate on bank deposits was 1.55% per annum for the year ended December 31, 2018 (2017: 2.18% per annum, 2016: 1.36% per annum).

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(All amounts in millions, except for the per share data and otherwise stated)

27 ACCOUNTS PAYABLE AND ACCRUED LIABILITIES

	December 31, 2018	December 31, 2017
	RMB	RMB
Trade payables	121,312	103,201
Advances from customers ⁽ⁱ⁾	—	67,176
Salaries and welfare payable	10,087	6,955
Accrued expenses	5	213
Dividends payable by subsidiaries to non-controlling shareholders	355	139
Interest payable	2,965	3,910
Construction fee and equipment cost payables	123,556	121,313
Other ⁽ⁱⁱ⁾	39,548	40,912
	<u>297,828</u>	<u>343,819</u>

- (i) As a result of the adoption of IFRS 15, gross amount due to customers for advances received are included in contract liabilities and disclosed in Note 28 (see Note 3(aa)(a)(i)).
- (ii) Other consists primarily of notes payables, insurance payable, etc.

The aging analysis of trade payables at December 31, 2018 and 2017 is as follows:

	December 31, 2018	December 31, 2017
	RMB	RMB
Within 1 year	111,613	94,996
Between 1 and 2 years	5,049	4,241
Between 2 and 3 years	2,386	1,894
Over 3 years	2,264	2,070
	<u>121,312</u>	<u>103,201</u>

28 CONTRACT LIABILITIES

As of December 31, 2018, contract liabilities mainly represented advances from customers related to the sales of natural gas, crude oil and refined oil, etc. The majority of related obligations are expected to be performed within one year and the corresponding revenue will be recognized. The primary amount of contract liabilities at the beginning of the year has been recognized as revenue for the year ended December 31, 2018.

29 BORROWINGS

	December 31, 2018	December 31, 2017
	RMB	RMB
Short-term borrowings excluding current portion of long-term borrowings	62,368	93,881
Current portion of long-term borrowings	75,370	81,536
	<u>137,738</u>	<u>175,417</u>
Long-term borrowings	269,422	289,858
	<u>407,160</u>	<u>465,275</u>

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Borrowings of the Group of RMB 27,685 were guaranteed by CNPC, its fellow subsidiaries and a third party at December 31, 2018 (December 31, 2017: RMB 45,463).

The Group's borrowings include secured liabilities totalling RMB 2,460 at December 31, 2018 (December 31, 2017: RMB 2,829).

	December 31, 2018	December 31, 2017
	RMB	RMB
Total borrowings:		
— interest free	129	130
— at fixed rates	201,607	253,369
— at floating rates	<u>205,424</u>	<u>211,776</u>
	<u>407,160</u>	<u>465,275</u>
Weighted average effective interest rates:		
— bank loans	3.39%	2.42%
— corporate debentures	3.39%	3.62%
— medium-term notes	3.68%	3.81%
— other loans	4.07%	3.87%

The borrowings by major currency at December 31, 2018 and December 31, 2017 are as follows:

	December 31, 2018	December 31, 2017
	RMB	RMB
RMB	291,087	332,383
US Dollar	106,821	124,312
Other currency	<u>9,252</u>	<u>8,580</u>
	<u>407,160</u>	<u>465,275</u>

The fair values of the Group's long-term borrowings including the current portion of long-term borrowings are RMB 339,878 (December 31, 2017: RMB 343,707) at December 31, 2018. The carrying amounts of short-term borrowings approximate their fair values.

The fair values are based on discounted cash flows using applicable discount rates based upon the prevailing market rates of interest available to the Group for financial instruments with substantially the same terms and characteristics at the dates of the statement of financial position. Such discount rates ranged from -0.18% to 5.43% per annum as of December 31, 2018 (December 31, 2017: -0.24% to 6.04% per annum) depending on the type of the borrowings.

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The following table sets out the borrowings' remaining contractual maturities at the date of the statement of financial position, which are based on contractual undiscounted cash flows including principal and interest, and the earliest contractual maturity date:

	<u>December 31, 2018</u>	<u>December 31, 2017</u>
	<u>RMB</u>	<u>RMB</u>
Within 1 year	151,049	189,050
Between 1 and 2 years	98,939	69,159
Between 2 and 5 years	150,837	191,879
After 5 years	<u>43,879</u>	<u>70,179</u>
	<u>444,704</u>	<u>520,267</u>

Reconciliation of movements of borrowings to cash flows arising from financing activities:

	<u>2018</u>	<u>2017</u>
	<u>RMB</u>	<u>RMB</u>
At beginning of the year	465,275	516,271
Changes from financing cash flows:		
Increase in borrowings	690,189	730,252
Repayments of borrowings	(754,227)	(773,940)
Other borrowing costs paid	<u>—</u>	<u>(173)</u>
Total changes from financing cash flows	<u>(64,038)</u>	<u>(43,861)</u>
Exchange adjustments	<u>5,923</u>	<u>(7,135)</u>
At end of the year	<u>407,160</u>	<u>465,275</u>

30 SHARE CAPITAL

	<u>December 31, 2018</u>	<u>December 31, 2017</u>
	<u>RMB</u>	<u>RMB</u>
Registered, issued and fully paid:		
A shares	161,922	161,922
H shares	<u>21,099</u>	<u>21,099</u>
	<u>183,021</u>	<u>183,021</u>

In accordance with the Restructuring Agreement between CNPC and the Company effective as of November 5, 1999, the Company issued 160 billion state-owned shares in exchange for the assets and liabilities transferred to the Company by CNPC. The 160 billion state-owned shares were the initial registered capital of the Company with a par value of RMB 1.00 yuan per share.

On April 7, 2000, the Company issued 17,582,418,000 shares, represented by 13,447,897,000 H shares and 41,345,210 ADSs (each representing 100 H shares) in a global initial public offering ("Global Offering") and the trading of the H shares and the ADSs on the Stock Exchange of Hong Kong Limited and the New York Stock Exchange commenced on April 7, 2000 and April 6, 2000, respectively. The H shares and ADSs were issued at prices of HK\$ 1.28 per H share and US\$ 16.44 per ADS respectively for which the net proceeds to the Company

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NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

were approximately RMB 20 billion. The shares issued pursuant to the Global Offering rank equally with existing shares.

Pursuant to the approval of the China Securities Regulatory Commission, 1,758,242,000 state-owned shares of the Company owned by CNPC were converted into H shares for sale in the Global Offering.

On September 1, 2005, the Company issued an additional 3,196,801,818 new H shares at HK\$ 6.00 per share and net proceeds to the Company amounted to approximately RMB 19,692. CNPC also sold 319,680,182 state-owned shares it held concurrently with PetroChina's sale of new H shares in September 2005.

On October 31, 2007, the Company issued 4,000,000,000 new A shares at RMB 16.70 yuan per share and net proceeds to the Company amounted to approximately RMB 66,243 and the listing and trading of the A shares on the Shanghai Stock Exchange commenced on November 5, 2007.

Following the issuance of the A shares, all the existing state-owned shares issued before November 5, 2007 held by CNPC have been registered with the China Securities Depository and Clearing Corporation Limited as A shares.

Shareholders' rights are governed by the Company Law of the PRC that requires an increase in registered capital to be approved by the shareholders in shareholders' general meetings and the relevant PRC regulatory authorities.

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NOTES TO THE FINANCIAL STATEMENTS — (Continued)
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31 RESERVES

	<u>2018</u>	<u>2017</u>
	<u>RMB</u>	<u>RMB</u>
Capital Reserve		
Beginning balance	133,308	133,308
Ending balance	133,308	133,308
Statutory Common Reserve Fund ^(a)		
Beginning balance	188,769	186,840
Transfer from retained earnings	5,476	1,929
Ending balance	194,245	188,769
Special Reserve-Safety Fund Reserve		
Beginning balance	13,366	13,188
Safety fund reserve	465	178
Ending balance	13,831	13,366
Currency Translation Differences ^(b)		
Beginning balance	(28,045)	(29,294)
Currency translation differences	(5,022)	1,249
Ending balance	(33,067)	(28,045)
Other Reserves		
Beginning balance	(9,336)	(9,236)
Equity transaction with non-controlling interests	13	289
Acquisition of subsidiaries	—	(1)
Fair value loss from financial assets measured at fair value through other comprehensive income	(162)	—
Fair value loss on available-for-sale financial assets	—	(36)
Share of the other comprehensive income of associates and joint ventures accounted for using the equity method	220	(326)
Other	31	(26)
Ending balance	(9,234)	(9,336)
	<u>299,083</u>	<u>298,062</u>

- (a) Pursuant to the PRC regulations and the Company's Articles of Association, the Company is required to transfer 10% of its net profit, as determined under the PRC accounting regulations, to a Statutory Common Reserve Fund ("Reserve Fund"). Appropriation to the Reserve Fund may cease when the fund aggregates to 50% of the Company's registered capital. The transfer to this reserve must be made before distribution of dividends to shareholders.

The Reserve Fund shall only be used to make good previous years' losses, to expand the Company's production operations, or to increase the capital of the Company. Upon approval of a resolution of shareholders' in a general meeting, the Company may convert its Reserve Fund into share capital and issue bonus shares to existing shareholders in proportion to their original shareholdings or to increase the nominal value of each share currently held by them, provided that the balance of the Reserve Fund after such issuance is not less than 25% of the Company's registered capital.

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(All amounts in millions, except for the per share data and otherwise stated)

- (b) The translation reserve comprises all foreign currency differences arising from the translation of the financial statements of foreign operations.
- (c) According to the relevant PRC regulations, the distributable reserve is the lower of the retained earnings computed under PRC accounting regulations and IFRS. As of December 31, 2018, the Company's distributable reserve amounted to RMB 594,169 (December 31, 2017: RMB 572,252).

32 DEFERRED TAXATION

The movements in the deferred taxation account are as follows:

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
At beginning of the year	14,064	6,720	3,807
Transfer to profit and loss (Note 12)	(7,807)	7,539	3,994
Credit/ (debit) to other comprehensive income	226	(195)	(1,081)
At end of the year	<u>6,483</u>	<u>14,064</u>	<u>6,720</u>

Deferred tax balances before offset are attributable to the following items:

	<u>December 31, 2018</u>	<u>December 31, 2017</u>
	<u>RMB</u>	<u>RMB</u>
Deferred tax assets:		
Receivables and inventories	8,528	10,387
Tax losses	26,027	27,911
Impairment of long-term assets	7,838	9,712
Other	7,187	7,613
Total deferred tax assets	<u>49,580</u>	<u>55,623</u>
Deferred tax liabilities:		
Accelerated tax depreciation	27,948	27,539
Other	15,149	14,020
Total deferred tax liabilities	<u>43,097</u>	<u>41,559</u>
Net deferred tax assets	<u>6,483</u>	<u>14,064</u>

Tax losses that can be carried forward to future years include deferred tax assets arising from the losses of the branches in the eastern region. The tax expenses of the Company's branches in the eastern and western regions were paid in aggregate according to the requirements of the competent tax authority.

Deferred tax balances after offset are listed as follows:

	<u>December 31, 2018</u>	<u>December 31, 2017</u>
	<u>RMB</u>	<u>RMB</u>
Deferred tax assets	23,498	26,724
Deferred tax liabilities	17,015	12,660

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NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

33 ASSET RETIREMENT OBLIGATIONS

	<u>2018</u>	<u>2017</u>	<u>2016</u>
	<u>RMB</u>	<u>RMB</u>	<u>RMB</u>
At beginning of the year	131,546	125,392	117,996
Net liabilities incurred, including reassessment	(2,220)	2,981	2,942
Liabilities settled	(2,034)	(2,012)	(843)
Accretion expense (Note 10)	5,678	5,453	5,126
Currency translation differences	(190)	(268)	171
At end of the year	<u>132,780</u>	<u>131,546</u>	<u>125,392</u>

Asset retirement obligations relate to oil and gas properties (Note 15).

34 PENSIONS

The Group participates in various employee retirement benefit plans (Note 3(y)). Expenses incurred by the Group in connection with the retirement benefit plans for the year ended December 31, 2018 amounted to RMB 19,387 (2017: RMB 16,010, 2016: RMB 16,184).

35 CONTINGENT LIABILITIES

(a) Bank and other guarantees

At December 31, 2018 and 2017, the Group did not guarantee related parties or third parties any significant borrowings or others.

(b) Environmental liabilities

China has adopted extensive environmental laws and regulations that affect the operation of the oil and gas industry. Under existing legislation, however, management believes that there are no probable liabilities, except for the amounts which have already been reflected in the consolidated financial statements, which may have a material adverse effect on the financial position of the Group.

(c) Legal contingencies

During the reporting period, the Group has complied with domestic and overseas significant laws and regulatory requirements. Notwithstanding certain insignificant lawsuits as well as other proceedings outstanding, management believes that any resulting liabilities will not have a material adverse effect on the financial position of the Group.

(d) Group insurance

The Group has insurance coverage for vehicles and certain assets that are subject to significant operating risks, third-party liability insurance against claims relating to personal injury, property and environmental damages that result from accidents and also employer liabilities insurance. The potential effect on the financial position of the Group of any liabilities resulting from future uninsured incidents cannot be estimated by the Group at present.

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36 COMMITMENTS

(a) Operating lease commitments

Operating lease commitments of the Group are mainly for leasing of land, buildings and equipment. Leases range from 1 to 50 years and usually do not contain renewal options. Future minimum lease payments as of December 31, 2018 and 2017 under non-cancelable operating leases are as follows:

	<u>December 31, 2018</u>	<u>December 31, 2017</u>
	<u>RMB</u>	<u>RMB</u>
No later than 1 year	12,664	11,519
Later than 1 year and no later than 5 years	39,222	37,033
Later than 5 years	176,049	180,833
	<u>227,935</u>	<u>229,385</u>

(b) Capital commitments

At December 31, 2018, the Group's capital commitments contracted but not provided for mainly relating to property, plant and equipment were RMB 41,989 (December 31, 2017: RMB 70,563).

The operating lease and capital commitments above are transactions mainly with CNPC and its fellow subsidiaries.

(c) Exploration and production licenses

The Company is obligated to make annual payments with respect to its exploration and production licenses to the Ministry of Natural Resources. Payments incurred were RMB 650 for the year ended December 31, 2018 (2017: RMB 609, 2016: RMB 639).

According to the current policy, estimated annual payments for the next five years are as follows:

	<u>December 31, 2018</u>	<u>December 31, 2017</u>
	<u>RMB</u>	<u>RMB</u>
Within one year	800	800
Between one and two years	800	800
Between two and three years	800	800
Between three and four years	800	800
Between four and five years	800	800

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37 MAJOR CUSTOMERS

The Group's major customers are as follows:

	2018		2017		2016	
	Revenue	Percentage of Total revenue	Revenue	Percentage of Total revenue	Revenue	Percentage of Total revenue
	RMB	%	RMB	%	RMB	%
China Petroleum & Chemical Corporation	96,990	4	65,767	3	39,481	2
CNPC and its fellow subsidiaries	83,670	4	92,173	5	91,094	6
	<u>180,660</u>	<u>8</u>	<u>157,940</u>	<u>8</u>	<u>130,575</u>	<u>8</u>

38 RELATED PARTY TRANSACTIONS

CNPC, the controlling shareholder of the Company, is a limited liability company directly controlled by the PRC government.

Related parties include CNPC and its fellow subsidiaries, their associates and joint ventures, other state-owned enterprises and their subsidiaries which the PRC government has control, joint control or significant influence over and enterprises which the Group is able to control, jointly control or exercise significant influence over, key management personnel of the Company and CNPC and their close family members.

(a) Transactions with CNPC and its fellow subsidiaries, associates and joint ventures of the Group

The Group has extensive transactions with other companies in CNPC and its fellow subsidiaries. Due to these relationships, it is possible that the terms of the transactions between the Group and other members of CNPC and its fellow subsidiaries are not the same as those that would result from transactions with other related parties or wholly unrelated parties.

The principal related party transactions with CNPC and its fellow subsidiaries, associates and joint ventures of the Group which were carried out in the ordinary course of business, are as follows:

On August 25, 2011, based on the terms of the Comprehensive Products and Services Agreement amended in 2008, the Company and CNPC entered into a new Comprehensive Products and Services Agreement ("the Comprehensive Products and Services Agreement") for a period of three years which took effect on January 1, 2012. The Comprehensive Products and Services Agreement provides for a range of products and services which may be required and requested by either party. The products and services to be provided by CNPC and its fellow subsidiaries to the Group under the Comprehensive Products and Services Agreement include construction and technical services, production services, supply of material services, social services, ancillary services and financial services. The products and services required and requested by either party are provided in accordance with (1) government-prescribed prices; or (2) where there is no government-prescribed price, with reference to relevant market prices; or (3) where neither (1) nor (2) is applicable, the actual cost incurred or the agreed contractual price. On the basis of the existing Comprehensive Products and Services Agreement, the Company and CNPC entered into a new Comprehensive Products and Services Agreement on August 24, 2017 for a period

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of three years which took effect on January 1, 2018. The new Comprehensive Products and Services Agreement has already incorporated the terms of the current Comprehensive Products and previous Services Agreement.

- Sales of goods represent the sale of crude oil, refined products, chemical products and natural gas, etc. The total amount of these transactions amounted to RMB 107,370 for the year ended December 31, 2018 (2017: RMB 113,306, 2016: RMB 104,034).
- Sales of services principally represent the provision of services in connection with the transportation of crude oil and natural gas, etc. The total amount of these transactions amounted to RMB 7,938 for the year ended December 31, 2018 (2017: RMB 6,160, 2016: RMB 5,053).
- Purchases of goods and services principally represent construction and technical services, production services, social services, ancillary services and material supply services, etc. The total amount of these transactions amounted to RMB 372,286 for the year ended December 31, 2018 (2017: RMB 338,178, 2016: RMB 292,168).
- Purchases of assets principally represent the purchases of manufacturing equipment, office equipment and transportation equipment, etc. The total amount of these transactions amounted to RMB 1,195 for the year ended December 31, 2018 (2017: RMB 1,643, 2016: RMB 1,058).
- Amounts due from and to CNPC and its fellow subsidiaries, associates and joint ventures of the Group included in the following accounts captions are summarized as follows:

	December 31, 2018	December 31, 2017
	RMB	RMB
Accounts receivable	10,939	10,219
Prepayments and other receivables	11,458	8,987
Other current assets	7,852	5,794
Other non-current assets	16,511	14,848
Accounts payable and accrued liabilities	64,473	66,001
Contract liabilities	568	—
Other non-current liabilities	2,296	3,053

- Interest income represents interests from deposits placed with CNPC and its fellow subsidiaries. The total interest income amounted to RMB 531 for the year ended December 31, 2018 (2017: RMB 424, 2016: RMB 224). The balance of deposits at December 31, 2018 was RMB 22,434 (December 31, 2017: RMB 25,903).
- Purchases of financial service principally represents interest charged on the loans from CNPC and its fellow subsidiaries, insurance fee, etc. The total amount of these transactions amounted to RMB 11,724 for the year ended December 31, 2018 (2017: RMB 11,021, 2016: RMB 12,139).
- The borrowings from CNPC and its fellow subsidiaries at December 31, 2018 were RMB 191,361 (December 31, 2017: RMB 208,395).
- Rents and other payments made under financial leasing represent the payable by the Group (including all rents, leasing service fees and prices for exercising purchase options) for the period according to the financial leasing agreements entered into by the Group and CNPC and its fellow subsidiaries. The total rents and other payments made under financial leasing amounted to RMB 829 for the year ended December 31, 2018 (2017: RMB 835, 2016: RMB 819).

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On August 25, 2011, based on the Land Use Rights Leasing Contract signed in 2000, the Company and CNPC entered into a Supplemental Land Use Rights Leasing Contract which took effect on January 1, 2012. The Company and CNPC each issued a confirmation letter to the Land Use Rights Leasing Contract on August 24, 2017, which adjusted the rental payable and the area for the leased land parcels. The Company agreed to rent from CNPC parcels of land with an aggregate area of approximately 1,773 million square meters with annual rental payable (exclusive of tax and government charges) adjusted to no more than RMB 5,783 in accordance with the area of leased land parcels and the current situation of the property market. The Land Use Rights Leasing Contract shall remain unchanged, apart from the rental payable and the leased area. The confirmation letter shall be effective from January 1, 2018.

On August 25, 2011, based on the Buildings Leasing Contract and Supplemental Building Leasing Agreement, the Company and CNPC entered into a Revised Buildings Leasing Contract which took effect thereafter. On August 24, 2017, based on the Buildings Leasing Contract and Supplemental Building Leasing Agreement, the Company and CNPC entered into a Revised Buildings Leasing Contract which took effect on January 1, 2018. Under this contract, buildings covering an aggregate area of 1,152,968 square meters were leased at annual rental payable approximately RMB 730. The Revised Building Leasing Contract will expire at December 31, 2037. The area and total fee payable for the lease of all such property may, every three years, be adjusted with the Company's operating needs and by reference to market price which the adjusted prices will not exceed.

(b) Key management compensation

	Year End December 31,		
	2018	2017	2016
	RMB'000	RMB'000	RMB'000
Emoluments and other benefits	13,385	11,779	12,549
Contribution to retirement benefit scheme	1,781	1,645	1,712
	<u>15,166</u>	<u>13,424</u>	<u>14,261</u>

Note: Emoluments set out above for the year ended December 31, 2018 exclude RMB 0.17 paid to key management of the Company of the deferred merit pay in accordance with relevant requirements by the PRC government (2017: RMB nil, 2016: RMB 1.64).

(c) Transactions with other state-controlled entities in the PRC

Apart from transactions with CNPC and its fellow subsidiaries, associates and joint ventures of the Group, the Group's transactions with other state-controlled entities include but is not limited to the following:

- Sales and purchases of goods and services,
- Purchases of assets,
- Lease of assets; and
- Bank deposits and borrowings

These transactions are conducted in the ordinary course of the Group's business.

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NOTES TO THE FINANCIAL STATEMENTS — (Continued)

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39 SEGMENT INFORMATION

The Group is principally engaged in a broad range of petroleum related products, services and activities. The Group's operating segments comprise: Exploration and Production, Refining and Chemicals, Marketing, and Natural Gas and Pipeline. On the basis of these operating segments, the management of the Company assesses the segmental operating results and allocates resources. Sales between operating segments are conducted principally at market prices. Additionally, the Group presents geographical information based on entities located in regions with a similar risk profile.

The Exploration and Production segment is engaged in the exploration, development, production and marketing of crude oil and natural gas.

The Refining and Chemicals segment is engaged in the refining of crude oil and petroleum products, production and marketing of primary petrochemical products, derivative petrochemical products and other chemical products.

The Marketing segment is engaged in the marketing of refined products and the trading business.

The Natural Gas and Pipeline segment is engaged in the transmission of natural gas, crude oil and refined products and the sale of natural gas.

The Head Office and Other segment relates to cash management and financing activities, the corporate center, research and development, and other business services supporting the operating business segments of the Group.

The accounting policies of the operating segments are the same as those described in Note 3 — "Summary of Principal Accounting Policies".

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The segment information for the operating segments for the years ended December 31, 2018, 2017 and 2016 are as follows:

	Year Ended December 31, 2018					
	Exploration and Production	Refining and Chemicals	Marketing	Natural Gas and Pipeline	Head Office and Other	Total
	RMB	RMB	RMB	RMB	RMB	RMB
Revenue	658,712	874,125	2,003,105	362,626	2,376	3,900,944
Less: intersegment sales	(539,295)	(692,660)	(280,639)	(34,156)	(606)	(1,547,356)
Revenue from external customers	<u>119,417</u>	<u>181,465</u>	<u>1,722,466</u>	<u>328,470</u>	<u>1,770</u>	<u>2,353,588</u>
Depreciation, depletion and amortization	(169,622)	(24,971)	(13,511)	(21,985)	(1,840)	(231,929)
Including: Impairment losses of property, plant and equipment	(26,002)	(3,393)	—	(530)	—	(29,925)
Profit / (loss) from operations	73,519	42,756	(6,450)	25,515	(14,343)	120,997
Finance costs:						
Exchange gain						12,475
Exchange loss						(11,330)
Interest income						3,769
Interest expense						(22,352)
Total net finance costs						<u>(17,438)</u>
Share of profit of associates and joint ventures	4,224	63	4,214	496	2,650	<u>11,647</u>
Profit before income tax expense						115,206
Income tax expense						<u>(42,790)</u>
Profit for the year						<u>72,416</u>
Segment assets	1,227,613	316,015	429,854	519,553	1,371,525	3,864,560
Other assets						24,759
Investments in associates and joint ventures	39,235	1,010	17,437	7,022	24,658	89,362
Elimination of intersegment balances ^(a)						<u>(1,546,415)</u>
Total assets						<u>2,432,266</u>
Capital expenditures	196,109	15,287	17,010	26,502	1,066	255,974
Segment liabilities	466,097	49,292	239,187	158,153	566,129	1,478,858
Other liabilities						99,759
Elimination of intersegment balances ^(a)						<u>(557,009)</u>
Total liabilities						<u>1,021,608</u>

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

	Year Ended December 31, 2017					
	Exploration and Production	Refining and Chemicals	Marketing	Natural Gas and Pipeline	Head Office and Other	Total
	RMB	RMB	RMB	RMB	RMB	RMB
Revenue	505,430	707,804	1,660,456	295,786	2,057	3,171,533
Less: intersegment sales	(409,303)	(535,515)	(179,692)	(30,476)	(657)	(1,155,643)
Revenue from external customers	<u>96,127</u>	<u>172,289</u>	<u>1,480,764</u>	<u>265,310</u>	<u>1,400</u>	<u>2,015,890</u>
Depreciation, depletion and amortization	(169,484)	(32,319)	(12,734)	(21,146)	(1,692)	(237,375)
Including: Impairment losses of property, plant and equipment	(6,565)	(10,223)	(7)	(1,150)	(2)	(17,947)
Profit / (loss) from operations	15,475	39,961	8,279	15,688	(11,681)	67,722
Finance costs:						
Exchange gain						8,217
Exchange loss						(9,311)
Interest income						2,901
Interest expense						(22,408)
Total net finance costs						<u>(20,601)</u>
Share of profit / (loss) of associates and joint ventures	<u>1,716</u>	<u>(89)</u>	<u>1,501</u>	<u>279</u>	<u>2,561</u>	<u>5,968</u>
Profit before income tax expense						53,089
Income tax expense						<u>(16,296)</u>
Profit for the year						<u>36,793</u>
Segment assets	1,211,912	318,299	397,813	519,249	1,357,803	3,805,076
Other assets						26,724
Investments in associates and joint ventures	39,517	1,375	11,938	5,534	22,795	81,159
Elimination of intersegment balances ^(a)						<u>(1,508,347)</u>
Total assets						<u>2,404,612</u>
Capital expenditures	161,997	17,705	10,982	24,529	1,014	216,227
Segment liabilities	525,085	79,989	199,340	120,244	589,460	1,514,118
Other liabilities						70,091
Elimination of intersegment balances ^(a)						<u>(560,916)</u>
Total liabilities						<u>1,023,293</u>

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

	Year Ended December 31, 2016					
	Exploration and Production	Refining and Chemicals	Marketing	Natural Gas and Pipeline	Head Office and Other	Total
	RMB	RMB	RMB	RMB	RMB	RMB
Revenue	412,484	582,510	1,301,616	247,477	2,197	2,546,284
Less: intersegment sales	(335,716)	(438,853)	(126,344)	(27,784)	(684)	(929,381)
Revenue from external customers	<u>76,768</u>	<u>143,657</u>	<u>1,175,272</u>	<u>219,693</u>	<u>1,513</u>	<u>1,616,903</u>
Depreciation, depletion and amortization	(155,192)	(25,475)	(12,891)	(22,743)	(1,846)	(218,147)
Including: Impairment losses of property, plant and equipment	(882)	(3,413)	(2)	(4,205)	—	(8,502)
Profit / (loss) from operations	3,148	39,026	11,048	17,885	(10,472)	60,635
Finance costs:						
Exchange gain						12,828
Exchange loss						(11,571)
Interest income						2,491
Interest expense						(23,348)
Total net finance costs						<u>(19,600)</u>
Share of (loss) / profit of associates and joint ventures	(158)	13	552	204	3,494	<u>4,105</u>
Profit before income tax expense						45,140
Income tax expense						<u>(15,768)</u>
Profit for the year						<u>29,372</u>
Segment assets	1,260,009	324,357	384,123	546,485	1,434,141	3,949,115
Other assets						25,766
Investments in associates and joint ventures	42,398	1,262	10,455	3,305	21,547	78,967
Elimination of intersegment balances ^(a)						<u>(1,657,197)</u>
Total assets						<u>2,396,651</u>
Capital expenditures	130,248	12,847	7,983	20,340	968	172,386
Segment liabilities	536,284	124,076	183,159	150,855	668,353	1,662,727
Other liabilities						58,839
Elimination of intersegment balances ^(a)						<u>(697,650)</u>
Total liabilities						<u>1,023,916</u>

PETROCHINA COMPANY LIMITED

NOTES TO THE FINANCIAL STATEMENTS — (Continued)

(All amounts in millions, except for the per share data and otherwise stated)

Geographical information

	Revenue			Non-current assets ^(b)	
	2018	2017	2016	December 31, 2018	December 31, 2017
	RMB	RMB	RMB	RMB	RMB
Mainland China	1,516,969	1,294,516	1,101,055	1,779,126	1,711,605
Other	836,619	721,374	515,848	192,675	239,204
	<u>2,353,588</u>	<u>2,015,890</u>	<u>1,616,903</u>	<u>1,971,801</u>	<u>1,950,809</u>

(a) Elimination of intersegment balances represents elimination of intersegment accounts and investments.

(b) Non-current assets mainly include non-current assets other than financial instruments and deferred tax assets.

40 APPROVAL OF FINANCIAL STATEMENTS

The financial statements were approved by the Board of Directors on April 29, 2019

PETROCHINA COMPANY LIMITED
SUPPLEMENTARY INFORMATION ON OIL AND GAS EXPLORATION
AND PRODUCTION ACTIVITIES (UNAUDITED)
(All amounts in millions, except for the per share data and otherwise stated)

In accordance with the Accounting Standards Update 2010-03 Extractive Activities – Oil and Gas (Topic 932): Oil and Gas Reserve Estimation and Disclosures (an update of Accounting Standards Codification Topic 932 Extractive Activities – Oil and Gas or “ASC 932”) issued by the Financial Accounting Standards Board and corresponding disclosure requirements of the U.S. Securities and Exchange Commission, this section provides supplemental information on oil and gas exploration and development; and results of operation related to oil and gas producing activities of the Company and its subsidiaries (the “Group”) and also the Group’s investments that are accounted for using the equity method of accounting.

The supplemental information presented below covers the Group’s proved oil and gas reserves estimates, historical cost information pertaining to capitalized costs, costs incurred for property acquisitions, exploration and development activities, result of operations for oil and gas producing activities, standardized measure of estimated discounted future net cash flows and changes in estimated discounted future net cash flows.

The “Other” geographic area includes oil and gas producing activities principally in countries such as Kazakhstan, Venezuela and Indonesia. As the Group does not have significant reserves held through its investments accounted for using the equity method, information presented in relation to these equity method investments is presented in the aggregate.

Proved Oil and Gas Reserve Estimates

Proved oil and gas reserves cannot be measured exactly. Reserve estimates are based on many factors related to reservoir performance that require evaluation by the engineers interpreting the available data, as well as price and other economic factors. The reliability of these estimates at any point in time depends on both the quality and quantity of the technical and economic data, and the production performance of the reservoirs as well as engineering judgment. Consequently, reserve estimates are subject to revision as additional data become available during the producing life of a reservoir. When a commercial reservoir is discovered, proved reserves are initially determined based on limited data from the first well or wells. Subsequent data may better define the extent of the reservoir and additional production performance, well tests and engineering studies will likely improve the reliability of the reserve estimate. The evolution of technology may also result in the application of improved recovery techniques such as supplemental or enhanced recovery projects, or both, which have the potential to increase reserves.

Proved oil and gas reserves are the estimated quantities of crude oil and natural 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 regulation before the time at which contracts providing the right to operate expire, unless evidence indicates that renewal is reasonably certain, regardless of whether the estimate is a deterministic estimate or probabilistic estimate.

Existing economic conditions include prices and costs at which economic producibility from a reservoir is to be determined. The price shall be the average price during the 12-month period before the ending date of the period covered by this 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. The costs shall be that prevailing at the end of the period.

Proved developed oil and gas reserves are proved reserves that can be expected to be recovered:

a. Through existing wells with existing equipment and operating methods or in which the cost of the required equipment is relatively minor compared with the cost of a new well.

PETROCHINA COMPANY LIMITED
SUPPLEMENTARY INFORMATION ON OIL AND GAS EXPLORATION
AND PRODUCTION ACTIVITIES (UNAUDITED) — (Continued)
(All amounts in millions, except for the per share data and otherwise stated)

b. Through installed extraction equipment and infrastructure operational at the time of the reserves estimate if the extraction is by means not involving a well.

Proved undeveloped oil and gas reserves are proved reserves that are expected to be recovered from new wells on undrilled acreage, or from existing wells where a relatively major expenditure is required for recompletion.

The taxes, fees and royalty in China are domestic tax schemes and are paid in cash to PRC authorities. The proved reserves includes quantities that are ultimately produced and sold to pay these taxes, fees and royalty.

Proved reserve estimates as of December 31, 2018, 2017 and 2016 were based on reports prepared by DeGolyer and MacNaughton, McDaniel & Associates, Ryder Scott and GLJ independent engineering consultants.

PETROCHINA COMPANY LIMITED
SUPPLEMENTARY INFORMATION ON OIL AND GAS EXPLORATION
AND PRODUCTION ACTIVITIES (UNAUDITED) — (Continued)
(All amounts in millions, except for the per share data and otherwise stated)

Estimated quantities of net proved crude oil and condensate and natural gas reserves and of changes in net quantities of proved developed and undeveloped reserves for each of the periods indicated are as follows:

	<u>Crude Oil and Condensate</u>	<u>Natural Gas</u>	<u>Total—All products</u>
	(million barrels)	(billion cubic feet)	(million barrels of oil equivalent)
Proved developed and undeveloped reserves			
The Group			
Reserves at December 31, 2015	8,521	77,525	21,442
Changes resulting from:			
Revisions of previous estimates	(747)	(308)	(799)
Improved recovery	93	—	93
Extensions and discoveries	492	4,770	1,287
Production	(921)	(3,275)	(1,467)
Reserves at December 31, 2016	7,438	78,712	20,556
Changes resulting from:			
Revisions of previous estimates	486	(1,751)	195
Improved recovery	98	—	98
Extensions and discoveries	346	3,350	905
Production	(887)	(3,423)	(1,458)
Reserves at December 31, 2017	7,481	76,888	20,296
Changes resulting from:			
Revisions of previous estimates	526	(1,378)	297
Improved recovery	96	—	96
Extensions and discoveries	428	4,565	1,188
Production	(890)	(3,608)	(1,492)
Reserves at December 31, 2018	<u>7,641</u>	<u>76,467</u>	<u>20,385</u>
Proved developed reserves at:			
December 31, 2016	5,176	40,664	11,953
December 31, 2017	5,593	39,243	12,133
December 31, 2018	5,843	40,128	12,531
Proved undeveloped reserves at:			
December 31, 2016	2,262	38,048	8,603
December 31, 2017	1,888	37,645	8,163
December 31, 2018	1,798	36,339	7,854
Equity method investments			
Share of proved developed and undeveloped reserves of associates and joint ventures			
December 31, 2016	504	348	562
December 31, 2017	395	372	457
December 31, 2018	321	429	393

At December 31, 2018, total proved developed and undeveloped reserves of the Group and equity method investments is 20,778 million barrels of oil equivalent (December 31, 2017: 20,753 million barrels of oil

PETROCHINA COMPANY LIMITED
SUPPLEMENTARY INFORMATION ON OIL AND GAS EXPLORATION
AND PRODUCTION ACTIVITIES (UNAUDITED) — (Continued)
(All amounts in millions, except for the per share data and otherwise stated)

equivalent, December 31, 2016: 21,118 million barrels of oil equivalent), comprising 7,962 million barrels of crude oil and condensate (December 31, 2017: 7,876 million barrels, December 31, 2016: 7,942 million barrels) and 76,896 billion cubic feet of natural gas (December 31, 2017: 77,260 billion cubic feet, December 31, 2016: 79,060 billion cubic feet).

At December 31, 2018, 6,830 million barrels (December 31, 2017: 6,622 million barrels, December 31, 2016: 6,341 million barrels) of crude oil and condensate and 74,480 billion cubic feet (December 31, 2017: 74,702 billion cubic feet, December 31, 2016: 76,245 billion cubic feet) of natural gas proved developed and undeveloped reserves of the Group are located within Mainland China, and 811 million barrels (December 31, 2017: 859 million barrels, December 31, 2016: 1,097 million barrels) of crude oil and condensate and 1,987 billion cubic feet (December 31, 2017: 2,186 billion cubic feet, December 31, 2016: 2,467 billion cubic feet) of natural gas proved developed and undeveloped reserves of the Group are located overseas.

Capitalized Costs

	December 31, 2018	December 31, 2017
	RMB	RMB
The Group		
Property costs and producing assets	1,692,861	1,604,141
Support facilities	420,505	407,188
Construction-in-progress	119,501	101,067
Total capitalized costs	2,232,867	2,112,396
Accumulated depreciation, depletion and amortization	(1,312,907)	(1,199,741)
Net capitalized costs	919,960	912,655
Equity method investments		
Share of net capitalized costs of associates and joint ventures	25,963	25,837

Costs Incurred for Property Acquisitions, Exploration and Development Activities

	2018		
	Mainland China	Other	Total
	RMB	RMB	RMB
The Group			
Exploration costs	33,618	1,546	35,164
Development costs	134,634	25,047	159,681
Total	168,252	26,593	194,845
Equity method investments			
Share of costs of property acquisition, exploration and development of associates and joint ventures	—	3,114	3,114

PETROCHINA COMPANY LIMITED
SUPPLEMENTARY INFORMATION ON OIL AND GAS EXPLORATION
AND PRODUCTION ACTIVITIES (UNAUDITED) — (Continued)
(All amounts in millions, except for the per share data and otherwise stated)

		2017		
		Mainland China	Other	Total
		RMB	RMB	RMB
The Group				
	Exploration costs	31,585	984	32,569
	Development costs	110,104	18,596	128,700
	Total	141,689	19,580	161,269
Equity method investments				
	Share of costs of property acquisition, exploration and development of associates and joint ventures	—	2,503	2,503
		2016		
		Mainland China	Other	Total
		RMB	RMB	RMB
The Group				
	Exploration costs	28,413	685	29,098
	Development costs	83,785	13,870	97,655
	Total	112,198	14,555	126,753
Equity method investments				
	Share of costs of property acquisition, exploration and development of associates and joint ventures	—	1,990	1,990

PETROCHINA COMPANY LIMITED
SUPPLEMENTARY INFORMATION ON OIL AND GAS EXPLORATION
AND PRODUCTION ACTIVITIES (UNAUDITED) — (Continued)
(All amounts in millions, except for the per share data and otherwise stated)

Results of Operations for Oil and Gas Producing Activities

The results of operations for oil and gas producing activities for the years ended December 31, 2018, 2017 and 2016 are presented below. “Revenue” includes sales to third parties and inter-segment sales (at arm’s-length prices), net of value-added taxes. Resource tax, crude oil special gain levy and other taxes are included in “taxes other than income taxes”. Income taxes are computed using the applicable statutory tax rate, reflecting tax deductions and tax credits for the respective years ended.

	2018		
	Mainland China	Other	Total
	RMB	RMB	RMB
The Group			
Revenue			
Sales to third parties	46,051	57,975	104,026
Inter-segment sales	381,740	4,542	386,282
Production costs excluding taxes	(118,979)	(9,761)	(128,740)
Exploration expenses	(17,767)	(959)	(18,726)
Depreciation, depletion and amortization	(120,378)	(33,008)	(153,386)
Taxes other than income taxes	(30,140)	(6,262)	(36,402)
Accretion expense	(5,483)	(195)	(5,678)
Income taxes	(25,991)	(10,114)	(36,105)
Results of operations from producing activities	<u>109,053</u>	<u>2,218</u>	<u>111,271</u>
Equity method investments			
Share of profit for producing activities of associates and joint ventures	<u>—</u>	<u>3,867</u>	<u>3,867</u>
Total of the Group and equity method investments results of operations for producing activities	<u>109,053</u>	<u>6,085</u>	<u>115,138</u>

PETROCHINA COMPANY LIMITED
SUPPLEMENTARY INFORMATION ON OIL AND GAS EXPLORATION
AND PRODUCTION ACTIVITIES (UNAUDITED) — (Continued)
(All amounts in millions, except for the per share data and otherwise stated)

		2017		
		Mainland China	Other	Total
		RMB	RMB	RMB
The Group				
Revenue				
Sales to third parties		39,588	39,330	78,918
Inter-segment sales		305,336	5,082	310,418
		344,924	44,412	389,336
Production costs excluding taxes		(112,182)	(7,830)	(120,012)
Exploration expenses		(16,732)	(7,152)	(23,884)
Depreciation, depletion and amortization		(135,703)	(18,436)	(154,139)
Taxes other than income taxes		(20,624)	(3,534)	(24,158)
Accretion expense		(5,212)	(241)	(5,453)
Income taxes		(12,098)	(3,667)	(15,765)
Results of operations from producing activities		42,373	3,552	45,925
Equity method investments				
Share of profit for producing activities of associates and joint ventures		—	2,050	2,050
Total of the Group and equity method investments results of operations for producing activities		42,373	5,602	47,975
		2016		
		Mainland China	Other	Total
		RMB	RMB	RMB
The Group				
Revenue				
Sales to third parties		32,674	33,033	65,707
Inter-segment sales		245,091	2,898	247,989
		277,765	35,931	313,696
Production costs excluding taxes		(110,977)	(7,233)	(118,210)
Exploration expenses		(17,952)	(624)	(18,576)
Depreciation, depletion and amortization		(123,268)	(18,973)	(142,241)
Taxes other than income taxes		(16,056)	(3,133)	(19,189)
Accretion expense		(4,930)	(196)	(5,126)
Income taxes		(2,150)	(1,161)	(3,311)
Results of operations from producing activities		2,432	4,611	7,043
Equity method investments				
Share of profit for producing activities of associates and joint ventures		—	649	649
Total of the Group and equity method investments results of operations for producing activities		2,432	5,260	7,692

PETROCHINA COMPANY LIMITED
SUPPLEMENTARY INFORMATION ON OIL AND GAS EXPLORATION
AND PRODUCTION ACTIVITIES (UNAUDITED) — (Continued)
(All amounts in millions, except for the per share data and otherwise stated)

Standardized Measure of Discounted Future Net Cash Flows

The standardized measure of discounted future net cash flows related to proved oil and gas reserves at December 31, 2018, 2017 and 2016 is based on the prices used in estimating the Group's proved oil and gas reserves, year-end costs, currently enacted tax rates related to existing proved oil and gas reserves and a 10% annual discount factor. "Future cash inflows" are net of value-added taxes. Corporate income taxes are included in "future income tax expense". Other taxes are included in "future production costs" as production taxes.

The standardized measure of discounted future net cash flows related to proved oil and gas reserves at December 31, 2018, 2017 and 2016 is as follows:

	<u>RMB</u>
The Group	
At December 31, 2018	
Future cash inflows	6,234,378
Future production costs	(2,087,979)
Future development costs	(556,893)
Future income tax expense	(809,594)
Future net cash flows	2,779,912
Discount at 10% for estimated timing of cash flows	(1,397,846)
Standardized measure of discounted future net cash flows	<u>1,382,066</u>
	<u>RMB</u>
The Group	
At December 31, 2017	
Future cash inflows	5,287,272
Future production costs	(1,909,890)
Future development costs	(571,125)
Future income tax expense	(594,085)
Future net cash flows	2,212,172
Discount at 10% for estimated timing of cash flows	(1,187,646)
Standardized measure of discounted future net cash flows	<u>1,024,526</u>
	<u>RMB</u>
The Group	
At December 31, 2016	
Future cash inflows	4,585,822
Future production costs	(1,896,044)
Future development costs	(553,558)
Future income tax expense	(447,997)
Future net cash flows	1,688,223
Discount at 10% for estimated timing of cash flows	(931,412)
Standardized measure of discounted future net cash flows	<u>756,811</u>

PETROCHINA COMPANY LIMITED
SUPPLEMENTARY INFORMATION ON OIL AND GAS EXPLORATION
AND PRODUCTION ACTIVITIES (UNAUDITED) — (Continued)
(All amounts in millions, except for the per share data and otherwise stated)

At December 31, 2018, RMB 1,320,478 (December 31, 2017: RMB 979,330, December 31, 2016: RMB 731,206) of standardized measure of discounted future net cash flows related to proved oil and gas reserves located within mainland China and RMB 61,588 (December 31, 2017: RMB 45,196, December 31, 2016: RMB 25,605) of standardized measure of discounted future net cash flows related to proved oil and gas reserves located overseas.

Share of standardized measure of discounted future net cash flows of associates and joint ventures:

December 31, 2018	24,805
December 31, 2017	17,345
December 31, 2016	13,550

Changes in Standardized Measure of Discounted Future Net Cash Flows

Changes in the standardized measure of discounted net cash flows for the Group for each of the years ended December 31, 2018, 2017 and 2016 are as follows:

	Year Ended December 31,		
	2018	2017	2016
	RMB	RMB	RMB
The Group			
Beginning of the year	1,024,526	756,811	1,061,375
Sales and transfers of oil and gas produced, net of production costs	(308,217)	(232,387)	(167,108)
Net changes in prices and production costs and other	510,325	367,132	(370,257)
Extensions, discoveries and improved recovery	129,824	77,249	81,248
Development costs incurred	39,725	38,613	32,918
Revisions of previous quantity estimates	10,018	14,555	(61,816)
Accretion of discount	103,225	76,860	113,324
Net change in income taxes	(127,360)	(74,307)	67,127
End of the year	<u>1,382,066</u>	<u>1,024,526</u>	<u>756,811</u>

Crude Oil Mutual Supply Framework Agreement for Year 2019

between

PetroChina Company Limited

and

China Petroleum & Chemical Corporation

December 2018

Crude Oil Mutual Supply Framework Agreement for Year 2019

PetroChina Company Limited (“PetroChina”) and China Petroleum & Chemical Corporation (“Sinopec”), following friendly consultations, have reached consensus on mutual supply of crude oil in the year of 2019 and hereby enter into this Agreement (this “Agreement”).

I. Mutual Supply and Cross Supply of Crude Oil

1. Mutual supply of crude oil: In 2019, PetroChina shall supply Sinopec with 0.735 million tons of domestic onshore crude oil, including 0.60 million tons of crude oil produced at the Changqing Oil Region, 60,000 tons of crude oil produced at the Jizhong Oil Region, 60,000 tons of crude oil produced at the Erlian Oil Region and Tamtsag Oil Region, and 15,000 tons of crude oil produced at PetroChina Zhejiang Exploration Company.

In 2019, Sinopec shall supply PetroChina with 1.203 million tons of domestic onshore crude oil (which may be increased to 1.263 million tons with Sinopec’s best efforts), including 0.30 million tons of crude oil produced at the Chunfeng Oil Region (which may be increased to 0.36 million tons with Sinopec’s best efforts), 0.60 million tons of oil produced at the Tahe Oil Region (consisting of 0.20 million tons of blended oil and 0.40 million tons of condensate oil), 0.26 million tons of crude oil produced at the Chunguang Oil Region, 23,000 tons of crude oil produced at the Yanqi Oil Region, and 20,000 tons of crude oil produced at the condensate unit of Sinopec Southwest Company.

2. The parties hereto shall, in principle, make available crude oil of the above supply and take delivery thereof on an evenly distributed basis. The quarterly mutual supply of crude oil may be adjusted as necessary by mutual agreement thereon and in light of the availability of crude oil resources, price and the State’s macro-economic planning requirements.
3. The parties will work diligently to interconnect Yakela Terminal of Sinopec’s Northwest Oil Field Company with PetroChina’s western pipelines, which after completion will make it possible for PetroChina to receive from Sinopec each year another 0.20 million tons of condensate oil produced at Tahe Oil Field.

II. Quality of Crude Oil

Matters with respect to the quality of the crude oil to be supplied hereunder shall be handled pursuant to applicable provisions of SY7513-88 Technical Conditions of Crude Oil at Wellhead.

III. Quarterly Supply Agreements; Sales and Purchase Contracts on an Enterprise-by-Enterprise Basis

The parties hereto agree that quarterly supply agreements shall be entered into by and between the Production Management Department of PetroChina and the Production Management Department of Sinopec in accordance with this Agreement. After the quarterly plans have been issued to the respective subsidiaries, PetroChina’s relevant regional companies (including its oil fields, refineries and pipeline companies) and Sinopec’s relevant subsidiaries (including its oil fields and refineries) will enter into specific sales and purchase contracts with each other. The total quantities and varieties of crude oil to be supplied under such contracts shall be consistent with those specified under the above quarterly supply agreements.

IV. Price of Crude Oil

The price of crude oil to be supplied hereunder shall be settled on the basis of the benchmark crude oil price and the crude oil premium mutually agreed between the parties.

V. Payment Guarantee

Payment of the price of crude oil to be supplied hereunder shall be made on a timely basis and pursuant to the principles agreed upon by the parties hereto. PetroChina and Sinopec agree to be guarantors, and to assume

joint and several guarantee liabilities for the failure of timely payment of the price of crude oil and other amounts payable by their respective oil refineries. The payer shall make timely payments to the payee upon receipt of and pursuant to the payment notice.

VI. Miscellaneous

1. Both parties undertake that their subsidiaries will perform this Agreement strictly in accordance with the terms hereof while maintaining the free flow of the downstream operations of their respective oil field enterprises. Any issues not covered hereunder shall be resolved through consultations between the parties hereto.
2. This Agreement shall be executed in four counterparts, with each of PetroChina and Sinopec to hold two. This Agreement shall remain effective from January 1, 2019 to December 31, 2019.

**Production Management Department,
PetroChina Company Limited (*chopped*)**

**Production Management Department,
China Petroleum & Chemical Corporation
(*chopped*)**

By: /s/

By: /s/

Dated: December 26, 2018

LIST OF SUBSIDIARIES

A list of PetroChina Company Limited's principal subsidiaries is provided in Note 19 to the consolidated financial statements included in this annual report following Item 19.

CERTIFICATION

I, WANG Yilin, certify that:

1. I have reviewed this annual report on Form 20-F of PetroChina Company Limited (the “Company”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Company as of, and for, the periods presented in this report;
4. The Company’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Company and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the Company’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the Company’s internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the Company’s internal control over financial reporting; and
5. The Company’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Company’s auditors and the audit committee of the Company’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Company’s ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Company’s internal control over financial reporting.

/s/ WANG Yilin

Name: WANG Yilin

Title: Chairman (performing the functions of Chief Executive Officer)

Date: April 29, 2019

CERTIFICATION

I, CHAI Shouping, certify that:

1. I have reviewed this annual report on Form 20-F of PetroChina Company Limited (the “Company”);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the Company as of, and for, the periods presented in this report;
4. The Company’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the Company and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the Company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
 - (c) Evaluated the effectiveness of the Company’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the Company’s internal control over financial reporting that occurred during the period covered by the annual report that has materially affected, or is reasonably likely to materially affect, the Company’s internal control over financial reporting; and
5. The Company’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the Company’s auditors and the audit committee of the Company’s board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Company’s ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the Company’s internal control over financial reporting.

/s/ CHAI Shouping

Name: CHAI Shouping

Title: Chief Financial Officer

Date: April 29, 2019

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of PetroChina Company Limited (the “Company”) on Form 20-F for the period ending December 31, 2018, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, WANG Yilin, hereby certify that to the best of my knowledge:

1. The Report fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ WANG Yilin
Name: Wang Yilin
Title: Chairman
(performing the functions of Chief Executive Officer)

Date: April 29, 2019

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of PetroChina Company Limited (the “Company”) on Form 20-F for the period ending December 31, 2018, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, CHAI Shouping, hereby certify that to the best of my knowledge:

1. The Report fully complies with the requirements of Section 13(a) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ CHAI Shouping
Name: CHAI Shouping
Title: Chief Financial Officer

Date: April 29, 2019

Exhibit 15.1

DeGOLYER AND MACNAUGHTON
5001 SPRING VALLEY ROAD
SUITE 800 EAST
DALLAS, TEXAS 75244

This is a digital representation of a DeGolyer and MacNaughton report.

This file is intended to be a manifestation of certain data in the subject report and as such are subject to the same conditions thereof. The information and data contained in this file may be subject to misinterpretation; therefore, the signed and bound copy of this report should be considered the only authoritative source of such information.



DEGOLYER AND MACNAUGHTON
5001 SPRING VALLEY ROAD
SUITE 800 EAST
DALLAS, TEXAS 75244

March 1, 2019

PetroChina Company Limited
9 Dongzhimen North Street, Dongcheng District
Beijing 100007
P.R. China

Ladies and Gentlemen:

Pursuant to your request, this report of third party presents an independent evaluation, as of December 31, 2018, of the extent and value of the estimated net proved oil, condensate, liquefied petroleum gas (LPG), and gas reserves of certain properties in which PetroChina Company Limited (PetroChina) has represented it holds an interest. This evaluation was completed on March 1, 2019. The properties evaluated herein are located in China as well as in Azerbaijan, Indonesia, Iraq, Kazakhstan, Mongolia, Oman, and the United Arab Emirates (collectively referred to herein as Other Countries). PetroChina has represented that these properties account for 65 percent on a net equivalent barrel basis of PetroChina's net proved reserves as of December 31, 2018. The net proved reserves estimates have been prepared in accordance with the reserves definitions of Rules 4-10(a) (1)-(32) of Regulation S-X of the Securities and Exchange Commission (SEC) of the United States. This report was prepared in accordance with guidelines specified in Item 1202 (a)(8) of Regulation S-K and is to be used for inclusion in certain SEC filings by PetroChina.

Reserves estimates included herein are expressed as net reserves. Gross reserves are defined as the total estimated petroleum remaining to be produced from these properties after December 31, 2018. Net reserves are defined as that portion of the gross reserves attributable to the interests held or controlled by PetroChina after deducting all interests held by others.

Certain properties in which PetroChina holds an interest are subject to the terms of various production sharing agreements. The terms of these agreements generally allow for working interest participants to be reimbursed for portions of capital costs and operating expenses and to share in the profits. The reimbursements and profit proceeds are converted to a barrel of oil equivalent or standard cubic foot of gas equivalent by dividing by product prices to estimate the "entitlement reserves." These entitlement reserves are equivalent in principle to net reserves and are used to calculate an equivalent net share, termed an "entitlement interest." In this report, PetroChina's net reserves or interest for certain properties subject to these agreements is the entitlement based on PetroChina's working interest.

Values included herein are expressed in terms of future net revenue and present worth. Future net revenue is calculated by deducting estimated operating expenses, capital costs, abandonment costs, and taxes from the revenue which will accrue to PetroChina from the production and sale of the estimated net reserves. Present worth is defined as future net revenue discounted at a specified arbitrary rate compounded monthly over the expected period of realization. Present worth values using a discount rate of 10 percent are reported herein. Present worth should not be construed as fair market value because no consideration was given to additional factors that influence the prices at which properties are bought and sold.

Estimates of reserves and revenue should be regarded only as estimates that may change as further production history and additional information become available. Not only are estimates based on that information which is currently available, but such estimates are also subject to the uncertainties inherent in the application of judgmental factors in interpreting such information.

Information used in this evaluation was obtained from PetroChina. In the preparation of this report we have relied, without independent verification, upon such information furnished by PetroChina with respect to the

property interests being evaluated, production from such properties, current costs of operation and development, current prices for production, agreements relating to current and future operations and sale of production, and various other information and data that were accepted as represented.

Definition of Reserves

Petroleum reserves included in this report are classified as proved. Only proved reserves have been evaluated for this report. Reserves classifications used in this report are in accordance with the reserves definitions of Rules 4-10(a) (1)-(32) of Regulation S-X of the SEC. Reserves are judged to be economically producible in future years from known reservoirs under existing economic and operating conditions and assuming continuation of current regulatory practices using conventional production methods and equipment. In the analyses of production-decline curves, reserves were estimated only to the limit of economic rates of production under existing economic and operating conditions using prices and costs consistent with the effective date of this report, including consideration of changes in existing prices provided only by contractual arrangements but not including escalations based upon future conditions. The petroleum reserves are classified as follows:

Proved oil and gas reserves – 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, regardless of whether deterministic or probabilistic methods are used for the estimation. The project to extract the hydrocarbons must have commenced or the operator must be reasonably certain that it will commence the project within a reasonable time.

(i) The area of the reservoir considered as proved includes:

(A) The area identified by drilling and limited by fluid contacts, if any, and (B) Adjacent undrilled portions of the reservoir that can, with reasonable certainty, be judged to be continuous with it and to contain economically producible oil or gas on the basis of available geoscience and engineering data.

(ii) In the absence of data on fluid contacts, proved quantities in a reservoir are limited by the lowest known hydrocarbons (LKH) as seen in a well penetration unless geoscience, engineering, or performance data and reliable technology establishes a lower contact with reasonable certainty.

(iii) Where direct observation from well penetrations has defined a highest known oil (HKO) elevation and the potential exists for an associated gas cap, proved oil reserves may be assigned in the structurally higher portions of the reservoir only if geoscience, engineering, or performance data and reliable technology establish the higher contact with reasonable certainty.

(iv) Reserves which can be produced economically through application of improved recovery techniques (including, but not limited to, fluid injection) are included in the proved classification when:

(A) Successful testing by a pilot project in an area of the reservoir with properties no more favorable than in the reservoir as a whole, the operation of an installed program in the reservoir or an analogous reservoir, or other evidence using reliable technology establishes the reasonable certainty of the engineering analysis on which the project or program was based; and (B) The project has been approved for development by all necessary parties and entities, including governmental entities.

(v) Existing economic conditions include prices and costs at which economic producibility from a reservoir is to be determined. The price shall be 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.

Developed oil and gas reserves – 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 by means not involving a well.

Undeveloped oil and gas reserves – Undeveloped oil and gas reserves are reserves of any category that are expected to be recovered from new wells on undrilled acreage, or from existing wells where a relatively major expenditure is required for recompletion.

- (i) Reserves on undrilled acreage shall be 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.
- (ii) Undrilled locations can be 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.
- (iii) Under no circumstances shall estimates for undeveloped reserves be 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, as defined in [section 210.4-10 (a) Definitions], or by other evidence using reliable technology establishing reasonable certainty.

Methodology and Procedures

Estimates of reserves were prepared by the use of appropriate geologic, petroleum engineering, and evaluation principles and techniques that are in accordance with the reserves definitions of Rules 4-10(a) (1)-(32) of Regulation S-X of the SEC and with practices generally recognized by the petroleum industry as presented in the publication of the Society of Petroleum Engineers entitled “Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserves Information (Revision as of February 19, 2007)” and in Monograph 3 and Monograph 4 published by the Society of Petroleum Evaluation Engineers. The method or combination of methods used in the analysis of each reservoir was tempered by experience with similar reservoirs, stage of development, quality and completeness of basic data, and production history.

Based on the current stage of field development, production performance, the development plans provided by PetroChina, and analyses of areas offsetting existing wells with test or production data, reserves were classified as proved.

PetroChina has represented that its senior management is committed to the development plan provided by PetroChina and that PetroChina has the financial capability to drill the locations as scheduled in its development plan.

When applicable, the volumetric method was used to estimate the original oil in place (OOIP) and original gas in place (OGIP). Structure maps were prepared to delineate each reservoir, and isopach maps were constructed to estimate reservoir volume. Electrical logs, radioactivity logs, core analyses, and other available data were used to prepare these maps as well as to estimate representative values for porosity and water saturation. When adequate data were available and when circumstances justified, material-balance methods were used to estimate OOIP and OGIP.

Estimates of ultimate recovery were obtained after applying recovery factors to OOIP and OGIP. These recovery factors were based on consideration of the type of energy inherent in the reservoirs, analyses of the

petroleum, the structural positions of the properties, and the production histories. When applicable, material balance and other engineering methods were used to estimate recovery factors based on an analysis of reservoir performance, including production rate, reservoir pressure, and reservoir fluid properties.

For depletion-type reservoirs or those whose performance disclosed a reliable decline in producing-rate trends or other diagnostic characteristics, reserves were estimated by the application of appropriate decline curves or other performance relationships.

In certain cases, reserves were estimated by incorporating elements of analogy with similar wells or reservoirs for which more complete data were available.

Reserves were estimated only to the limits of economic production as defined under the Definition of Reserves heading of this report or the expiration of the fiscal agreement, as appropriate.

A performance-based methodology integrating the appropriate geology and petroleum engineering data was utilized for the evaluation of proved reserves in unconventional reservoirs. Performance-based methodology primarily includes (1) production diagnostics, (2) decline-curve analysis, and (3) model-based analysis (if necessary, based on availability of data). Production diagnostics include data quality control, identification of flow regimes, and characteristic well performance behavior. Analysis was performed for all well groupings (or type-curve areas).

Characteristic rate-decline profiles from diagnostic interpretation were translated to modified hyperbolic rate profiles, including one or multiple b-exponent values followed by an exponential decline. Based on the availability of data, model-based analysis may be integrated to evaluate long-term decline behavior, the impact of dynamic reservoir and fracture parameters on well performance, and complex situations sourced by the nature of unconventional reservoirs. The methodology used for the analysis was tempered by experience with similar reservoirs, stage of development, quality and completeness of basic data, production history, and the appropriate reserves definitions.

Data provided by PetroChina from wells drilled through December 31, 2018, and made available for this evaluation were used to prepare the reserves estimates herein. These reserves estimates were based on consideration of monthly production data available for certain properties only through August 2018. Gross production estimated through December 31, 2018, was deducted from the estimated gross ultimate recovery to estimate gross reserves. This required that production be estimated for up to 4 months.

Oil reserves estimated herein are to be recovered by normal field separation. Condensate reserves are to be recovered both by normal field separation and by low-temperature separation from gas processing. LPG reserves are to be recovered from gas processing. Oil, condensate, and LPG reserves are expressed in thousands of barrels (10^3 bbl). In these estimates, 1 barrel equals 42 United States gallons. For reporting purposes, oil and condensate reserves have been estimated separately and are presented herein as a summed quantity.

Gas quantities estimated herein are expressed as marketable gas, fuel gas, and sales gas. Marketable gas is defined as the total gas produced from the reservoir after reduction for shrinkage resulting from field separation; processing, including removal of the nonhydrocarbon gas to meet pipeline specifications; and flare and other losses but not from fuel usage. Fuel gas is defined as that portion of the gas consumed in field operations. Sales gas is defined as the total gas to be produced from the reservoirs, measured at the point of delivery, after reduction for fuel usage, flare, and shrinkage resulting from field separation and processing. Gas reserves presented in this report are expressed in millions of cubic feet (10^6 ft³).

Gas reserves of the properties in China are expressed at a temperature base of 68 degrees Fahrenheit (°F) and a pressure base of 14.696 pounds per square inch absolute (psia). Gas reserves of the properties in Other Countries are expressed at a temperature base of 60 °F and a pressure base of 14.7 psia.

At the request of PetroChina, marketable gas reserves estimated herein were converted to oil equivalent using an energy equivalent factor of 6,000 cubic feet of gas per 1 barrel of oil equivalent. This conversion factor was provided by PetroChina.

Gas quantities are identified by the type of reservoir from which the gas will be produced. Nonassociated gas is gas at initial reservoir conditions with no oil present in the reservoir. Associated gas is both gas-cap gas and solution gas. Gas-cap gas is gas at initial reservoir conditions and is in communication with an underlying oil zone. Solution gas is gas dissolved in oil at initial reservoir conditions. Gas quantities estimated herein include both associated and nonassociated gas.

Primary Economic Assumptions

Revenue values in this report were estimated using initial prices, expenses, and costs provided by PetroChina in United States dollars (U.S.\$). Future prices were estimated using guidelines established by the SEC and the Financial Accounting Standards Board (FASB). The following economic assumptions were used for estimating the revenue values reported herein:

Oil and Condensate Prices

PetroChina has represented that the oil and condensate prices were based on reference prices. Each reference price was 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. PetroChina has also represented that it has supplied the appropriate differentials to the reference prices.

PetroChina has represented that the 12-month average oil and condensate prices for the fields in China are based on a 12-month average reference price of U.S.\$69.96 per barrel for Dubai oil with appropriate differentials applied to this reference price. The volume-weighted average oil and condensate price in China attributable to estimated proved reserves was U.S.\$66.44 per barrel. The oil and condensate prices in China were held constant for the lives of the properties.

PetroChina has also represented that the 12-month average oil and condensate prices for the fields in Other Countries are based on 12-month average reference prices of U.S.\$71.54 per barrel for Brent oil, U.S.\$69.96 per barrel for Dubai oil, and U.S.\$70.14 per barrel for Oman oil, with appropriate differentials applied to these reference prices. The volume-weighted average oil and condensate price in Other Countries attributable to estimated proved reserves was U.S.\$58.42 per barrel. The oil and condensate prices in Other Countries were held constant for the lives of the properties.

LPG Prices

PetroChina has represented that the LPG prices were based on a 12-month average price, 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, unless prices are defined by contractual arrangements. These prices were held constant over the lives of the properties. The volume-weighted average LPG price for the fields evaluated was U.S.\$19.58 per barrel.

Gas Prices

PetroChina has represented that the gas prices in China are defined by contractual arrangements. The volume-weighted average gas price in China attributable to estimated proved reserves was U.S.\$6.52 per thousand cubic feet. The gas prices in China were held constant for the lives of the properties.

PetroChina has also represented that all of the gas reserves in Other Countries will be sold through contractual arrangements and the gas prices are defined by these contracts. The volume-weighted

average gas price in Other Countries attributable to estimated proved reserves was U.S.\$1.42 per thousand cubic feet. The gas prices in Other Countries were held constant for the lives of the properties, except for certain properties where escalations are contractually allowed under the terms of the gas sales agreements.

Operating Expenses, Capital Costs, and Abandonment Costs

Operating expenses and capital costs were provided by PetroChina and were used in estimating future expenses and capital costs required to operate the properties. In certain cases, forecasts of future operating expenses and capital costs, either higher or lower than existing expenses and capital costs, may have been used because of anticipated changes in operating conditions. Abandonment costs were also provided by PetroChina. Abandonment costs are represented by PetroChina to be inclusive of those costs associated with the removal of equipment, plugging of wells, and reclamation and restoration costs associated with the abandonment. Estimates of operating expenses, capital costs, and abandonment costs were considered in determining the economic viability of the undeveloped reserves estimated herein. Operating expenses, capital costs, and abandonment costs were not escalated for inflation.

Taxes

For PetroChina's properties in China, local taxes and value-added taxes were applied in addition to the consideration of the national Chinese income tax. A 25-percent income tax rate was applied to taxable income to estimate the applicable tax. The tax provisions provided by PetroChina were assumed to remain unchanged from current legislation.

For PetroChina's properties in Other Countries, local taxes were applied where appropriate. The future net revenue values presented in this report reflect the consideration of the host country income taxes. The tax provisions provided by PetroChina were assumed to remain unchanged from current legislation. Chinese income taxes, however, were not considered in estimating revenue values from the properties in Other Countries.

Royalties

In properties where royalties are paid in kind, the petroleum quantities associated with these royalties are excluded from the net proved reserves estimates. For properties where royalties are paid in cash, these royalties are considered production taxes and associated quantities have not been excluded from the net proved reserves estimates. PetroChina has represented that it has no royalty obligations for the properties in China that were evaluated for this report.

In our opinion, the information relating to estimated proved reserves, estimated future net revenue from proved reserves, and present worth of estimated future net revenue from proved reserves of oil, condensate, LPG, and gas contained in this report has been prepared in accordance with Paragraphs 932-235-50-4, 932-235-50-6 through 932-235-50-9, 932-235-50-30, and 932-235-50-31 of the Accounting Standards Update 932-235-50, *Extractive Industries – Oil and Gas (Topic 932): Oil and Gas Reserve Estimation and Disclosures* (January 2010) of the Financial Accounting Standards Board and Rules 4-10(a) (1)-(32) of Regulation S-X and Rules 302(b), 1201, 1202(a) (1), (2), (3), (4), (8), and 1203(a) of Regulation S-K of the SEC; provided, however, that (i) estimates of proved developed and proved undeveloped reserves are not presented at the beginning of the year and (ii) future Chinese income tax expenses have not been taken into account in estimating the future net revenue and present worth values set forth for properties evaluated herein that are located in Other Countries.

To the extent the above-enumerated rules, regulations, and statements require determinations of an accounting or legal nature, we, as engineers, are necessarily unable to express an opinion as to whether the above-described information is in accordance therewith or sufficient therefor.

Summary of Conclusions

The estimated net proved reserves, as of December 31, 2018, of the properties evaluated herein were based on the definition of proved reserves of the SEC and are summarized as follows, expressed in thousands of barrels (10³bbl), millions of cubic feet (10⁶ft³), and thousands of barrels of oil equivalent (10³boe):

	Estimated by DeGolyer and MacNaughton		
	Net Proved Reserves as of December 31, 2018		
	Proved Developed	Proved Undeveloped	Total Proved
China			
Oil and Condensate, 10 ³ bbl	3,485,701	857,972	4,343,673
LPG, 10 ³ bbl	0	0	0
Marketable Gas, 10 ⁶ ft ³	28,817,811	19,941,844	48,759,655
Sales Gas, 10 ⁶ ft ³	26,591,846	18,868,673	45,460,519
Fuel Gas, 10 ⁶ ft ³	2,225,965	1,073,171	3,299,136
Oil Equivalent, 10 ³ boe	8,288,670	4,181,613	12,470,283
Other Countries			
Oil and Condensate, 10 ³ bbl	447,569	86,877	534,446
LPG, 10 ³ bbl	52,744	4,627	57,371
Marketable Gas, 10 ⁶ ft ³	1,209,062	98,915	1,307,977
Sales Gas, 10 ⁶ ft ³	1,208,276	96,712	1,304,988
Fuel Gas, 10 ⁶ ft ³	786	2,203	2,989
Oil Equivalent, 10 ³ boe	701,823	107,990	809,813
Total China and Other Countries			
Oil and Condensate, 10 ³ bbl	3,933,270	944,849	4,878,119
LPG, 10 ³ bbl	52,744	4,627	57,371
Marketable Gas, 10 ⁶ ft ³	30,026,873	20,040,759	50,067,632
Sales Gas, 10 ⁶ ft ³	27,800,122	18,965,385	46,765,507
Fuel Gas, 10 ⁶ ft ³	2,226,751	1,075,374	3,302,125
Oil Equivalent, 10 ³ boe	8,990,493	4,289,603	13,280,096

Notes:

1. The estimates of PetroChina's net proved reserves in Other Countries include 220,391 10³bbl of oil and condensate reserves, 30,848 10³bbl of LPG reserves, and 705,870 10⁶ft³ of sales gas reserves that are attributable to minority interests held by others.
2. Marketable gas reserves estimated herein were converted to oil equivalent using an energy equivalent factor of 6,000 cubic feet of gas per 1 barrel of oil equivalent.

The estimated future revenue and present worth discounted at 10 percent to be derived from the production and sale of the net proved reserves, as of December 31, 2018, of the properties evaluated are summarized as follows, expressed in millions of United States dollars (10⁶U.S.\$):

	Estimated by DeGolyer and MacNaughton		
	Proved Developed	Proved Undeveloped	Total Proved
China			
Future Net Revenue, 10 ⁶ U.S.\$	190,414	83,688	274,102
Present Worth at 10 Percent, 10 ⁶ U.S.\$	107,974	24,158	132,132
Other Countries			
Future Net Revenue, 10 ⁶ U.S.\$	6,821	1,461	8,282
Present Worth at 10 Percent, 10 ⁶ U.S.\$	4,933	693	5,626
Total China and Other Countries			
Future Net Revenue, 10 ⁶ U.S.\$	197,235	85,149	282,384
Present Worth at 10 Percent, 10 ⁶ U.S.\$	112,907	24,851	137,758

Notes:

1. Future net revenue and present worth for China are after Chinese income tax.
2. Future net revenue and present worth for Other Countries are before Chinese income tax.

While the oil and gas industry may be subject to regulatory changes from time to time that could affect an industry participant's ability to recover its reserves, we are not aware of any such governmental actions which would restrict the recovery of the December 31, 2018, estimated reserves.

DeGolyer and MacNaughton is an independent petroleum engineering consulting firm that has been providing petroleum consulting services throughout the world since 1936. DeGolyer and MacNaughton does not have any financial interest, including stock ownership, in PetroChina. Our fees were not contingent on the results of our evaluation. This report has been prepared at the request of PetroChina. DeGolyer and MacNaughton has used all assumptions, data, procedures, and methods that it considers necessary and appropriate to prepare this report.

Submitted,

DeGolyer and MacNaughton

DeGOLYER and MacNAUGHTON
Texas Registered Engineering Firm F-716



Thomas C. Pence, P.E.

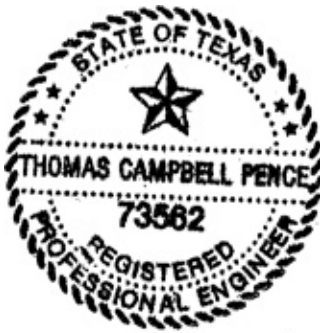
Thomas C. Pence, P.E.
Senior Vice President
DeGolyer and MacNaughton

CERTIFICATE of QUALIFICATION

I, Thomas C. Pence, Petroleum Engineer with DeGolyer and MacNaughton, 5001 Spring Valley Road, Suite 800 East, Dallas, Texas, 75244 U.S.A., hereby certify:

1. That I am a Senior Vice President with DeGolyer and MacNaughton, which firm did prepare the report of third party addressed to PetroChina dated March 8, 2019, and that I, as Senior Vice President, was responsible for the preparation of this report of third party.

2. That I attended Texas A&M University, and that I graduated with a degree in Petroleum Engineering in the year 1982; that I am a Registered Professional Engineer in the State of Texas; that I am a member of the Society of Petroleum Engineers; and that I have in excess of 36 years of experience in oil and gas reservoir studies and reserves evaluations.



A handwritten signature in cursive script, reading "Thomas C. Pence, P.E.", positioned above a horizontal line.

Thomas C. Pence, P.E.
Senior Vice President
DeGolyer and MacNaughton

Exhibit 15.2

DeGOLYER AND MACNAUGHTON
5001 SPRING VALLEY ROAD
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DeGolyer and MacNaughton
5001 Spring Valley Road
Suite 800 East
Dallas, Texas 75244

March 8, 2019

PetroChina Company Limited
9 Dongzhimen North Street, Dongcheng District
Beijing 100007
P.R. China

Ladies and Gentlemen:

Pursuant to your request, this report of third party presents an independent audit, as of December 31, 2018, of the extent of the estimated net proved oil, condensate, and gas reserves of certain properties in which PetroChina Company Limited (PetroChina) has represented it holds an interest. This audit was completed on March 8, 2019. The properties reviewed herein are located in China. PetroChina has represented that these properties account for 33.2 percent on a net equivalent barrel basis of PetroChina's net proved reserves as of December 31, 2018. The net proved reserves estimates have been prepared in accordance with the reserves definitions of Rules 4-10(a) (1)-(32) of Regulation S-X of the Securities and Exchange Commission (SEC) of the United States. We have reviewed information provided by PetroChina that it represents to be PetroChina's estimates of the net reserves, as of December 31, 2018, for the same properties as those which we reviewed. This report was prepared in accordance with guidelines specified in Item 1202 (a)(8) of Regulation S-K and is to be used for inclusion in certain SEC filings by PetroChina.

Reserves estimates included herein are expressed as net reserves as represented by PetroChina. Gross reserves are defined as the total estimated petroleum remaining to be produced from these properties after December 31, 2018. Net reserves are defined as that portion of the gross reserves attributable to the interests held or controlled by PetroChina after deducting all interests held by others.

Estimates of reserves should be regarded only as estimates that may change as further production history and additional information become available. Not only are estimates based on that information which is currently available, but such estimates are also subject to the uncertainties inherent in the application of judgmental factors in interpreting such information.

Information used in this evaluation was obtained from PetroChina. In the preparation of this report we have relied, without independent verification, upon such information furnished by PetroChina with respect to the property interests being evaluated, production from such properties, current costs of operation and development, current prices for production, agreements relating to current and future operations and sale of production, and various other information and data that were accepted as represented.

Definition of Reserves

Petroleum reserves included in this report are classified as proved. Only proved reserves have been evaluated for this report. Reserves classifications used in this report are in accordance with the reserves definitions of Rules 4-10(a) (1)-(32) of Regulation S-X of the SEC. Reserves are judged to be economically producible in future years from known reservoirs under existing economic and operating conditions and assuming continuation of current regulatory practices using conventional production methods and equipment. In the analyses of production-decline curves, reserves were estimated only to the limit of economic rates of production under existing economic and operating conditions using prices and costs consistent with the effective date of this report, including consideration of changes in existing prices provided only by contractual arrangements but not including escalations based upon future conditions. The petroleum reserves are classified as follows:

Proved oil and gas reserves – 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, regardless of whether deterministic or probabilistic methods are used for the estimation. The project to extract the hydrocarbons must have commenced or the operator must be reasonably certain that it will commence the project within a reasonable time.

(i) The area of the reservoir considered as proved includes:

(A) The area identified by drilling and limited by fluid contacts, if any, and (B) Adjacent undrilled portions of the reservoir that can, with reasonable certainty, be judged to be continuous with it and to contain economically producible oil or gas on the basis of available geoscience and engineering data.

(ii) In the absence of data on fluid contacts, proved quantities in a reservoir are limited by the lowest known hydrocarbons (LKH) as seen in a well penetration unless geoscience, engineering, or performance data and reliable technology establishes a lower contact with reasonable certainty.

(iii) Where direct observation from well penetrations has defined a highest known oil (HKO) elevation and the potential exists for an associated gas cap, proved oil reserves may be assigned in the structurally higher portions of the reservoir only if geoscience, engineering, or performance data and reliable technology establish the higher contact with reasonable certainty.

(iv) Reserves which can be produced economically through application of improved recovery techniques (including, but not limited to, fluid injection) are included in the proved classification when:

(A) Successful testing by a pilot project in an area of the reservoir with properties no more favorable than in the reservoir as a whole, the operation of an installed program in the reservoir or an analogous reservoir, or other evidence using reliable technology establishes the reasonable certainty of the engineering analysis on which the project or program was based; and (B) The project has been approved for development by all necessary parties and entities, including governmental entities.

(v) Existing economic conditions include prices and costs at which economic producibility from a reservoir is to be determined. The price shall be 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.

Developed oil and gas reserves – 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 by means not involving a well.

Undeveloped oil and gas reserves – Undeveloped oil and gas reserves are reserves of any category that are expected to be recovered from new wells on undrilled acreage, or from existing wells where a relatively major expenditure is required for recompletion.

(i) Reserves on undrilled acreage shall be 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.

(ii) Undrilled locations can be 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.

(iii) Under no circumstances shall estimates for undeveloped reserves be 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, as defined in [section 210.4–10 (a) Definitions], or by other evidence using reliable technology establishing reasonable certainty.

Methodology and Procedures

Estimates of reserves were prepared by the use of appropriate geologic, petroleum engineering, and evaluation principles and techniques that are in accordance with the reserves definitions of Rules 4-10(a) (1)–(32) of Regulation S-X of the SEC and with practices generally recognized by the petroleum industry as presented in the publication of the Society of Petroleum Engineers entitled “Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserves Information (Revision as of February 19, 2007).” The method or combination of methods used in the analysis of each reservoir was tempered by experience with similar reservoirs, stage of development, quality and completeness of basic data, and production history.

Based on the current stage of field development, production performance, the development plans provided by PetroChina, and analyses of areas offsetting existing wells with test or production data, reserves were classified as proved.

PetroChina has represented that its senior management is committed to the development plan provided by PetroChina and that PetroChina has the financial capability to drill the locations as scheduled in its development plan.

When applicable, the volumetric method was used to estimate the original oil in place (OOIP) and original gas in place (OGIP). Structure maps were prepared to delineate each reservoir, and isopach maps were constructed to estimate reservoir volume. Electrical logs, radioactivity logs, core analyses, and other available data were used to prepare these maps as well as to estimate representative values for porosity and water saturation.

Estimates of ultimate recovery were obtained after applying recovery factors to OOIP and OGIP. These recovery factors were based on consideration of the type of energy inherent in the reservoirs, analyses of the petroleum, the structural positions of the properties, and the production histories.

For depletion-type reservoirs or those whose performance disclosed a reliable decline in producing-rate trends or other diagnostic characteristics, reserves were estimated by the application of appropriate decline curves or other performance relationships.

In certain cases, reserves were estimated by incorporating elements of analogy with similar wells or reservoirs for which more complete data were available.

Reserves were estimated only to the limits of economic production as defined under the Definition of Reserves heading of this report.

Data provided by PetroChina from wells drilled through December 31, 2018, and made available for this evaluation were used to prepare the reserves estimates herein. These reserves estimates were based on consideration of monthly production data available for certain properties only through August 2018. Gross production estimated through December 31, 2018, was deducted from the estimated gross ultimate recovery to estimate gross reserves. This required that production be estimated for up to 4 months.

Oil reserves estimated herein are to be recovered by normal field separation. Condensate reserves are to be recovered both by normal field separation and by low-temperature separation from gas processing. Oil and

condensate reserves are expressed in thousands of barrels (10³bbl). In these estimates, 1 barrel equals 42 United States gallons. For reporting purposes, oil and condensate reserves have been estimated separately and are presented herein as a summed quantity.

Gas quantities estimated herein are expressed as marketable gas, fuel gas, and sales gas. Marketable gas is defined as the total gas produced from the reservoir after reduction for shrinkage resulting from field separation; processing, including removal of the nonhydrocarbon gas to meet pipeline specifications; and flare and other losses but not from fuel usage. Fuel gas is defined as that portion of the gas consumed in field operations. Sales gas is defined as the total gas to be produced from the reservoirs, measured at the point of delivery, after reduction for fuel usage, flare, and shrinkage resulting from field separation and processing. Gas reserves presented herein are reported as marketable gas, sales gas, and fuel gas and are expressed in millions of cubic feet (10⁶ft³). Gas reserves are expressed at a temperature base of 68 degrees Fahrenheit (°F) and a pressure base of 14.696 pounds per square inch absolute (psia).

At the request of PetroChina, marketable gas reserves estimated herein were converted to oil equivalent using an energy equivalent factor of 6,000 cubic feet of gas per 1 barrel of oil equivalent. This conversion was provided by PetroChina.

Gas quantities are identified by the type of reservoir from which the gas will be produced. Nonassociated gas is gas at initial reservoir conditions with no oil present in the reservoir. Associated gas is both gas-cap gas and solution gas. Gas-cap gas is gas at initial reservoir conditions and is in communication with an underlying oil zone. Solution gas is gas dissolved in oil at initial reservoir conditions. Gas quantities estimated herein include both associated and nonassociated gas.

Primary Economic Assumptions

Reserves estimates in this report were estimated using initial prices, expenses, and costs provided by PetroChina. Future prices were estimated using guidelines established by the SEC and the Financial Accounting Standards Board (FASB). The following economic assumptions were used for estimating the reserves reported herein:

Oil and Condensate Prices

PetroChina has represented that the oil and condensate prices were based on reference prices. Each reference price was 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. PetroChina has also represented that it has supplied the appropriate differentials to the reference prices.

PetroChina has represented that the 12-month average oil and condensate prices are based on a 12-month average reference price of 69.96 United States dollars (U.S.\$) per barrel for Dubai oil with appropriate differentials applied to this reference price. The volume-weighted average oil and condensate price attributable to estimated proved reserves was U.S.\$70.00 per barrel. The oil and condensate prices were held constant for the lives of the properties.

Gas Prices

PetroChina has represented that the gas prices are defined by contractual arrangements. The volume-weighted average gas price attributable to estimated proved reserves was U.S.\$6.03 per thousand cubic feet. The gas prices were held constant for the lives of the properties.

Operating Expenses, Capital Costs, and Abandonment Costs

Operating expenses and capital costs were provided by PetroChina and were used in estimating future expenses and capital costs required to operate the properties. In certain cases, forecasts of future

operating expenses and capital costs, either higher or lower than existing expenses and capital costs, may have been used because of anticipated changes in operating conditions. Abandonment costs were also provided by PetroChina. Abandonment costs are represented by PetroChina to be inclusive of those costs associated with the removal of equipment, plugging of wells, and reclamation and restoration costs associated with the abandonment. Estimates of operating expenses, capital costs, and abandonment costs were considered in determining the economic viability of the undeveloped reserves estimated herein. Operating expenses, capital costs, and abandonment costs were not escalated for inflation.

Taxes

Local taxes and value-added taxes in China were applied in the estimation of reserves.

Royalties

PetroChina has represented that it has no royalty obligations for the properties reported herein.

In our opinion, the information relating to estimated proved reserves of oil, condensate, and gas contained in this report has been prepared in accordance with Paragraphs 932-235-50-4, 932-235-50-6, 932-235-50-7, and 932-235-50-9 of the Accounting Standards Update 932-235-50, *Extractive Industries – Oil and Gas (Topic 932): Oil and Gas Reserve Estimation and Disclosures* (January 2010) of the Financial Accounting Standards Board and Rules 4-10(a) (1)-(32) of Regulation S-X and Rules 302(b), 1201, 1202(a) (1), (2), (3), (4), (8), and 1203(a) of Regulation S-K of the SEC; provided, however, that estimates of proved developed and proved undeveloped reserves are not presented at the beginning of the year.

To the extent the above-enumerated rules, regulations, and statements require determinations of an accounting or legal nature, we, as engineers, are necessarily unable to express an opinion as to whether the above-described information is in accordance therewith or sufficient therefor.

Summary of Conclusions

PetroChina has represented that its estimated net proved reserves attributable to the reviewed properties were based on the definition of proved reserves of the SEC. PetroChina's estimates of the net proved reserves, as of December 31, 2018, attributable to these properties, which represent 33.2 percent of PetroChina's reserves on a net equivalent basis, are summarized as follows, expressed in thousands of barrels (10³bbl), millions of cubic feet (10⁶ft³), and thousands of barrels of oil equivalent (10³boe):

	Estimated by PetroChina		
	Net Proved Reserves as of December 31, 2018		
	Proved Developed	Proved Undeveloped	Total Proved
Properties Reviewed by DeGolyer and MacNaughton			
China			
Oil and Condensate, 10 ³ bbl	1,717,722	768,467	2,486,189
Marketable Gas, 10 ⁶ ft ³	9,615,361	16,104,994	25,720,355
Sales Gas, 10 ⁶ ft ³	8,854,015	14,894,888	23,748,903
Fuel Gas, 10 ⁶ ft ³	761,346	1,210,106	1,971,452
Oil Equivalent, 10 ³ boe	3,320,282	3,452,633	6,772,915

Note: Marketable gas reserves estimated herein were converted to oil equivalent using an energy equivalent factor of 6,000 cubic feet of gas per 1 barrel of oil equivalent.

In comparing the detailed net proved reserves estimates prepared by DeGolyer and MacNaughton and by PetroChina, differences have been found, both positive and negative, resulting in an aggregate difference of 0.1 percent when compared on the basis of net equivalent barrels. It is DeGolyer and MacNaughton's opinion that the net proved reserves estimates prepared by PetroChina on the properties evaluated and referred to above, when compared on the basis of net equivalent barrels, in aggregate, do not differ materially from those prepared by DeGolyer and MacNaughton.

While the oil and gas industry may be subject to regulatory changes from time to time that could affect an industry participant's ability to recover its reserves, we are not aware of any such governmental actions which would restrict the recovery of the December 31, 2018, estimated reserves.

DeGolyer and MacNaughton is an independent petroleum engineering consulting firm that has been providing petroleum consulting services throughout the world since 1936. Our fees were not contingent on the results of our evaluation. This report has been prepared at the request of PetroChina. DeGolyer and MacNaughton has used all assumptions, data, procedures, and methods that it considers necessary and appropriate to prepare this report.

Submitted,



DeGOLYER and MacNAUGHTON
Texas Registered Engineering Firm F-716



Thomas C. Pence, P.E.
Senior Vice President
DeGolyer and MacNaughton

CERTIFICATE of QUALIFICATION

I, Thomas C. Pence, Petroleum Engineer with DeGolyer and MacNaughton, 5001 Spring Valley Road, Suite 800 East, Dallas, Texas, 75244 U.S.A., hereby certify:

1. That I am a Senior Vice President with DeGolyer and MacNaughton, which firm did prepare the report of third party addressed to PetroChina dated March 8, 2019, and that I, as Senior Vice President, was responsible for the preparation of this report of third party.

2. That I attended Texas A&M University, and that I graduated with a degree in Petroleum Engineering in the year 1982; that I am a Registered Professional Engineer in the State of Texas; that I am a member of the Society of Petroleum Engineers; and that I have in excess of 36 years of experience in oil and gas reservoir studies and reserves evaluations.



A handwritten signature in cursive script, reading "T. C. Pence, P.E.", positioned above a horizontal line.

Thomas C. Pence, P.E.
Senior Vice President
DeGolyer and MacNaughton

**THIRD PARTY REPORT
RESERVES ESTIMATION AND EVALUATION OF
CHAD, WEST QURNA AND PERU (PEP) ASSETS
AS OF DECEMBER 31, 2018**

Prepared for

PETROCHINA COMPANY LIMITED

MARCH 8, 2019

CONFIDENTIAL

This document is confidential and has been prepared for the exclusive use of CNODCI/PetroChina or parties named herein. It may not be distributed or made available, in whole or in part, to any other company or person without the prior knowledge and written consent of Ryder Scott. No person or company other than those for whom it is intended may directly or indirectly rely upon its contents. Ryder Scott is acting in an advisory capacity only and, to the fullest extent permitted by law, disclaims all liability for actions or losses derived from any actual or purported reliance on this document (or any other statements or opinions of Ryder Scott) by CNODCI/PetroChina or by any other person or entity.



Timour Baichev, P.Eng.
APEGA License No. 87454
Vice President



RYDER SCOTT COMPANY, L.P.
TBPE Firm Registration No. F-1580



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FAX (403) 262-2790

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March 8, 2019

PetroChina Company Limited
9 Dongzhimen North Street
Dongcheng District
Beijing 100007
China

**THIRD PARTY REPORT
RESERVES ESTIMATION AND VALUATION OF
CHAD, WEST QURNA AND PERU (PEP) ASSETS
AS OF DECEMBER 31, 2018**

Ladies and Gentlemen,

Ryder Scott Company, L.P. (Ryder Scott) was requested by China National Oil and Gas Exploration and Development Corporation International Holding Ltd. ("CNODCI"), to conduct reserves estimations and evaluations (as of December 31, 2018) for selected petroleum assets in Chad, West Qurna (Iraq) and Peru (PEP), in which CNODCI has current interests. Ryder Scott has completed these evaluations and submitted our results of the reserves and corresponding Net Present Value (NPV) estimates to CNODCI in separate reports dated January 9, 2019 (Chad), January 14, 2019 (Peru) and January 21, 2019 (Iraq). These reserves were prepared in accordance with U.S. Securities and Exchange Commission (SEC) regulations. Those reports are the definitive documents concerning the reserves and related net present values estimated by Ryder Scott and presented herein.

Recently, CNODCI requested that Ryder Scott prepare this Third Party Report concerning the above reserves work, which is intended to be submitted to PetroChina Company Limited ("PetroChina"). This report is presented to PetroChina to summarize the results of the reserves estimations and evaluations as of December 31, 2018 for the selected petroleum assets. This summary report is subject to, and includes by reference, all of the discussion elements contained in the Ryder Scott report letters contained in aforementioned reserve reports as of December 31, 2018.

METHODOLOGY

In carrying out our reserves and NPV evaluations, Ryder Scott relied upon information and data provided by CNODCI, which comprised basic engineering data; geosciences information and engineering interpretation associated with such data; other technical reports, costs and commercial data, and development plans. The available data and interpretations were reviewed for reasonableness and the latter adjusted where appropriate.

The results presented in this report are based upon information and data made available to Ryder Scott through December 2018. The reserves estimates, future production and Net Present Value (NPV) computations as presented herein are based upon these data and represent Ryder Scott's opinion as of December 31, 2018, as presented in the individual Ryder Scott reports for those assets.

Economic models were constructed based on terms of the applicable petroleum contracts as provided by CNODCI, in order to calculate CNODCI's net revenue interest in the proved reserves. As of December 31, 2018, all proved SEC reserves were estimated up to the end of the license contract period only.

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As per SEC guidelines, the oil prices which were used in the evaluation are the un-weighted 12-month arithmetic averages of the first-day-of-the month price for each month within the 12-month period prior to the end of reporting period, unless prescribed by contract. Those prices were held constant throughout the evaluation period except where alternate prices are prescribed by contract. The historical 12-month oil prices or contract prices, with supporting differentials, were supplied by CNODCI.

Future capital costs were derived from development program forecasts prepared by CNODCI for each production unit and corresponding to recent historical development cost data. The recent historical cost data for each relevant production unit were utilized to determine current operating cost conditions. These costs were not escalated throughout the evaluation period.

CNODCI's net reserve volumes are derived by converting calculated net revenues accruing to CNODCI under the terms of the relevant petroleum contract into equivalent barrels of oil utilizing the average 2018 oil pricing explained above. The CNODCI net revenue interest volumes reported in this document represent those amounts that are determined to be attributable to CNODCI's net economic interest after the deduction of amounts attributable to third parties (government and other working interest partners).

The NPV computations were also undertaken and derived using cost and production profiles input to the various economic models established for the selected assets in each country. These NPVs represent future net revenue before taxes, attributable to the interests of CNODCI, discounted over the economic life of the project at the SEC specified discount rate of ten percent per year to a present value as of December 31, 2018.

1. RESULTS SUMMARY

1.1 Net Reserves

The following table presents the net entitlement for Total Proved reserves attributable to CNODCI's working interests (WI) estimated in accordance with SEC guidelines. They were prepared using the methodology described above.

NET ENTITLEMENT PROVED RESERVES AS OF DECEMBER 31, 2018

<u>Country</u>	<u>Total Proved</u>		
	<u>Oil (Mbbbl)</u>	<u>Sales Gas (Bcf)</u>	<u>NGL (Mbbbl)</u>
Chad	96,082	0	0
Iraq – West Qurna	18,413	0	0
Peru – Block X	22,233	22,100	0
Peru – Block 57	0	338,252	22,395
TOTAL CNODCI	<u>136,728</u>	<u>360,352</u>	<u>22,395</u>

Notes:

- CNODCI holds a 90% WI in Chad, a 34.413 % WI plus Carry in West Qurna, a 100% WI in Block X (Peru) and a 46.16 % WI in Block 57 (Peru) assets. A royalty of 12 ½% in Permit H (Chad) is paid in kind; therefore, it is deducted from the Gross Reserves volumes. Net reserves are WI volumes less royalty volumes. Royalty volumes are zero for both Peru Block X and Block 57 due to the fact that government takes a production tax instead. This leads to the fact that net and gross sales gas volumes are equal once adjusted for WI.*
- Both Chad and West Qurna assets produce oil only. Block X produces oil and solution gas. Block 57 produces gas and NGL. Gas has been discovered in some structures in Chad, but at this time there is no market available for the gas.*

1.2 Gross Volumes

Gross production volumes are presented for reference information only. Gross volumes include volumes attributable to third parties, government and other working interest partners.

GROSS PROVED RESERVES AS OF DECEMBER 31, 2018

<u>Country</u>	<u>Total Proved</u>		
	<u>Oil (Mbbl)</u>	<u>Sales Gas (Bcf)</u>	<u>NGL (Mbbl)</u>
Chad	123,970	0	0
Iraq – West Qurna	782,181	0	0
Peru – Block X	22,233	33,844	0
Peru – Block 57	0	732,781	48,517
TOTAL CNODC	<u>928,384</u>	<u>766,625</u>	<u>48,517</u>

1.3 Net Present Values

The NPVs as of December 31, 2018 of estimated before tax cash flows discounted at 10 percent, attributable to CNODCI's working interest in the projects identified above (excluding any balance sheet adjustments or financing costs), are summarized below.

NET PRESENT VALUES ATTRIBUTABLE TO CNODCI AS OF DECEMBER 31, 2018 DISCOUNT RATE 10%

<u>Country</u>	<u>Total Proved (US\$M)</u>
Chad	3,672,202
Iraq – West Qurna	271,280
Peru – Block X	731,759
Peru – Block 57	686,101
TOTAL CNODCI	<u>5,361,342</u>

Notes:

1. NPVs in Chad, West Qurna, Block X and Block 57 assets represent CNODCI's 90%, 34.413%, 100% and 46.16% WI, respectively.

Reserves are those estimated quantities of petroleum that are anticipated to be economically producible by application of development projects to known accumulations from a given date forward under defined conditions. Reserves must further satisfy four criteria: they must be discovered, recoverable, commercial and remaining (as of the evaluation date) based on the development project(s) applied. Reserves are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by development and production status. All categories of reserve volumes quoted herein have been determined within the context of an economic limit test (pre-tax and exclusive of accumulated depreciation amounts) assessment prior to any NPV analysis.

We are independent petroleum engineers with respect to CNODCI. Neither we nor any of our employees have any financial interest in the subject properties and neither the employment to do this work nor the compensation is contingent on our estimates of reserves for the properties which were reviewed.

The results of these studies, presented herein, are based on technical analysis conducted by teams of geoscientists and engineers from Ryder Scott.

This third party report is provided subject to all the terms, conditions and qualifications set-out in the Ryder Scott reports on these assets that are mentioned at the start of this letter report.

It should be clearly noted that the NPVs contained herein do not represent a Ryder Scott opinion as to the market value of the subject properties.

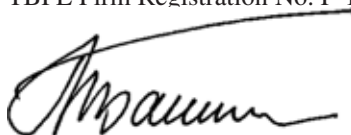
Liquid hydrocarbons are expressed in standard 42 U.S. gallon barrels and shown herein as thousands of barrels (Mbbbl). All gas volumes are expressed in billions of cubic feet (Bcf) at the official temperature and pressure bases of the areas in which the gas volumes are located. All gas reserves volumes are reported on an "as sold" basis.

The results of our third party study, presented in summary form herein, were prepared in accordance with the disclosure requirements set forth in the SEC regulations.

Please contact us if we can be of further service.

Very truly yours,

RYDER SCOTT COMPANY, L.P.
TBPE Firm Registration No. F-1580



Timour Baichev, P.Eng.
APEGA License No. 87454
Vice President



TB (GR)/pl

PETROCHINA CANADA LTD.

**RESERVES ASSESSMENT AND
EVALUATION OF
CANADIAN OIL AND GAS PROPERTIES**

CORPORATE SUMMARY (SEC) ABBREVIATED

Effective December 31, 2018

CORPORATE SUMMARY (SEC) ABBREVIATED

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April 18, 2019 13:45:11

April 17, 2019

Project 1181812

Mr. Michael Fox
PetroChina Canada Ltd.
2700, 707 – 5th Street S.W.
Calgary, Alberta T2P 1V8

Dear Sir:

**Re: PetroChina Canada Ltd.
Corporate Evaluation (SEC)
Effective December 31, 2018**

GLJ Petroleum Consultants (GLJ) has completed an independent reserves assessment and evaluation of the oil and gas properties of PetroChina Canada Ltd. (the “Company”). The effective date of this evaluation is December 31, 2018.

GLJ has prepared the reserves estimates utilizing reserves definitions contained in National Instrument 51-101 (NI 51-101) and following standards set out in the Canadian Oil and Gas Evaluation Handbook (COGEH) as required for securities reporting in Canada. Proved reserves definitions provided in NI 51-101 are similar to the U.S. SEC Reg. S-X (SEC) definitions, and guidance provided in COGEH is generally in keeping with SEC guidelines.

Economic forecasts provided herein have been prepared using the SEC mandated average of previous 12 months first-day-of-the-month constant product pricing guidelines. For the subject evaluation, the application of the SEC definitions would cause no change to the proved reserves and economic forecasts prepared following COGEH using the SEC constant product prices. Accordingly, the constant pricing proved reserves estimates and economic forecasts are considered appropriate for U.S. reporting purposes.

It was GLJ’s primary mandate in this evaluation to provide an independent evaluation of the oil and gas reserves of the Company in aggregate. Accordingly it may not be appropriate to extract individual property or entity estimates for other purposes. Our engagement letter notes these limitations on the use of this report.

This report represents a summary of the final corporate reserves report of the Company, dated January 2, 2019. The reserves and values contained herein include the following reserves properties; Duvernay Joint Venture Assets (Kaybob Duvernay, Willesden Green Duvernay, Simonette Montney), Groundbirch Montney, Conventional Minors (LoneRock, Drumhellar, Twining) and MacKay insitu. For further details please refer to the final SEC report of the Company dated January 2, 2019.

A summary of the reserves in barrels of oil equivalent and values for the reserves properties, as extracted from the corporate reserves report of the Company, are illustrated in the following tables.

For further details regarding the reserves contained herein, please refer to the comprehensive SEC reserves report.



It is trusted that this evaluation meets your current requirements. Should you have any questions regarding this analysis, please contact the undersigned.

Yours very truly,

GLJ PETROLEUM CONSULTANTS LTD.

A handwritten signature in blue ink that reads 'Trisha MacDonald'.

Trisha S. MacDonald, P. Eng.
Manager, Engineering

TSM/memd
Attachments


INDEPENDENT PETROLEUM CONSULTANTS' CONSENT

The undersigned firm of Independent Petroleum Consultants of Calgary, Alberta, Canada has prepared an independent evaluation of the **PetroChina Canada Ltd.** (the "Company") Canadian oil and gas properties and hereby gives consent to the use of its name and to the said estimates. The effective date of the evaluation is **December 31, 2018.**

In the course of the evaluation, the Company provided GLJ Petroleum Consultants Ltd. personnel with basic information which included land data, well information, geological information, reservoir studies, estimates of on-stream dates, contract information, current hydrocarbon product prices, operating cost data, capital budget forecasts, financial data and future operating plans. Other engineering, geological or economic data required to conduct the evaluation and upon which this report is based, were obtained from public records, other operators and from GLJ Petroleum Consultants Ltd. nonconfidential files. The Company has provided a representation letter confirming that all information provided to GLJ Petroleum Consultants Ltd. is correct and complete to the best of its knowledge. Procedures recommended in the Canadian Oil and Gas Evaluation (COGE) Handbook and SPE-PRMS to verify certain interests and financial information were applied in this evaluation. In applying these procedures and tests, nothing came to GLJ Petroleum Consultants Ltd.'s attention that would suggest that information provided by the Company was not complete and accurate. GLJ Petroleum Consultants Ltd. reserves the right to review all calculations referred to or included in this report and to revise the estimates in light of erroneous data supplied or information existing but not made available which becomes known subsequent to the preparation of this report.

The accuracy of any reserves and production estimate is a function of the quality and quantity of available data and of engineering interpretation and judgment. While reserves and production estimates presented herein are considered reasonable, the estimates should be accepted with the understanding that reservoir performance subsequent to the date of the estimate may justify revision, either upward or downward.

Revenue projections presented in this report are based in part on forecasts of market prices, currency exchange rates, inflation, market demand and government policy which are subject to many uncertainties and may, in future, differ materially from the forecasts utilized herein. Present values of revenues documented in this report do not necessarily represent the fair market value of the reserves evaluated herein.

PERMIT TO PRACTICE GLJ PETROLEUM CONSULTANTS LTD.	
Signature:	
Date:	January 2, 2019
PERMIT NUMBER: P 2066 The Association of Professional Engineers and Geoscientists of Alberta	



INTRODUCTION

GLJ Petroleum Consultants (GLJ) was commissioned by PetroChina Canada Ltd. (the “Company”) to prepare an independent evaluation of its oil and gas reserves effective December 31, 2018. The locations of the most significant reserves properties are indicated on the attached index map.

The evaluation was initiated in July 2018 and completed by December 2018. Estimates of reserves and projections of production were generally prepared using well information and production data available from public sources to approximately November 30, 2018. The Company provided land, accounting data and other technical information not available in the public domain to approximately December 20, 2018. In certain instances, the Company also provided recent engineering, geological and other information up to December 18, 2018. The Company has confirmed that, to the best of its knowledge, all information provided to GLJ is correct and complete as of the effective date.

This evaluation has been prepared in accordance with procedures and standards contained in the Canadian Oil and Gas Evaluation (COGE) Handbook. The reserves definitions used in preparing this report (included herein under “Reserves Definitions”) are those contained in the SEC Reserves Definitions from excerpts S-X210.4-10 and those as detailed in SPE-PRMS (published in 2018).

The evaluation was conducted on the basis of the first day posted prices in each of the 12 months of the Company’s fiscal year as summarized in the Product Price and Market Forecasts section of this report.

Tables summarizing production, royalties, costs, revenue projections, reserves and present value estimates for various reserves categories for individual properties and the Company total are provided in the tabbed sections of this Summary Report.

The Evaluation Procedure section outlines general procedures used in preparing this evaluation. The individual property reports, provided under separate cover, provide additional evaluation details. The following summarizes evaluation matters that have been included/excluded in cash flow projections:

- provisions for the abandonment and reclamation of all of the Company’s existing and future wells to which reserves have been attributed have been included; all other abandonment and reclamation costs have not been included,
- general and administrative (G&A) costs and overhead recovery have not been included,
- undeveloped land values have not been included.

Economic forecasts are provided on an after tax basis including tax pools provided by the Company in the “Evaluation Procedure” section.

SUMMARY

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COMPANY PRODUCTION, RESERVES AND PRESENT VALUE SUMMARY	
Proved Producing	10
Proved Developed Non-Producing	11
Proved Undeveloped	12
Total Proved Non-Producing	13
Total Proved	14

Company: **PetroChina Canada Ltd.**
 Property: **Corporate**
 Description: **After Tax Analysis (SEC)**

Reserve Class: **Various**
 Development Class: **Classifications**
 Pricing: **SEC 2018-Dec-31 Posted (12 Month Avg.)**
 Effective Date: **December 31, 2018**

Summary of Reserves and Values

	<u>Proved Producing</u>	<u>Proved Developed Non-Producing</u>	<u>Proved Undeveloped</u>	<u>Total Proved Non-Producing</u>	<u>Total Proved</u>
MARKETABLE RESERVES					
<u>Light & Medium Oil (Mbbl)</u>					
Total Company Interest	11	0	0	0	11
Working Interest	11	0	0	0	11
Net After Royalty	11	0	0	0	11
<u>Heavy Oil (Mbbl)</u>					
Total Company Interest	18	0	0	0	18
Working Interest	18	0	0	0	18
Net After Royalty	17	0	0	0	17
<u>Tight Oil (Mbbl)</u>					
Total Company Interest	121	0	0	0	121
Working Interest	121	0	0	0	121
Net After Royalty	103	0	0	0	103
<u>Total Oil (Mbbl)</u>					
Total Company Interest	150	0	0	0	150
Working Interest	150	0	0	0	150
Net After Royalty	131	0	0	0	131
<u>Shale Gas (MMcf)</u>					
Total Company Interest	133,447	2,384	200,448	202,832	336,279
Working Interest	133,447	2,384	200,448	202,832	336,279
Net After Royalty	125,891	2,317	190,407	192,724	318,615
<u>Total Sales Gas (MMcf)</u>					
Total Company Interest	133,447	2,384	200,448	202,832	336,279
Working Interest	133,447	2,384	200,448	202,832	336,279
Net After Royalty	125,891	2,317	190,407	192,724	318,615
<u>Natural Gas Liquids (Mbbl)</u>					
Total Company Interest	12,645	55	26,719	26,774	39,419
Working Interest	12,645	55	26,719	26,774	39,419
Net After Royalty	10,342	48	25,330	25,378	35,720
<u>Oil Equivalent (Mboe)</u>					
Total Company Interest	35,036	453	60,127	60,579	95,616
Working Interest	35,036	453	60,127	60,579	95,616
Net After Royalty	31,455	434	57,064	57,498	88,953
BEFORE TAX PRESENT VALUE (M\$)					
0%	545,341	2,414	933,989	936,402	1,481,743
5%	451,295	1,800	567,908	569,708	1,021,003
8%	409,912	1,543	433,717	435,260	845,172
10%	386,840	1,405	365,854	367,259	754,100
12%	366,671	1,287	310,594	311,881	678,551
15%	340,834	1,141	245,379	246,520	587,354
20%	306,671	957	168,945	169,902	476,573
AFTER TAX PRESENT VALUE (M\$)					
0%	545,341	2,414	933,989	936,402	1,481,743
5%	451,295	1,800	567,908	569,708	1,021,003
8%	409,912	1,543	433,717	435,260	845,172
10%	386,840	1,405	365,854	367,259	754,100
12%	366,671	1,287	310,594	311,881	678,551
15%	340,834	1,141	245,379	246,520	587,354
20%	306,671	957	168,945	169,902	476,573

BOE Factors: HVY OIL 1.0 RES GAS 6.0 PROPANE 1.0 ETHANE 1.0
 COND 1.0 SLN GAS 6.0 BUTANE 1.0 SULPHUR 0.0

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1181812 Class (A,B1,B2,B,C), SEC 2018-Dec-31 Posted (12 Month Avg.), psum

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Company:
Property:
Description:

PetroChina Canada Ltd.
Corporate
Summary (SEC)

Reserve Class:
Development Class:
Pricing:
Effective Date:

Proved
Producing
SEC 2018-Dec-31 Posted (12 Month Avg.)
December 31, 2018

Company Production, Reserves and Present Value Summary

Entity Description	2019 Company Interest Prod'n				Company Interest Reserves				Net After Royalty Reserves				Reserve Life Index yrs	Before Income Tax Discounted Present Value (M\$)						
	Gas Mcf/d	Oil bbl/d	NGL bbl/d	Oil Eq boe/d	Gas MMcf	Oil Mbbbl	NGL Mbbbl	Sulphur Mlt	Oil Eq Mboe	Gas MMcf	Oil Mbbbl	NGL Mbbbl		Sulphur Mlt	Oil Eq Mboe	0%	5%	8%	10%	12%
Summary (SEC)																				
CNPCL																				
Conventional Minors																				
Drumheller																				
Lone Rock (Sask)																				
Total: Conventional Minors																				
Total: CNPCL																				
PetroChina Canada																				
Duvernay Joint Venture																				
Kaybob Duvernay																				
Simonne Montney																				
Willesden Green Duvernay																				
Total: Duvernay Joint Venture																				
Groundbirch Joint Venture																				
Greater Groundbirch Area Montney																				
Greater Saturn Area Montney																				
Greater Sunset Area Montney																				
Total: Groundbirch Joint Venture																				
Total: PetroChina Canada																				
Total: Summary (SEC)																				

BOE Factors: HVY OIL 1.0 RES GAS 6.0 PROPANE 1.0 ETHANE 1.0
COND 1.0 SLN GAS 6.0 BUTANE 1.0 SULPHUR 0.0

1181812 Proved Producing, SEC 2018-Dec-31 Posted (12 Month Avg.), crv

Company:
Property:
Description:

PetroChina Canada Ltd.
Corporate
Summary (SEC)

Reserve Class: Proved
Development Class: Developed Non-Producing
Pricing: SEC 2018-Dec-31 Posted (12 Month Avg.)
Effective Date: December 31, 2018

Company Production, Reserves and Present Value Summary

Entity Description	2019 Company Interest Prod'n				Company Interest Reserves					Net After Royalty Reserves				Reserve Life Index yrs	Before Income Tax Discounted Present Value (M\$)						
	Gas Mscf/d	Oil bbl/d	NGL bbl/d	Oil Eq. boe/d	Gas MMcf	Oil Mbbbl	NGL Mbbbl	Sulphur		Oil Eq. Mboe	Gas MMcf	Oil Mbbbl	NGL Mbbbl		Sulphur Mlt	Oil Eq. Mboe	0%	5%	8%	10%	12%
								Mlt	Mboe												
Summary (SEC)																					
PetroChina Canada																					
Duvernay Joint Venture																					
Kaybob Duvernay																					
	0	0	0	0	668	0	37	0	148	619	0	31	0	134		4.7	1,810	1,299	1,089	977	883
Total: Duvernay Joint Venture	0	0	0	0	668	0	37	0	148	619	0	31	0	134			1,810	1,299	1,089	977	883
Groundbirch Joint Venture																					
Greater Sunset Area Montney																					
	817	0	9	145	1,715	0	19	0	305	1,698	0	17	0	301		4.3	604	501	454	427	404
Total: Groundbirch Joint Venture	817	0	9	145	1,715	0	19	0	305	1,698	0	17	0	301			604	501	454	427	404
Total: PetroChina Canada																					
	817	0	9	145	2,384	0	55	0	453	2,317	0	48	0	434			2,414	1,800	1,543	1,405	1,287
Total: Summary (SEC)	817	0	9	145	2,384	0	55	0	453	2,317	0	48	0	434			2,414	1,800	1,543	1,405	1,287

BOE Factors: HVY OIL 1.0 RES GAS 6.0 PROPANE 1.0 ETHANE 1.0
COND 1.0 SLN GAS 6.0 BUTANE 1.0 SULPHUR 0.0

1181812 Proved Developed Non-Producing, SEC 2018-Dec-31 Posted (12 Month Avg.), crv

Company:
Property:
Description:

PetroChina Canada Ltd.
Corporate
Summary (SEC)

Reserve Class:
Development Class:
Pricing:
Effective Date:

Proved
Undeveloped
SEC 2018-Dec-31 Posted (12 Month Avg.)
December 31, 2018

Company Production, Reserves and Present Value Summary

Entity Description	2019 Company Interest Prod'n					Company Interest Reserves					Net After Royalty Reserves					Reserve Life Index yrs	Before Income Tax Discounted Present Value (M\$)				
	Oil	NGL	Gas	Oil Eq.	Oil Eq.	Oil	NGL	Gas	Oil Eq.	Oil Eq.	Oil	NGL	Sulphur	Sulphur	Oil Eq.		0%	5%	8%	10%	12%
	Mc/d	bb/d	MMcf	boe/d	Mboe	Mbbl	Mbbl	MMcf	Mbbl	Mboe	Mbbl	Mbbl	Mlt	Mlt	Mboe						
Summary (SEC)																					
PetroChina Canada																					
Duvernay Joint Venture																					
Kaybob Duvernay																					
	9,536	0	2,267	3,856	200,448	0	26,719	0	60,127	190,407	0	25,330	0	57,064	42.7	933,989	567,908	433,717	365,854	310,594	
Total: Duvernay Joint Venture	9,536	0	2,267	3,856	200,448	0	26,719	0	60,127	190,407	0	25,330	0	57,064		933,989	567,908	433,717	365,854	310,594	
Total: PetroChina Canada																					
	9,536	0	2,267	3,856	200,448	0	26,719	0	60,127	190,407	0	25,330	0	57,064		933,989	567,908	433,717	365,854	310,594	
Total: Summary (SEC)	9,536	0	2,267	3,856	200,448	0	26,719	0	60,127	190,407	0	25,330	0	57,064		933,989	567,908	433,717	365,854	310,594	

BOE Factors: HVY OIL 1.0 RES GAS 6.0 PROPANE 1.0 ETHANE 1.0
COND 1.0 SLN GAS 6.0 BUTANE 1.0 SULPHUR 0.0

1181812 Proved Undeveloped, SEC 2018-Dec-31 Posted (12 Month Avg.), crv

Company:
Property:
Description:

PetroChina Canada Ltd.
Corporate
Summary (SEC)

Reserve Class:
Development Class:
Pricing:
Effective Date:

Proved
Total Non-Producing
SEC 2018-Dec-31 Posted (12 Month Avg.)
December 31, 2018

Company Production, Reserves and Present Value Summary

Entity Description	2019 Company Interest Prod'n				Company Interest Reserves				Net After Royalty Reserves				Reserve Life Index yrs	Before Income Tax Discounted Present Value (M\$)						
	Gas Mcf/d	Oil bbl/d	NGL bbl/d	Oil Eq. boe/d	Gas MMcf	Oil Mbbl	NGL Mbbl	Sulphur Mlt	Oil Eq. Mbbl	Gas MMcf	Oil Mbbl	NGL Mbbl		Sulphur Mlt	Oil Eq. Mbbl	0%	5%	8%	10%	12%
Summary (SEC)																				
PetroChina Canada																				
Duvernay Joint Venture																				
Kaybob Duvernay																				
	9,536	0	2,267	3,856	201,117	0	26,755	0	60,275	191,026	0	25,360	0	57,198	42.8	935,799	569,207	434,806	366,832	311,477
Total: Duvernay Joint Venture	9,536	0	2,267	3,856	201,117	0	26,755	0	60,275	191,026	0	25,360	0	57,198		935,799	569,207	434,806	366,832	311,477
Groundbirch Joint Venture																				
Greater Sunset Area Montney																				
	817	0	9	145	1,715	0	19	0	305	1,698	0	17	0	301	4.3	604	501	454	427	404
Total: Groundbirch Joint Venture	817	0	9	145	1,715	0	19	0	305	1,698	0	17	0	301		604	501	454	427	404
Total: PetroChina Canada																				
	10,352	0	2,276	4,001	202,832	0	26,774	0	60,579	192,724	0	25,378	0	57,498		936,402	569,708	435,260	367,259	311,881
Total: Summary (SEC)	10,352	0	2,276	4,001	202,832	0	26,774	0	60,579	192,724	0	25,378	0	57,498		936,402	569,708	435,260	367,259	311,881

BOE Factors: HVY OIL 1.0 RES GAS 6.0 PROPANE 1.0 ETHANE 1.0
COND 1.0 SLN GAS 6.0 BUTANE 1.0 SULPHUR 0.0

1181812 Total Proved Non-Producing, SEC 2018-Dec-31 Posted (12 Month Avg.), crv

Company:
Property:
Description:

PetroChina Canada Ltd.
Corporate
Summary (SEC)

Reserve Class:
Development Class:
Pricing:
Effective Date:

Proved
Total
SEC 2018-Dec-31 Posted (12 Month Avg.)
December 31, 2018

Company Production, Reserves and Present Value Summary

Entity Description	2019 Company Interest Prod'n				Company Interest Reserves				Net After Royalty Reserves				Reserve Life Index yrs	Before Income Tax Discounted Present Value (M\$)			
	Gas Mcf/d	Oil bbl/d	NGL bbl/d	Oil Eq. boe/d	Gas MMcf	Oil Mbl	Sulphur Mbl	Oil Eq. Mboe	Gas MMcf	Oil Mbl	NGL Mbl	Sulphur Mbl		0%	5%	8%	12%
Summary (SEC)																	
CNPCL																	
Conventional Minors																	
Drumheller	0	6	0	6	0	11	0	0	0	11	0	0	11	5.2	227	203	191
Lone Rock (Sask)	0	13	0	13	0	18	0	0	0	17	0	0	17	3.7	282	259	246
Total: Conventional Minors	0	19	0	19	0	29	0	0	0	28	0	0	28	508	462	437	407
Total: CNPCL	0	19	0	19	0	29	0	0	0	28	0	0	28	508	462	437	407
PetroChina Canada																	
Duvernay Joint Venture																	
Kaybob Duvernay	51,768	0	8,664	17,292	290,210	0	38,596	0	86,964	273,641	0	35,073	0	80,680	1,456,867	999,313	824,989
Simomette Montney	2,040	65	199	604	3,454	121	325	0	1,022	3,104	103	223	0	844	18,199	14,953	13,541
Wilkesden Green																	
Duvernay	772	0	90	219	1,574	0	167	0	429	1,446	0	123	0	364	2,374	2,317	2,240
Total: Duvernay Joint Venture	54,580	65	8,953	18,115	295,238	121	39,087	0	88,415	278,192	103	35,419	0	81,888	1,477,440	1,016,584	840,770
Groundbirch Joint Venture																	
Greater Groundbirch Area Montney	434	0	2	75	256	0	1	0	44	251	0	1	0	43	-68	-49	-40
Greater Saturn Area Montney	8,051	0	47	1,388	6,485	0	38	0	1,118	6,446	0	36	0	1,110	-857	-492	-335
Greater Sunset Area Montney	23,475	0	188	4,101	34,300	0	293	0	6,009	33,726	0	263	0	5,884	4,720	4,499	4,341
Total: Groundbirch Joint Venture	31,960	0	237	5,564	41,041	0	332	0	7,172	40,423	0	301	0	7,038	3,795	3,958	3,966
Total: PetroChina Canada	86,540	65	9,190	23,679	336,279	121	39,419	0	95,587	318,615	103	35,720	0	88,925	1,481,235	1,020,541	844,735
Total: Summary (SEC)	86,540	84	9,190	23,697	336,279	150	39,419	0	95,616	318,615	131	35,720	0	88,953	1,481,743	1,021,003	845,172

BOE Factors: HVY OIL 1.0 RES GAS 6.0 PROPANE 1.0 ETHANE 1.0
COND 1.0 SLN GAS 6.0 BUTANE 1.0 SULPHUR 0.0

1181812 Total Proved, SEC 2018-Dec-31 Posted (12 Month Avg.), crv

SEC RESERVES DEFINITIONS

The following definitions are excerpts from Regulation S-X 210.4-10. Portions of these definitions within square parentheses, [], have been transposed from other sections of Regulation S-X 210.4-10 to improve readability.

Resources

Resources are quantities of oil and gas estimated to exist in naturally occurring accumulations. A portion of the resources may be estimated to be recoverable, and another portion may be considered to be unrecoverable. Resources include both discovered and undiscovered accumulations.

Reserves

Reserves are estimated remaining quantities of oil and gas and related substances anticipated to be economically producible, as of a given date, by application of development projects to known accumulations. In addition, there must exist, or there must be a reasonable expectation that there will exist, the legal right to produce or a revenue interest in the production, installed means of delivering oil and gas or related substances to market, and all permits and financing required to implement the project.

Note: Reserves should not be assigned to adjacent reservoirs isolated by major, potentially sealing, faults until those reservoirs are penetrated and evaluated as economically producible. Reserves should not be assigned to areas that are clearly separated from a known accumulation by a non-productive reservoir (i.e., absence of reservoir, structurally low reservoir, or negative test results). Such areas may contain prospective resources (i.e., potentially recoverable resources from undiscovered accumulations).

Proved Oil and Gas Reserves

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, regardless of whether deterministic or probabilistic methods are used for the estimation. The project to extract the hydrocarbons must have commenced or the operator must be reasonably certain that it will commence the project within a reasonable time.

- (i) The area of the reservoir considered as proved includes:
 - (A) The area identified by drilling and limited by fluid contacts, if any, and
 - (B) Adjacent undrilled portions of the reservoir that can, with reasonable certainty, be judged to be continuous with it and to contain economically producible oil or gas on the basis of available geoscience and engineering data.
- (ii) In the absence of data on fluid contacts, proved quantities in a reservoir are limited by the lowest known hydrocarbons (LKH) as seen in a well penetration unless geoscience, engineering, or performance data and reliable technology establishes a lower contact with reasonable certainty.
- (iii) Where direct observation from well penetrations has defined a highest known oil (HKO) elevation and the potential exists for an associated gas cap, proved oil reserves may be assigned in the structurally higher portions of the reservoir only if geoscience, engineering, or performance data and reliable technology establish the higher contact with reasonable certainty.

- (iv) Reserves which can be produced economically through application of improved recovery techniques (including, but not limited to, fluid injection) are included in the proved classification when:
 - (A) Successful testing by a pilot project in an area of the reservoir with properties no more favorable than in the reservoir as a whole, the operation of an installed program in the reservoir or an analogous reservoir, or other evidence using reliable technology establishes the reasonable certainty of the engineering analysis on which the project or program was based; and
 - (B) The project has been approved for development by all necessary parties and entities, including governmental entities.
- (v) Existing economic conditions include prices and costs at which economic producibility from a reservoir is to be determined. The price shall be 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.

Probable Reserves

Probable reserves are those additional reserves that are less certain to be recovered than proved reserves but which, together with proved reserves, are as likely as not to be recovered.

- (i) When deterministic methods are used, it is as likely as not that actual remaining quantities recovered will exceed the sum of estimated proved plus probable reserves. When probabilistic methods are used, there should be at least a 50% probability that the actual quantities recovered will equal or exceed the proved plus probable reserves estimates.
- (ii) Probable reserves may be assigned to areas of a reservoir adjacent to proved reserves where data control or interpretations of available data are less certain, even if the interpreted reservoir continuity of structure or productivity does not meet the reasonable certainty criterion. Probable reserves may be assigned to areas that are structurally higher than the proved area if these areas are in communication with the proved reservoir.
- (iii) Probable reserves estimates also include potential incremental quantities associated with a greater percentage recovery of the hydrocarbons in place than assumed for proved reserves.
- (iv) *[The proved plus probable and proved plus probable plus possible reserves estimates must be based on reasonable alternative technical and commercial interpretations within the reservoir or subject project that are clearly documented, including comparisons to results in successful similar projects.]*

[Where direct observation has defined a highest known oil (HKO) elevation and the potential exists for an associated gas cap, proved oil reserves should be assigned in the structurally higher portions of the reservoir above the HKO only if the higher contact can be established with reasonable certainty through reliable technology. Portions of the reservoir that do not meet this reasonable certainty criterion may be assigned as probable and possible oil or gas based on reservoir fluid properties and pressure gradient interpretations.]

Possible Reserves

Possible reserves are those additional reserves that are less certain to be recovered than probable reserves.

- (i) When deterministic methods are used, the total quantities ultimately recovered from a project have a low probability of exceeding proved plus probable plus possible reserves. When probabilistic methods are used, there should be at least a 10% probability that the total quantities ultimately recovered will equal or exceed the proved plus probable plus possible reserves estimates.
- (ii) Possible reserves may be assigned to areas of a reservoir adjacent to probable reserves where data control and interpretations of available data are progressively less certain. Frequently, this will be in areas where geoscience and engineering data are unable to define clearly the area and vertical limits of commercial production from the reservoir by a defined project.
- (iii) Possible reserves also include incremental quantities associated with a greater percentage recovery of the hydrocarbons in place than the recovery quantities assumed for probable reserves.
- (iv) The proved plus probable and proved plus probable plus possible reserves estimates must be based on reasonable alternative technical and commercial interpretations within the reservoir or subject project that are clearly documented, including comparisons to results in successful similar projects.
- (v) Possible reserves may be assigned where geoscience and engineering data identify directly adjacent portions of a reservoir within the same accumulation that may be separated from proved areas by faults with displacement less than formation thickness or other geological discontinuities and that have not been penetrated by a wellbore, and the registrant believes that such adjacent portions are in communication with the known (proved) reservoir. Possible reserves may be assigned to areas that are structurally higher or lower than the proved area if these areas are in communication with the proved reservoir.
- (vi) Where direct observation has defined a highest known oil (HKO) elevation and the potential exists for an associated gas cap, proved oil reserves should be assigned in the structurally higher portions of the reservoir above the HKO only if the higher contact can be established with reasonable certainty through reliable technology. Portions of the reservoir that do not meet this reasonable certainty criterion may be assigned as probable and possible oil or gas based on reservoir fluid properties and pressure gradient interpretations.

Developed Oil and Gas Reserves

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 by means not involving a well.

Undeveloped Oil and Gas Reserves

Undeveloped oil and gas reserves are reserves of any category that are expected to be recovered from new wells on undrilled acreage, or from existing wells where a relatively major expenditure is required for recompletion.

- (i) Reserves on undrilled acreage shall be 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.
- (ii) Undrilled locations can be 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.
- (iii) Under no circumstances shall estimates for undeveloped reserves be 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 [see Other Definitions below], or by other evidence using reliable technology establishing reasonable certainty.

Other Pertinent Definitions

Analogous Reservoir

Analogous reservoirs, as used in resources assessments, have similar rock and fluid properties, reservoir conditions (depth, temperature, and pressure) and drive mechanisms, but are typically at a more advanced stage of development than the reservoir of interest and thus may provide concepts to assist in the interpretation of more limited data and estimation of recovery. When used to support proved reserves, an “analogous reservoir” refers to a reservoir that shares the following characteristics with the reservoir of interest:

- (i) Same geological formation (but not necessarily in pressure communication with the reservoir of interest);
- (ii) Same environment of deposition;
- (iii) Similar geological structure; and
- (iv) Same drive mechanism.

Reasonable Certainty

If deterministic methods are used, reasonable certainty means a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90% probability that the quantities actually recovered will equal or exceed the estimate. A high degree of confidence exists if the quantity is much more likely to be achieved than not, and, as changes due to increased availability of geoscience (geological, geophysical, and geochemical), engineering, and economic data are made to estimated ultimate recovery (EUR) with time, reasonably certain EUR is much more likely to increase or remain constant than to decrease.

Reliable Technology

Reliable technology is a grouping of one or more technologies (including computational methods) that has been field tested and has been demonstrated to provide reasonably certain results with consistency and repeatability in the formation being evaluated or in an analogous formation.

Reservoir

A porous and permeable underground formation containing a natural accumulation of producible oil and/or gas that is confined by impermeable rock or water barriers and is individual and separate from other reservoirs.

EVALUATION PROCEDURE

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EVALUATION PROCEDURE

The following outlines the methodology employed by GLJ Petroleum Consultants (GLJ) in conducting the evaluation of the Company's oil and gas properties. GLJ evaluation procedures are in compliance with standards contained in the Society of Petroleum Engineers (SPE) and Petroleum Resources Management System (SPE-PRMS).

INTEREST DESCRIPTIONS

The Company provided GLJ with current land interest information. The Company provided a representation letter confirming accuracy of land information. Certain cross-checks of land and accounting information were undertaken by GLJ. In this process, nothing came to GLJ's attention that indicated that information provided by the Company was incomplete or unreliable.

In GLJ's reports, "Company Interest" reserves and values refer to the sum of royalty interest* and working interest reserves before deduction of royalty burdens payable. "Working Interest" reserves equate to those reserves that are referred to as "Company Gross" reserves.

**Royalty interest reserves include royalty volumes derived only from other working interest owners.*

WELL DATA

Pertinent interest and offset well data such as drill stem tests, workovers, pressure surveys, production tests, etc., were provided by the Company or were obtained from other operators, public records or GLJ nonconfidential files.

ACCOUNTING SUMMARY

The Company provided GLJ with available accounting data on a property basis and for the corporate total for the period December 1, 2017, to July 31, 2018. In some circumstances this information was also provided on a cost centre basis to address major reserves entities that are a subset of a Company property. The Company has also provided historical accounting data by property and corporate totals for 2015 to 2017.

PRODUCTION FORECASTS

In establishing all production forecasts, consideration was given to existing gas contracts and the possibility of contract revisions, to the operator's plans for development drilling and to reserves and well capability. Generally, development drilling in an area was not considered unless there was some indication from the operator that drilling could be expected.

The on-stream date for currently shut-in reserves was estimated with consideration given to the following:

- proximity to existing facilities
- plans of the operator
- economics

AFTER TAX ANALYSIS

Canadian income taxes were calculated based on currently legislated federal and provincial tax rates, tax regulations and tax pool information provided by the Company. After tax values for reserves development status or production status subcategories (i.e. developed, undeveloped, producing, non-producing) are calculated by difference.

Current Capital

Following the Federal Accelerated Investment Incentive changes, capital is written off at the following depreciation rates:

<u>Capital Classification</u>	<u>2019-2023</u>	<u>2024-2027</u>	<u>2028</u>
Canadian Oil and Gas Property Expense (COGPE)	15	12.5	10
Canadian Development Expense (CDE)	45	37.5	30
Capital Cost Allowance: (CCA) Class 41	37.5	25	12.5

Tax Pools

The following tax pools as of the effective date were included in the income tax calculations for the reserves properties:

PetroChina Canada Ltd. Assets:

<u>Tax Pool Classification</u>	<u>Write-Off Rate (%)</u>	<u>Tax Pool (M\$)</u>
Canadian Oil and Gas Property Expense (COGPE)	10	1,660,467
Canadian Exploration Expense (CEE)	100	40,662
Non-Capital Losses	100	1,641,122
Canadian Development Expense (CDE)	30	1,291,668
Capital Cost Allowance: (CCA)		
Class 1	10	106,338
Class 8	20	38,211
Class 12	100	4,973
Class 13	10	512
Class 14		1,152
Class 17	8	1,646
Class 41	25	2,384,872
Class 42	12	156
Class 49	8	50,693
Class 50	55	5,620
Scientific Research and Experimental Development (SRED)	100	6,133

CNPC International Assets:

<u>Tax Pool Classification</u>	<u>Write-Off Rate (%)</u>	<u>Tax Pool (M\$)</u>
Canadian Development Expense (CDE)	30	27,433
Non-Capital Loss	100	59,520
Capital Cost Allowance: (CCA)		
Class 1	10	960
Class 41	25	1,388

Tax Rates

Federal income tax calculations incorporate recently enacted reductions in general corporate income tax rates as follows:

<u>Year</u>	<u>Federal Income Tax Rate</u>
2019+	15.0%

Allocation of revenues to Canadian provinces for income tax purposes depends on several factors in addition to the provincial origin of the resource revenues. The average future annual provincial tax rate has been calculated based on an allocation of provincial resource revenues and their respective tax rate as follows:

PetroChina Canada Corporation Assets:

<u>Year</u>	<u>Alberta Tax Rate</u>	<u>Alberta Allocation</u>	<u>B.C. Tax Rate</u>	<u>B.C. Allocation</u>	<u>Sask. Tax Rate</u>	<u>Sask. Allocation</u>	<u>Avg. Ann. Tax Rate</u>
2019+	12.00%	99.7%	12.00%	0.3%	12.00%	55.0%	12.00%

CNPC International Assets:

<u>Year</u>	<u>Alberta Tax Rate</u>	<u>Alberta Allocation</u>	<u>B.C. Tax Rate</u>	<u>B.C. Allocation</u>	<u>Sask. Tax Rate</u>	<u>Sask. Allocation</u>	<u>Avg. Ann. Tax Rate</u>
2019+	12.00%	44.5%	12.00%	0.00%	12.00%	55.5%	12.00%

Company total after tax economic forecasts for all reserves categories are attached.

ECONOMIC PARAMETERS

Pertinent economic parameters are listed as follows:

- The effective date is December 31, 2018.
- Operating and capital costs, including maintenance capital, were estimated in 2019 dollars and then escalated as summarized in the Product Price and Market Forecasts section of this report.
- Operating costs have been included for active and inactive wells in active properties; operating costs for inactive properties are excluded.
- Economic forecasts were prepared for each property on a before income tax basis. Detailed discounting of future cash flow was performed using a discount factor of 10.0 percent with all values discounted annually to December 31, 2018, on a mid-calendar-year basis.

- e) Royalty holidays applicable to existing wells or forecast drilling are included in individual well economics. These credits are itemized within the property reports.
- f) Gas processing allowances relating to remaining undepreciated capital bases, were included in individual property economic evaluations.
- g) Mineral taxes on freehold interests were included.
- h) Field level overhead charges have been included; recovery of overhead expenses has not been included.
- i) The Company's office G&A costs have not been included.
- j) Abandonment and reclamation costs for all existing and future wells to which reserves have been assigned have been included at the property level. Costs have been scheduled 5 years after the last year of production for each well. Additional abandonment and reclamation costs associated with inactive wells, pipelines and facilities have not been included in this analysis.
- k) The Curtailment Rules adopted by the Province of Alberta on December 3, 2018 and set out in the appendices to the Oil and Gas Conservation Act, Oil Sands Conservation Act and Responsible Energy Development Act have been incorporated.

OIL EQUIVALENT OR GAS EQUIVALENT

In this report, quantities of hydrocarbons have been converted to barrels of oil equivalent (boe); or to sales gas equivalent (sge) using factors of 6 Mcf/boe for gas, 1 bbl/boe for all liquids, and 0 boe for sulphur. Users of oil equivalent values are cautioned that while boe based metrics are useful for comparative purposes, they may be misleading when used in isolation.

LIST OF ABBREVIATIONS

AOF	absolute open flow
bbl	barrels
Bcf	billion cubic feet of gas at standard conditions
BIIP	bitumen initially-in-place
boe	barrel of oil equivalent, in this evaluation determined using 6 Mcf/boe for gas, 1 bbl/boe for all liquids, and 0 boe for sulphur
bopd	barrels of oil per day
Btu	British thermal units
bwpd	barrels of water per day
DSU	drilling spacing unit
GCA	gas cost allowance
GIIP	gas initially-in-place
GOC	gas-oil contact
GOR	gas-oil ratio
GORR	gross overriding royalty
GWC	gas-water contact
Mbbl	thousand barrels
Mboe	thousand boe
Mcf	thousand cubic feet of gas at standard conditions
Mcfe	thousand cubic feet of gas equivalent
Mlt	thousand long tons

M\$	thousand dollars
MM\$	million dollars
MMbbl	million barrels
MMboe	million boe
MMBtu	million British thermal units
MMcf	million cubic feet of gas at standard conditions
MRL	maximum rate limitation
Mstb	thousand stock tank barrels
MMstb	million stock tank barrels
NGL	natural gas liquids (ethane, propane, butane and condensate)
NPI	net profits interest
OIIP	oil initially-in-place
ORRI	overriding royalty interest
OWC	oil-water contact
P&NG	petroleum and natural gas
PIIP	petroleum initially-in-place
psia	pounds per square inch absolute
psig	pounds per square inch gauge
PVT	pressure-volume-temperature
RLI	reserves life index, calculated by dividing reserves by the forecast of first year production
scf	standard cubic feet
sge	sales gas equivalent – if presented in this evaluation, determined using 1 barrel of oil or natural gas liquid = 6 Mcfe; 0 for sulphur
stb	stock tank barrel
WI	working interest
WTI	West Texas Intermediate

Table 1

GLJ Petroleum Consultants
Crude Oil and Natural Gas Liquids
SEC 2018-Dec-31 Posted (12 Month Avg.)
Effective January 1, 2019

Year	Inflation %	CAD/USD Exchange Rate USD/CAD	NYMEX WTI Near Month Futures Contract Crude Oil at Cushing, Oklahoma		Brent Blend Crude Oil FOB North Sea		Light, Sweet Crude Oil (40 API, 0.3% S) at Edmonton		Bow River Crude Oil Stream Quality at Hardisty		WCS Crude Oil Stream Quality at Hardisty		Heavy Crude Oil Proxy (12 API) at Hardisty		Light Sour Crude Oil (35 API, 1.2% S) at Cromer		Medium Crude Oil (29 API, 2.0% S) at Cromer		Alberta Natural Gas Liquids (Then Current Dollars)			
			Constant 2019 \$ USD/bbl	Then Current USD/bbl	Then Current USD/bbl	Then Current USD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Then Current CAD/bbl	Spec Ethane CAD/bbl	Edmonton Propane CAD/bbl	Edmonton Butane CAD/bbl	Edmonton C5+ Stream Quality CAD/bbl
2019	0.0	0.7754	65.56	65.56	71.54	70.07	50.41	50.44	40.76	73.74	70.42	4.35	27.77	33.82	79.39	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr
2020	0.0	0.7754	65.56	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr

Historical futures contract price is an average of the daily settlement price of the near month contract over the calendar month.

Table 2

GLJ Petroleum Consultants
Natural Gas and Sulphur
SEC 2018-Dec-31 Posted (12 Month Avg.)
Effective January 1, 2019

Year	NYMEX Henry Hub Near Month Contract		Midwest Price at Chicago		Alliance Transfer Pool Spot		Alberta Plant Gate		Saskatchewan Plant Gate		British Columbia		Alberta Sulphur at Plant Gate	
	Constant 2019 \$ USD/MMBtu	Then Current USD/MMBtu	Then Current USD/MMBtu	Then Current USD/MMBtu	Then Current CAD/ MMBtu	Then Current CAD/ MMBtu	Constant 2019 \$ CAD/ MMBtu	Then Current CAD/ MMBtu	Then Current CAD/ MMBtu	Then Current CAD/ MMBtu	Westcoast Station 2 CAD/ MMBtu	Spot Plant Gate MMBtu	Sulphur FOB Vancouver USD/lt	Alberta Sulphur at Plant Gate CAD/lt
2019	3.10	3.10	3.05	1.46	1.25	1.25	1.25	1.25	1.35	1.56	1.44	1.23	136.71	126.31
2020	3.10	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr

Unless otherwise stated, the gas price reference point is the receipt point on the applicable provincial gas transmission system known as the plant gate. The plant gate price represents the price before raw gathering and processing charges are deducted.

Table 3

**GLJ Petroleum Consultants
International
SEC 2018-Dec-31 Posted (12 Month Avg.)
Effective January 1, 2019**

Year	Inflation %	CAD/USD Exchange Rate USD/CAD	GBP/USD Exchange Rate USD/GBP	EUR/USD Exchange Rate USD/EUR	NYMEX WTI Near Month Futures		Light Louisiana Sweet Crude Oil		Maya Crude Oil		Brent Blend Crude Oil FOB North Sea		NYMEX Henry Hub Near Month Contract		National Balancing Point (UK)	
					Then	Current	Then	Current	Then	Current	Then	Current	Then	Current	Then	Current
2019	0.0	0.7754	1.3379	1.1827	65.56	84.55	70.52	90.95	63.04	81.30	71.54	92.26	3.10	4.00	7.78	10.03
2020	0.0	0.7754	1.3379	1.1827	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr	+0.0%/yr

Historical futures contract price is an average of the daily settlement price of the near month contract over the calendar month.



March 1, 2019

**China National Oil and Gas Exploration
And Development Corporation
International Holding Ltd (“CNODCI”)**
No.6-1 Fuchengmen Beidajie
Xicheng District
Beijing, China 100034

Attention: Mr. Lv Gong Xun, President

Reference: **CNODCI Interest in PetroKazakhstan Inc.
Evaluation of Crude Oil Reserves
Third Party Report**

Dear Sir:

1. INTRODUCTION

McDaniel & Associates Consultants Ltd. (“McDaniel”) was requested by PetroKazakhstan Inc. (“PKI”) to prepare an evaluation of the crude oil reserves and the net present values of these reserves for the interests of PKI in the South Turgai Basin, Republic of Kazakhstan, effective as of December 31, 2018. McDaniel submitted to PKI an Executive Summary Report and Detailed Technical Report for the evaluation of PKI in January 2019.

PKI is an integrated oil and gas company, owned 67 percent by CNODCI and 33 percent by JSC KazMunaiGas Exploration Production (“KMG EP”). PKI requested McDaniel to prepare this Third-Party Report for CNODCI based on the 67 percent interest owned by CNODCI in PKI for the assets of CNODCI that are held within three operating subsidiaries: PetroKazakhstan Kumkol Resources (“PKKR”), Kolzhan LLP (“Kolzhan”) and PetroKazakhstan Ventures Inc. (“PKVI”).

This report was prepared to support PKI’s and CNODCI’s annual securities filings with the SEC. The data employed in this evaluation and the assumptions and procedures used to estimate the reserves and net present values are consistent with standard industry reserves evaluation procedures.

2. METHODOLOGY

Crude oil reserves estimates and their associated net present values were evaluated in this report by McDaniel. for the interests of PKI in Kazakhstan.

Essentially all of the basic information employed in the preparation of this report was obtained from PKI including geological, geophysical, engineering and financial data. McDaniel utilized this data to prepare an independent assessment of the crude oil reserves as of December 31, 2018. The reserves estimates presented in this report have been prepared in accordance with the United States Securities and Exchange Commission (SEC) reserves definitions and guidance (see Section 3). Only the proved reserves and sub-classifications were included in this report.

Net present value estimates were calculated based on future revenue forecasts. As per SEC guidelines, the future net revenues and net present values presented were calculated using the first day of the month crude oil prices for each of the 12 months prior to the effective date of December 31, 2018 and were presented in United States dollars. No escalation of the prices were made nor were the operating and capital costs increased for inflation in this evaluation. Future capital costs and operating costs were based on PKI budgets for each respective property with adjustments as deemed appropriate by McDaniel.

3. RESERVES DEFINITIONS

The SEC reserves definitions are contained in the Final Rule of Modernization of Oil and Gas Reporting (17 CFR Parts 210, 211, 229 and 249) published by the SEC Regulation on January 14, 2009. A summary of the key proved reserves definitions in Regulation S-X 210.4-10 is presented below.

Reserves

Reserves are estimated remaining quantities of oil and gas and related substances anticipated to be economically producible, as of a given date, by application of development projects to known accumulations. In addition, there must exist, or there must be a reasonable expectation that there will exist, the legal right to produce or a revenue interest in the production, installed means of delivering oil and gas or related substances to market, and all permits and financing required to implement the project.

Note: Reserves should not be assigned to adjacent reservoirs isolated by major, potentially sealing, faults until those reservoirs are penetrated and evaluated as economically producible. Reserves should not be assigned to areas that are clearly separated from a known accumulation by a non-productive reservoir (i.e., absence of reservoir, structurally low reservoir, or negative test results). Such areas may contain prospective resources (i.e., potentially recoverable resources from undiscovered accumulations).

Proved Oil and Gas Reserves

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, regardless of whether deterministic or probabilistic methods are used for the estimation. The project to extract the hydrocarbons must have commenced or the operator must be reasonably certain that it will commence the project within a reasonable time.

- (i) The area of the reservoir considered as proved includes:
 - (A) The area identified by drilling and limited by fluid contacts, if any, and
 - (B) Adjacent undrilled portions of the reservoir that can, with reasonable certainty, be judged to be continuous with it and to contain economically producible oil or gas on the basis of available geoscience and engineering data.
- (ii) In the absence of data on fluid contacts, proved quantities in a reservoir are limited by the lowest known hydrocarbons (LKH) as seen in a well penetration unless geoscience, engineering, or performance data and reliable technology establishes a lower contact with reasonable certainty.

- (iii) Where direct observation from well penetrations has defined a highest known oil (HKO) elevation and the potential exists for an associated gas cap, proved oil reserves may be assigned in the structurally higher portions of the reservoir only if geoscience, engineering, or performance data and reliable technology establish the higher contact with reasonable certainty.
- (iv) Reserves which can be produced economically through application of improved recovery techniques (including, but not limited to, fluid injection) are included in the proved classification when:
 - (A) Successful testing by a pilot project in an area of the reservoir with properties no more favorable than in the reservoir as a whole, the operation of an installed program in the reservoir or an analogous reservoir, or other evidence using reliable technology establishes the reasonable certainty of the engineering analysis on which the project or program was based; and
 - (B) The project has been approved for development by all necessary parties and entities, including governmental entities.
- (v) Existing economic conditions include prices and costs at which economic producibility from a reservoir is to be determined. The price shall be 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.

Analogous Reservoir

Analogous reservoirs, as used in resources assessments, have similar rock and fluid properties, reservoir conditions (depth, temperature, and pressure) and drive mechanisms, but are typically at a more advanced stage of development than the reservoir of interest and thus may provide concepts to assist in the interpretation of more limited data and estimation of recovery. When used to support proved reserves, an “analogous reservoir” refers to a reservoir that shares the following characteristics with the reservoir of interest:

- (i) Same geological formation (but not necessarily in pressure communication with the reservoir of interest);
- (ii) Same environment of deposition; (iii) Similar geological structure; and (iv) Same drive mechanism.

Reasonable Certainty

If deterministic methods are used, reasonable certainty means a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90 percent probability that the quantities actually recovered will equal or exceed the estimate. A high degree of confidence exists if the quantity is much more likely to be achieved than not, and, as changes due to increased availability of geoscience (geological, geophysical, and geochemical), engineering, and economic data are made to estimated ultimate recovery (EUR) with time, reasonably certain EUR is much more likely to increase or remain constant than to decrease.

4. EVALUATION SUMMARY

4.1 NET RESERVES

The net share of proved developed, proved undeveloped and total proved crude oil reserves as of December 31, 2018 attributable to CNODCI for each of the three subsidiary companies are summarized below.

CNODCI'S NET ENTITLEMENT OF PROVED RESERVES⁽¹⁾ AS OF DECEMBER 31, 2018

	<u>Proved Developed</u>	<u>Proved Undeveloped</u>	<u>Total Proved</u>
Crude Oil, Mbbl			
PKKR	12,830	2,131	14,961
Kolzhan	7,174	2,062	9,236
PKVI	571	215	786
Total	20,575	4,408	24,983

(1) Net entitlement reserves are the working interest reserves in each property after deducting royalties payable to others. In the case of all properties, there are no royalties payable to others.

4.2 GROSS RESERVES

The total proved developed, proved undeveloped and total proved crude oil reserves as of December 31, 2018 for each of the three subsidiary companies are presented below for reference purposes only. These gross reserves estimates are based on a 100 percent working interest in each of the properties and include all reserves attributable to government and working interest partners.

GROSS PROVED RESERVES AS OF DECEMBER 31, 2018

	<u>Proved Developed</u>	<u>Proved Undeveloped</u>	<u>Total Proved</u>
Crude Oil, Mbbl			
PKKR	19,149	3,180	22,329
Kolzhan	17,177	5,548	22,724
PKVI	1,136	428	1,564
Total	37,462	9,156	46,617

4.3 NET PRESENT VALUES

The net present values for the proved developed, proved undeveloped and total proved crude oil reserves as of December 31, 2018 attributable to CNODCI for each of the three subsidiary companies are presented below. All of the net present values have been presented at a 10 percent discount rate.

**CNODCI NET PRESENT VALUES DISCOUNTED AT 10 PERCENT
AS OF DECEMBER 31, 2018, \$MM**

	<u>Proved Developed</u>	<u>Proved Undeveloped</u>	<u>Total Proved</u>
PKKR	165	35	200
Kolzhan	116	36	152
PKVI	7	4	10
Total	288	75	362

4.4 NET PRESENT VALUES SENSITIVITY ANALYSIS

A sensitivity analysis has been prepared for the net present values for the proved developed, proved undeveloped and total proved crude oil reserves as of December 31, 2018 attributable to CNODCI for each of the three subsidiary companies. At the request of PKI, all of the oil prices, capital costs and operating costs have been escalated at two percent per year throughout the evaluation period.

**CNODCI NET PRESENT VALUES SENSITIVITY DISCOUNTED AT 10 PERCENT AS OF
DECEMBER 31, 2018, \$MM**

	<u>Proved Developed</u>	<u>Proved Undeveloped</u>	<u>Total Proved</u>
PKKR	169	36	205
Kolzhan	121	38	159
PKVI	7	4	11
Total	297	78	378

5 SUMMARY TABLES

Summary tables showing the reserves, reserves reconciliation, future production forecasts and future revenue forecasts are presented in the Appendix for each of the three subsidiary companies.

6 BASIS OF OPINION

McDaniel & Associates Consultants Ltd. has over 60 years of experience in the evaluation of oil and gas properties. McDaniel is registered with the Association of Professional Engineers and Geoscientists of Alberta (APEGA). All of the professionals involved in the preparation of this report have in excess of five years of experience in the evaluation of oil and gas properties. Mr. Cam Boulton, Executive Vice President, supervised the preparation of this report. Mr. Boulton is a professional engineer registered with APEGA and has over 10 years of experience in the evaluation of oil and gas properties. All of the persons involved in the preparation of this report and McDaniel & Associates are independent of PKI and CNODCI.

In preparing this report, we relied upon certain factual information including ownership, well data, production data, prices, revenues, operating costs, capital costs, contracts, and other relevant data supplied by PKI. The supplied information was only relied upon where in our opinion it appeared reasonable and consistent with our knowledge of the properties; however, no independent verification of the information was made.

This report was prepared by McDaniel for the use of PKI and CNODCI for its securities filings with the SEC and is not to be used for any other purpose without the knowledge and consent of McDaniel & Associates Consultants Ltd.

We reserve the right to revise any estimates provided herein if any relevant data existing prior to preparation of this report was not made available, if any data between the preparation date and the evaluation date of this evaluation were to vary significantly from that forecast, or if any data provided was found to be erroneous.

Sincerely,

**McDANIEL & ASSOCIATES CONSULTANTS LTD.
APEGA PERMIT NUMBER: P3145**



C. Boulton, P. Eng.
Executive Vice President

CB:jep
[18-0183]

Table 1

**CNODCI Interest in PKI
PetroKazakhstan Kumkol Resources
Summary of Reserves and Net Present Values
Effective December 31, 2018**

Summary of Reserves⁽¹⁾⁽²⁾

Reserve Category	Crude Oil Reserves - Bbls			Natural Gas Reserves			Natural Gas Liquids Reserves		
	Property Gross Mbbl	Company Gross Mbbl	Company Net Mbbl	Property Gross MMcf	Company Gross MMcf	Company Net MMcf	Property Gross Mbbl	Company Gross Mbbl	Company Net Mbbl
Proved Developed Reserves	19,149	12,830	12,830	—	—	—	—	—	—
Proved Undeveloped Reserves	3,180	2,131	2,131	—	—	—	—	—	—
Total Proved Reserves	22,329	14,961	14,961	—	—	—	—	—	—

	Crude Oil Reserves - Tonnes			BOE Reserves ⁽³⁾		
	Property Gross MT	Company Gross MT	Company Net MT	Property Gross Mbbl	Company Gross Mbbl	Company Net Mbbl
Proved Developed Reserves	2,465	1,651	1,651	19,149	12,830	12,830
Proved Undeveloped Reserves	408	273	273	3,180	2,131	2,131
Total Proved Reserves	2,872	1,924	1,924	22,329	14,961	14,961

Summary of Company Share of Net Present Values Before Income Taxes

Reserve Category	\$MM US Dollars				
	0.0%	5.0%	10.0%	15.0%	20.0%
Proved Developed Reserves	192	178	165	155	145
Proved Undeveloped Reserves	44	39	35	31	28
Total Proved Reserves	236	217	200	186	173

Summary of Company Share of Net Present Values After Income Taxes

Reserve Category	\$MM US Dollars				
	0.0%	5.0%	10.0%	15.0%	20.0%
Proved Developed Reserves	146	134	124	116	108
Proved Undeveloped Reserves	29	25	22	19	17
Total Proved Reserves	175	159	146	135	125

- (1) The above reserves estimates are presented after applying license expiry and economic limit cutoffs.
- (2) Company Gross reserves are based on Company working interest share of the reserves for each property. Company Net reserves are the working interest reserves in each property after deducting royalties payable to others. In the case of all properties, there are no royalties payable to others.
- (3) Based on a gas to BOE conversion of 6:1

Table 2

**CNODCI Interest in PKI
PetroKazakhstan Kumkol Resources
Forecast of Production and Revenues
Proved Developed Reserves
Effective December 31, 2018**

Property Gross Share of Production and Gross Revenues

Year	Producing Well Count	Daily Rate Bopd	Crude Oil				Natural Gas			Natural Gas Liquids			Total Sales Revenue US\$MM
			Annual Volume Mbbl	Annual Volume MT	Crude Oil Price US\$/bbl	Sales Revenue US\$MM	Annual Volume MMcf	Natural Gas Price US\$/Mcf	Sales Revenue US\$MM	Annual Volume Mbbl	NGL Price US\$/bbl	Sales Revenue US\$MM	
2019	431	17,743	6,476	838	37	239	—	—	—	—	—	—	239
2020	389	13,007	4,748	614	42	200	—	—	—	—	—	—	200
2021	348	9,337	3,408	441	42	144	—	—	—	—	—	—	144
2022	217	5,139	1,876	243	42	79	—	—	—	—	—	—	79
2023	183	3,734	1,363	177	42	57	—	—	—	—	—	—	57
2024	157	2,699	985	128	42	41	—	—	—	—	—	—	41
2025	60	803	293	37	42	12	—	—	—	—	—	—	12
2026	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total			19,149	2,478		773	—		—	—		—	773

Property Gross Share of Royalties, Expenses, Taxes and Net Cash Flow

Year	Total MET US\$MM		Export Rent Tax US\$MM		Total Operating Costs US\$MM		Aband. Costs US\$MM	Capital Costs US\$MM	Hist. Costs & Com. Bonus US\$MM	Net Cash Flow B. Tax US\$MM	Property Tax US\$MM	Corporate Tax US\$MM	Excess Profits Tax US\$MM	Net Cash Flow A. Tax US\$MM
	US\$MM	%	US\$MM	%	US\$MM	US\$MM								
2019	3	1	9	4	72	0	46	—	—	109	1	19	16	74
2020	5	3	19	9	63	0	31	—	—	82	1	13	6	62
2021	4	3	14	9	55	13	9	—	—	50	1	6	1	42
2022	3	3	7	9	35	1	2	—	—	30	1	2	0	27
2023	2	3	5	9	30	1	1	—	—	17	1	1	0	16
2024	1	3	4	9	25	8	—	—	—	3	0	0	—	3
2025	0	3	1	9	9	6	—	—	—	(5)	0	—	—	(5)
2026	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	19	2	59	8	289	30	89	—	—	287	4	41	23	218

Company Working Interest Share Summary

Year	Gross Annual Oil Production Mbbl	Net Annual Oil Production Mbbl	Net Annual Gas Production MMcf	Net Annual NGL Production Mbbl	Gross Sales Revenue US\$MM	Total MET US\$MM	Export Tax US\$MM	Operating & Aband. Costs US\$MM	Capital Costs US\$MM	Hist. Costs & Com. Bonus US\$MM	Net Cash Flow B. Tax US\$MM	Total Taxes US\$MM	Net Cash Flow A.T. US\$MM
2019	4,339	4,339	—	—	160	2	6	48	31	—	73	24	49
2020	3,181	3,181	—	—	134	4	13	42	21	—	55	13	41
2021	2,283	2,283	—	—	96	3	9	45	6	—	33	5	28
2022	1,257	1,257	—	—	53	2	5	24	1	—	20	2	18
2023	913	913	—	—	38	1	4	21	1	—	12	1	11
2024	660	660	—	—	28	1	3	22	—	—	2	0	2
2025	196	196	—	—	8	0	1	10	—	—	(3)	0	(3)
2026	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	12,830	12,830	—	—	518	13	40	214	60	—	192	46	146

Table 3

CNODCI Interest in PKI
PetroKazakhstan Kumkol Resources
Forecast of Production and Revenues
Total Proved Reserves
Effective December 31, 2018

Property Gross Share of Production and Gross Revenues

Year	Producing Well Count	Daily Rate Bopd	Crude Oil				Natural Gas			Natural Gas Liquids			Total Sales Revenue US\$MM
			Annual Volume Mbbl	Annual Volume MT	Crude Oil Price US\$/bbl	Sales Revenue US\$MM	Annual Volume MMcf	Natural Gas Price US\$/Mcf	Sales Revenue US\$MM	Annual Volume Mbbl	NGL Price US\$/bbl	Sales Revenue US\$MM	
2019	439	18,943	6,914	895	37	255	—	—	—	—	—	—	255
2020	411	15,283	5,578	721	42	235	—	—	—	—	—	—	235
2021	373	10,974	4,005	518	42	169	—	—	—	—	—	—	169
2022	243	6,205	2,265	293	42	95	—	—	—	—	—	—	95
2023	213	4,499	1,642	213	42	69	—	—	—	—	—	—	69
2024	185	3,175	1,159	150	42	49	—	—	—	—	—	—	49
2025	131	2,057	751	97	42	32	—	—	—	—	—	—	32
2026	7	40	15	2	42	1	—	—	—	—	—	—	1
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total			22,329	2,889		905	—		—	—		—	905

Property Gross Share of Royalties, Expenses, Taxes and Net Cash Flow

Year	Total MET US\$MM	Total MET %	Export Rent Tax US\$MM	Export Rent Tax %	Total Operating Costs US\$MM	Aband. Costs US\$MM	Capital Costs US\$MM	Hist. Costs & Com. Bonus US\$MM	Net Cash Flow B. Tax US\$MM	Property Tax US\$MM	Corporate Tax US\$MM	Excess Profits Tax US\$MM	Net Cash Flow A. Tax US\$MM
2019	4	1	9	4	73	0	56	—	113	1	21	19	73
2020	6	3	22	9	65	0	36	—	105	1	18	11	74
2021	5	3	16	9	57	13	12	—	66	1	9	3	53
2022	3	3	9	9	38	0	4	—	40	1	4	0	35
2023	2	3	7	9	33	1	2	—	23	1	1	0	21
2024	2	3	5	9	28	1	—	—	14	0	0	—	13
2025	1	3	3	9	22	14	—	—	(8)	0	—	—	(8)
2026	0	3	0	9	0	1	—	—	(0)	0	—	—	(0)
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	23	3	71	8	316	31	111	—	353	5	54	33	261

Company Working Interest Share Summary

Year	Gross Annual Oil Production Mbbl	Net Annual Oil Production Mbbl	Net Annual Gas Production MMcf	Net Annual NGL Production Mbbl	Gross Sales Revenue US\$MM	Total MET US\$MM	Export Tax US\$MM	Operating & Aband. Costs US\$MM	Capital Costs US\$MM	Hist. Costs & Com. Bonus US\$MM	Net Cash Flow B. Tax US\$MM	Total Taxes US\$MM	Net Cash Flow A.T. US\$MM
2019	4,633	4,633	—	—	171	2	6	49	37	—	76	27	49
2020	3,737	3,737	—	—	157	4	15	44	24	—	70	20	50
2021	2,684	2,684	—	—	113	3	11	47	8	—	44	9	35
2022	1,517	1,517	—	—	64	2	6	26	3	—	27	3	23
2023	1,100	1,100	—	—	46	2	4	23	2	—	16	1	14
2024	776	776	—	—	33	1	3	19	—	—	9	0	9
2025	503	503	—	—	21	1	2	24	—	—	(5)	0	(6)
2026	10	10	—	—	0	0	0	1	—	—	(0)	0	(0)
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	14,961	14,961	—	—	606	15	48	233	74	—	236	62	175

Table 1

**CNODCI Interest in PKI
Kolzhan LLP
Summary of Reserves and Net Present Values
Effective December 31, 2018**

Summary of Reserves⁽¹⁾⁽²⁾

Reserve Category	Crude Oil Reserves - Bbls			Natural Gas Reserves			Natural Gas Liquids Reserves		
	Property Gross Mbbl	Company Gross Mbbl	Company Net Mbbl	Property Gross MMcf	Company Gross MMcf	Company Net MMcf	Property Gross Mbbl	Company Gross Mbbl	Company Net Mbbl
Proved Developed Reserves	17,177	7,174	7,174	—	—	—	—	—	—
Proved Undeveloped Reserves	5,548	2,062	2,062	—	—	—	—	—	—
Total Proved Reserves	22,724	9,236	9,236	—	—	—	—	—	—

	Crude Oil Reserves - Tonnes			BOE Reserves ⁽³⁾		
	Property Gross MT	Company Gross MT	Company Net MT	Property Gross Mbbl	Company Gross Mbbl	Company Net Mbbl
Proved Developed Reserves	2,196	912	912	17,177	7,174	7,174
Proved Undeveloped Reserves	713	264	264	5,548	2,062	2,062
Total Proved Reserves	2,909	1,176	1,176	22,724	9,236	9,236

Summary of Company Share of Net Present Values Before Income Taxes

Reserve Category	\$MM US Dollars				
	0.0%	5.0%	10.0%	15.0%	20.0%
Proved Developed Reserves	156	134	116	103	92
Proved Undeveloped Reserves	58	45	36	29	24
Total Proved Reserves	214	179	152	132	116

Summary of Company Share of Net Present Values After Income Taxes

Reserve Category	\$MM US Dollars				
	0.0%	5.0%	10.0%	15.0%	20.0%
Proved Developed Reserves	96	81	70	61	54
Proved Undeveloped Reserves	29	22	18	14	11
Total Proved Reserves	126	104	87	75	65

- (1) The above reserves estimates are presented after applying license expiry and economic limit cutoffs.
- (2) Company Gross reserves are based on Company working interest share of the reserves for each property. Company Net reserves are the working interest reserves in each property after deducting royalties payable to others. In the case of all properties, there are no royalties payable to others.
- (3) Based on a gas to BOE conversion of 6:1

Table 2

**CNODCI Interest in PKI
Kolzhan LLP
Forecast of Production and Revenues
Proved Developed Reserves
Effective December 31, 2018**

Property Gross Share of Production and Gross Revenues

Year	Producing Well Count	Crude Oil					Natural Gas			Natural Gas Liquids			Total Sales Revenue US\$MM
		Daily Rate Bopd	Annual Volume Mbbl	Annual Volume MT	Crude Oil Price US\$/bbl	Sales Revenue US\$MM	Annual Volume MMcf	Natural Gas Price US\$/Mcf	Sales Revenue US\$MM	Annual Volume Mbbl	NGL Price US\$/bbl	Sales Revenue US\$MM	
2019	131	10,979	4,007	512	35	140	—	—	—	—	—	—	140
2020	129	8,832	3,224	412	42	136	—	—	—	—	—	—	136
2021	115	7,061	2,577	329	42	108	—	—	—	—	—	—	108
2022	109	5,884	2,148	275	42	90	—	—	—	—	—	—	90
2023	101	4,911	1,792	229	42	75	—	—	—	—	—	—	75
2024	90	3,868	1,412	181	42	59	—	—	—	—	—	—	59
2025	80	2,704	987	126	42	41	—	—	—	—	—	—	41
2026	70	1,765	644	82	42	27	—	—	—	—	—	—	27
2027	37	678	247	32	42	10	—	—	—	—	—	—	10
2028	33	378	138	18	42	6	—	—	—	—	—	—	6
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total			17,177	2,196		694	—		—	—		—	694

Property Gross Share of Royalties, Expenses, Taxes and Net Cash Flow

Year	Total MET US\$MM	Total MET %	Export Rent Tax US\$MM	Export Rent Tax %	Total Operating Costs US\$MM	Aband. Costs US\$MM	Capital Costs US\$MM	Hist. Costs & Com. Bonus US\$MM	Net Cash Flow B. Tax US\$MM	Property Tax US\$MM	Corporate Tax US\$MM	Excess Profits Tax US\$MM	Net Cash Flow A. Tax US\$MM
2019	1	1	1	1	25	0	29	—	83	0	19	32	32
2020	5	4	13	9	23	0	18	—	76	0	15	18	43
2021	3	3	10	9	20	0	10	—	64	0	12	14	39
2022	3	3	8	9	19	0	9	—	51	0	9	10	31
2023	2	3	7	9	17	0	8	—	40	0	7	7	25
2024	2	3	6	9	15	0	0	—	36	0	5	6	25
2025	1	3	4	9	13	0	—	—	23	0	3	2	17
2026	1	3	3	9	11	3	—	—	10	0	1	0	8
2027	0	3	1	9	5	0	—	—	4	0	0	—	4
2028	0	3	1	9	4	0	—	—	1	0	—	—	0
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	20	3	53	8	153	7	73	—	388	3	71	89	225

Company Working Interest Share Summary

Year	Gross Annual Oil Production Mbbl	Net Annual Oil Production Mbbl	Net Annual Gas Production MMcf	Net Annual NGL Production Mbbl	Gross Sales Revenue US\$MM	Total MET US\$MM	Export Tax US\$MM	Operating & Aband. Costs US\$MM	Capital Costs US\$MM	Hist. Costs & Com. Bonus US\$MM	Net Cash Flow B. Tax US\$MM	Total Taxes US\$MM	Net Cash Flow A.T. US\$MM
2019	1,698	1,698	—	—	60	1	1	12	11	—	35	19	16
2020	1,363	1,363	—	—	57	2	5	11	6	—	32	13	20
2021	1,082	1,082	—	—	45	1	4	10	3	—	26	9	17
2022	893	893	—	—	37	1	3	9	3	—	20	7	13
2023	736	736	—	—	31	1	3	9	3	—	16	5	10
2024	579	579	—	—	24	1	2	8	0	—	14	4	10
2025	413	413	—	—	17	1	2	7	—	—	9	2	7
2026	281	281	—	—	12	0	1	7	—	—	3	1	2
2027	83	83	—	—	3	0	0	2	—	—	1	0	1
2028	46	46	—	—	2	0	0	2	—	—	0	0	0
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	7,174	7,174	—	—	290	8	22	76	27	—	156	60	96

Table 3

**CNODCI Interest in PKI
Kolzhan LLP
Forecast of Production and Revenues
Total Proved Reserves
Effective December 31, 2018**

Property Gross Share of Production and Gross Revenues

Year	Producing Well Count	Crude Oil					Natural Gas			Natural Gas Liquids			Total Sales Revenue US\$MM
		Daily Rate Bopd	Annual Volume Mbbl	Annual Volume MT	Crude Oil Price US\$/bbl	Sales Revenue US\$MM	Annual Volume MMcf	Natural Gas Price US\$/Mcf	Sales Revenue US\$MM	Annual Volume Mbbl	NGL Price US\$/bbl	Sales Revenue US\$MM	
2019	131	11,067	4,039	516	35	141	—	—	—	—	—	—	141
2020	136	10,514	3,838	491	42	161	—	—	—	—	—	—	161
2021	133	10,729	3,916	501	42	165	—	—	—	—	—	—	165
2022	132	9,217	3,364	431	42	142	—	—	—	—	—	—	142
2023	124	7,019	2,562	328	42	108	—	—	—	—	—	—	108
2024	113	5,465	1,995	256	42	84	—	—	—	—	—	—	84
2025	101	4,000	1,460	187	42	61	—	—	—	—	—	—	61
2026	89	2,603	950	122	42	40	—	—	—	—	—	—	40
2027	50	1,080	394	51	42	17	—	—	—	—	—	—	17
2028	45	564	206	27	42	9	—	—	—	—	—	—	9
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total			22,724	2,909		927	—		—	—		—	927

Property Gross Share of Royalties, Expenses, Taxes and Net Cash Flow

Year	Total MET US\$MM	Total MET %	Export Rent Tax US\$MM	Export Rent Tax %	Total Operating Costs US\$MM	Aband. Costs US\$MM	Capital Costs US\$MM	Hist. Costs & Com. Bonus US\$MM	Net Cash Flow B. Tax US\$MM	Property Tax US\$MM	Corporate Tax US\$MM	Excess Profits Tax US\$MM	Net Cash Flow A. Tax US\$MM
2019	1	1	1	1	25	1	36	—	77	0	19	31	27
2020	7	4	15	9	25	1	28	—	87	0	18	22	46
2021	7	4	15	9	25	1	13	—	104	1	20	27	57
2022	6	4	13	9	23	1	8	—	91	1	16	22	52
2023	4	4	10	9	21	1	6	—	66	1	12	14	39
2024	3	3	8	9	18	1	0	—	55	0	9	11	34
2025	2	3	6	9	16	1	—	—	38	0	6	7	25
2026	1	3	4	9	13	3	—	—	19	0	3	2	14
2027	1	3	2	9	6	1	—	—	8	0	1	—	7
2028	0	3	1	9	5	1	—	—	2	0	—	—	2
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	31	3	75	8	177	8	91	—	545	4	102	136	302

Company Working Interest Share Summary

Year	Gross Annual Oil Production Mbbl	Net Annual Oil Production Mbbl	Net Annual Gas Production MMcf	Net Annual NGL Production Mbbl	Gross Sales Revenue US\$MM	Total MET US\$MM	Export Tax US\$MM	Operating & Aband. Costs US\$MM	Capital Costs US\$MM	Hist. Costs & Com. Bonus US\$MM	Net Cash Flow B. Tax US\$MM	Total Taxes US\$MM	Net Cash Flow A.T. US\$MM
2019	1,720	1,720	—	—	61	1	1	12	14	—	33	19	14
2020	1,600	1,600	—	—	67	3	6	12	10	—	36	15	21
2021	1,581	1,581	—	—	66	3	6	12	5	—	41	17	24
2022	1,345	1,345	—	—	57	2	5	11	3	—	35	14	21
2023	1,023	1,023	—	—	43	2	4	10	2	—	25	9	16
2024	793	793	—	—	33	1	3	9	0	—	20	7	13
2025	583	583	—	—	25	1	2	8	—	—	14	4	9
2026	391	391	—	—	16	1	2	8	—	—	6	2	4
2027	132	132	—	—	6	0	1	2	—	—	3	0	2
2028	69	69	—	—	3	0	0	2	—	—	1	0	1
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	9,236	9,236	—	—	377	12	30	86	34	—	214	88	126

Table 1

**CNODCI Interest in PKI
PetroKazakhstan Ventures Inc.
Summary of Reserves and Net Present Values
Effective December 31, 2018**

Summary of Reserves⁽¹⁾⁽²⁾

Reserve Category	Crude Oil Reserves - Bbls			Natural Gas Reserves			Natural Gas Liquids Reserves		
	Property Gross Mbbl	Company Gross Mbbl	Company Net Mbbl	Property Gross MMcf	Company Gross MMcf	Company Net MMcf	Property Gross Mbbl	Company Gross Mbbl	Company Net Mbbl
Proved Developed Reserves	1,136	571	571	—	—	—	—	—	—
Proved Undeveloped Reserves	428	215	215	—	—	—	—	—	—
Total Proved Reserves	1,564	786	786	—	—	—	—	—	—

	Crude Oil Reserves - Tonnes			BOE Reserves ⁽³⁾		
	Property Gross MT	Company Gross MT	Company Net MT	Property Gross Mbbl	Company Gross Mbbl	Company Net Mbbl
Proved Developed Reserves	149	75	75	1,136	571	571
Proved Undeveloped Reserves	56	28	28	428	215	215
Total Proved Reserves	205	103	103	1,564	786	786

Summary of Company Share of Net Present Values Before Income Taxes

Reserve Category	\$MM US Dollars				
	0.0%	5.0%	10.0%	15.0%	20.0%
Proved Developed Reserves	9	8	7	6	5
Proved Undeveloped Reserves	5	4	4	3	3
Total Proved Reserves	14	12	10	9	8

Summary of Company Share of Net Present Values After Income Taxes

Reserve Category	\$MM US Dollars				
	0.0%	5.0%	10.0%	15.0%	20.0%
Proved Developed Reserves	8	7	6	5	4
Proved Undeveloped Reserves	4	4	3	3	2
Total Proved Reserves	12	10	9	7	6

- (1) The above reserves estimates are presented after applying license expiry and economic limit cutoffs.
- (2) Company Gross reserves are based on Company working interest share of the reserves for each property. Company Net reserves are the working interest reserves in each property after deducting royalties payable to others. In the case of all properties, there are no royalties payable to others.
- (3) Based on a gas to BOE conversion of 6:1

Table 2

**CNODCI Interest in PKI
PetroKazakhstan Ventures Inc.
Forecast of Production and Revenues
Proved Developed Reserves
Effective December 31, 2018**

Property Gross Share of Production and Gross Revenues

Year	Producing Well Count	Crude Oil					Natural Gas			Natural Gas Liquids			Total Sales Revenue US\$M
		Daily Rate Bopd	Annual Volume Mbbl	Annual Volume MT	Crude Oil Price US\$/bbl	Sales Revenue US\$M	Annual Volume MMcf	Natural Gas Price US\$/Mcf	Sales Revenue US\$M	Annual Volume Mbbl	NGL Price US\$/bbl	Sales Revenue US\$M	
2019	—	—	—	—	—	—	—	—	—	—	—	—	—
2020	18	1,195	436	56	42.12	18,370	—	—	—	—	—	—	18,370
2021	17	788	288	37	42.12	12,115	—	—	—	—	—	—	12,115
2022	17	542	198	26	42.12	8,333	—	—	—	—	—	—	8,333
2023	15	362	132	17	42.12	5,568	—	—	—	—	—	—	5,568
2024	11	226	82	11	42.12	3,471	—	—	—	—	—	—	3,471
2025	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total			1,336	147		47,856	—		—	—		—	47,856

Property Gross Share of Royalties, Expenses, Taxes and Net Cash Flow

Year	Total MET US\$M	Total MET %	Export Rent Tax US\$M	Export Rent Tax %	Total Operating Costs US\$M	Aband. Costs US\$M	Capital Costs US\$M	Hist. Costs & Com. Bonus US\$M	Net Cash Flow B. Tax US\$M	Property Tax US\$M	Corporate Tax US\$M	Excess Profits Tax US\$M	Net Cash Flow A. Tax US\$M
2019	—	—	—	—	—	—	6,293	—	(6,293)	—	—	—	(6,293)
2020	574	3	1,743	9	2,785	116	2,010	—	11,143	108	1,199	232	9,604
2021	379	3	1,150	9	2,354	116	1,423	—	6,694	110	387	—	6,197
2022	260	3	791	9	2,055	116	2,144	—	2,967	112	—	—	2,855
2023	174	3	528	9	1,712	116	1,011	—	2,026	112	—	—	1,915
2024	108	3	329	9	1,304	347	—	—	1,381	100	—	—	1,281
2025	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1,496	3	4,542	9	10,210	810	12,880	—	17,919	542	1,586	232	15,559

Company Working Interest Share Summary

Year	Gross Annual Oil Production Mbbl	Net Annual Oil Production Mbbl	Net Annual Gas Production MMcf	Net Annual NGL Production Mbbl	Gross Sales Revenue US\$M	Total MET US\$M	Export Tax US\$M	Operating & Aband. Costs US\$M	Capital Costs US\$M	Hist. Costs & Com. Bonus US\$M	Net Cash Flow B. Tax US\$M	Total Taxes US\$M	Net Cash Flow A.T. US\$M
2019	—	—	—	—	—	—	—	—	3,162	—	(3,162)	—	(3,162)
2020	219	219	—	—	9,231	289	876	1,457	1,010	—	5,599	773	4,826
2021	145	145	—	—	6,088	190	578	1,241	715	—	3,364	250	3,114
2022	99	99	—	—	4,187	131	397	1,091	1,077	—	1,491	56	1,435
2023	66	66	—	—	2,798	87	266	919	508	—	1,018	56	962
2024	41	41	—	—	1,744	55	166	830	—	—	694	50	644
2025	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	571	571	—	—	24,048	752	2,282	5,538	6,472	—	9,004	1,186	7,818

Table 3

**CNODCI Interest in PKI
PetroKazakhstan Ventures Inc.
Forecast of Production and Revenues
Total Proved Reserves
Effective December 31, 2018**

Property Gross Share of Production and Gross Revenues

Year	Producing Well Count	Crude Oil					Natural Gas			Natural Gas Liquids			Total Sales Revenue US\$M
		Daily Rate Bopd	Annual Volume Mbbl	Annual Volume MT	Crude Oil Price US\$/bbl	Sales Revenue US\$M	Annual Volume MMcf	Natural Gas Price US\$/Mcf	Sales Revenue US\$M	Annual Volume Mbbl	NGL Price US\$/bbl	Sales Revenue US\$M	
2019	—	—	—	—	—	—	—	—	—	—	—	—	—
2020	19	1,345	491	63	42.12	20,676	—	—	—	—	—	—	20,676
2021	19	1,047	382	49	42.12	16,095	—	—	—	—	—	—	16,095
2022	19	730	266	34	42.12	11,224	—	—	—	—	—	—	11,224
2023	17	499	182	24	42.12	7,667	—	—	—	—	—	—	7,667
2024	13	325	119	15	42.12	4,996	—	—	—	—	—	—	4,996
2025	9	206	75	10	42.12	3,172	—	—	—	—	—	—	3,172
2026	7	133	48	6	42.12	2,037	—	—	—	—	—	—	2,037
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total			1,564	202		65,867	—		—	—		—	65,867

Property Gross Share of Royalties, Expenses, Taxes and Net Cash Flow

Year	Total MET US\$M	Total MET %	Export Rent US\$M	Export Rent %	Total Operating Costs US\$M	Aband. Costs US\$M	Capital Costs US\$M	Hist. Costs & Com. Bonus US\$M	Net Cash Flow B. Tax US\$M	Property Tax US\$M	Corporate Tax US\$M	Excess Profits Tax US\$M	Net Cash Flow A. Tax US\$M
2019	—	—	—	—	—	—	6,293	—	(6,293)	—	—	—	(6,293)
2020	646	3	1,962	9	2,973	116	3,252	—	11,727	108	1,490	439	9,690
2021	503	3	1,527	9	2,694	116	1,423	—	9,832	110	989	137	8,597
2022	351	3	1,065	9	2,406	116	2,144	—	5,143	112	301	—	4,729
2023	240	3	728	9	2,091	116	1,011	—	3,483	112	—	—	3,371
2024	156	3	474	9	1,649	116	—	—	2,601	100	—	—	2,501
2025	99	3	301	9	1,275	116	—	—	1,382	85	—	—	1,297
2026	64	3	193	9	1,011	116	—	—	654	72	—	—	581
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	2,059	3	6,251	9	14,097	810	14,122	—	28,529	700	2,780	576	24,473

Company Working Interest Share Summary

Year	Gross Annual Oil Production Mbbl	Net Annual Oil Production Mbbl	Net Annual Gas Production MMcf	Net Annual NGL Production Mbbl	Gross Sales Revenue US\$M	Total MET US\$M	Export Tax US\$M	Operating & Aband. Costs US\$M	Capital Costs US\$M	Hist. Costs & Com. Bonus US\$M	Net Cash Flow B. Tax US\$M	Total Taxes US\$M	Net Cash Flow A.T. US\$M
2019	—	—	—	—	—	—	—	—	3,162	—	(3,162)	—	(3,162)
2020	247	247	—	—	10,390	325	986	1,552	1,634	—	5,893	1,024	4,869
2021	192	192	—	—	8,088	253	768	1,412	715	—	4,941	621	4,320
2022	134	134	—	—	5,640	176	535	1,267	1,077	—	2,584	208	2,377
2023	91	91	—	—	3,853	120	366	1,109	508	—	1,750	56	1,694
2024	60	60	—	—	2,510	78	238	887	—	—	1,307	50	1,257
2025	38	38	—	—	1,594	50	151	699	—	—	694	43	651
2026	24	24	—	—	1,024	32	97	566	—	—	329	36	292
2027	—	—	—	—	—	—	—	—	—	—	—	—	—
2028	—	—	—	—	—	—	—	—	—	—	—	—	—
2029	—	—	—	—	—	—	—	—	—	—	—	—	—
2030	—	—	—	—	—	—	—	—	—	—	—	—	—
2031	—	—	—	—	—	—	—	—	—	—	—	—	—
2032	—	—	—	—	—	—	—	—	—	—	—	—	—
2033	—	—	—	—	—	—	—	—	—	—	—	—	—
Rem.	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	786	786	—	—	33,098	1,035	3,141	7,491	7,096	—	14,336	2,038	12,298



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Consent of Independent Petroleum Engineers and Geologists

We consent to the references to our firm in the form and content in which they appear in this Annual Report on Form 20-F, and the inclusion of our report herein for PetroChina Company Limited, filed with the Securities and Exchange Commission.

Ryder Scott Company, L.P.

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TBPE Registration No. F-1580

Houston, Texas
April 22, 2019

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