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As filed with the Securities and Exchange Commission on April 28, 2016

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 20-F
ANNUAL REPORT PURSUANT TO
SECTION 13 OR 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2015

Commission file number: 001-34175

ECOPETROL S.A.
(Exact name of Registrant as specified in its charter)

N/A
(Translation of Registrant's name into English)

REPUBLIC OF COLOMBIA
(Jurisdiction of incorporation or organization)

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(Address of principal executive offices)
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Investor Relations Officer
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Bogota, Colombia

(Name, Telephone, E-Mail and/or Facsimile number and Address of Company Contact Person)

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

| <u>Title of each class</u> | <u>Name of each exchange on which registered:</u> |
|--|---|
| American Depositary Shares (as evidenced by American Depositary Receipts), each representing 20 common shares par value COP\$609 per share | New York Stock Exchange |
| Ecopetrol common shares par value COP\$609 per share | New York Stock Exchange (for listing purposes only) |
| 7.625% Notes due 2019 | New York Stock Exchange |
| 4.250% Notes due 2018 | New York Stock Exchange |
| 5.875% Notes due 2023 | New York Stock Exchange |
| 4.125% Notes due 2025 | New York Stock Exchange |
| 7.375% Notes due 2043 | New York Stock Exchange |
| 5.875% Notes due 2045 | New York Stock Exchange |
| 5.375% Notes due 2026 | New York Stock Exchange |

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

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

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.

41,116,694,690 Ecopetrol common shares, par value COP\$609 per share

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 report 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

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

Yes No

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

N/A

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

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

Annual Report on Form 20-F 2015

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1. Introduction

1.1 About This Report

We file our Annual Report on Form 20-F and other information with the U.S. Securities and Exchange Commission.

We file reports, including annual reports on Form 20-F, and other information with the SEC pursuant to the rules and regulations of the SEC that apply to foreign private issuers. You may read and copy any materials filed with the SEC in the SEC's public reference room at 100 F Street, NE, Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference room. Any filings we make are also available to the public over the Internet at the SEC's website at www.sec.gov and at our website at www.ecopetrol.com.co. (This URL is intended to be an inactive textual reference only. It is not intended to be an active hyperlink to our website. The information on our website, which might be accessible through a hyperlink resulting from this URL, is not and shall not be deemed to be incorporated into this annual report.)

Unless the context otherwise requires, the terms "Ecopetrol", "we", "us", "our" or the "Company" are used in this annual report to refer to Ecopetrol S.A. and its subsidiaries on a consolidated basis.

References to the Nation in this annual report relate to the Republic of Colombia ("Colombia"), our controlling shareholder. References made to the Colombian government or the Government correspond to the executive branch including the President of Colombia, the ministries and other governmental agencies responsible for regulating our business.

1.2 Forward-looking Statements

This annual report on Form 20-F contains forward-looking statements within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. These statements are not based on historical facts and reflect our expectations for future events and results. Most facts are uncertain because of their nature. Words such as "anticipate", "believe", "could", "estimate", "expect", "should", "plan", "potential", "predicts", "prognosticate", "project", "target", "achieve" and "intend", among other similar expressions, are understood as forward-looking statements. We have made forward-looking statements that address, among other things:

- our exploration and production activities, including drilling;
- import and export activities;
- our liquidity, cash flow, and sources of funding;
- our projected and targeted capital expenditures and other cost commitments and revenues; and
- dates by which certain areas will be developed or will come on-stream.

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

- general economic and business conditions, including crude oil and other commodity prices, refining margins and prevailing exchange rates;
- competition;
- our ability to obtain financing;
- our ability to find, acquire or gain access to additional reserves and our ability to develop existing reserves;

- uncertainties inherent in making estimates of our reserves;
- significant political, economic and social developments in Colombia and other countries where we do business;
- natural disasters, military operations, terrorist acts, wars or embargoes;
- regulatory developments, including regulations related to climate change;
- receipt of government approvals and licenses;
- technical difficulties; and
- other factors discussed in Section 5.1 of this document as “Risk Factors.”

All forward-looking statements attributed to us are qualified in their entirety by this cautionary statement. We undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information or for any other reason. Accordingly, readers should not place undue reliance on the forward-looking statements contained in this annual report.

1.3 Selected Financial and Operating Data

The following table sets forth, for the periods and at the dates indicated, our selected historical financial and certain key operating data. The selected financial data has been derived from and should be read in conjunction with, and is qualified in its entirety by reference to, our consolidated audited financial statements, presented in Colombian Pesos.

Table 1 – Selected Operating Data

| Operating Information | 2015 | 2014 | 2013 | 2012 | 2011 |
|--|-------------|-------------|-------------|-------------|-------------|
| Oil and gas production (mboed) | 760.7 | 755.4 | 788.2 | 754.0 | 724.1 |
| Proved oil and gas reserves (Mmboe) ⁽¹⁾ | 1,849 | 2,084 | 1,972 | 1,877 | 1,857 |
| Exploratory Wells ⁽²⁾ | 5 | 28 | 22 | 23 | 39 |
| Refinery Through-put (bpd) ⁽³⁾ | 234,861 | 240,484 | 283,362 | 296,340 | 305,631 |
| 1P Reserves replacement ratio | 6% | 146% | 139% | 108% | 164% |

(1) For 2015 and 2014, proved reserves include natural gas royalties. Data for 2011 through 2013 excludes natural gas royalties. Data for all years excludes crude oil royalties.

(2) Gross exploratory wells.

(3) Refinery through-put includes Barrancabermeja, Reficar, Apiay and Orito. The Cartagena refinery was shutdown in March 2014 to complete an expansion program. The refinery has resumed operations and is expected to be up to full capability during the second half of 2016.

Financial Information

International Financial Reporting Standards (“IFRS”)

(Expressed in millions of Colombian Pesos, except for the net income per share and net operating income per share, which is expressed in Colombian Pesos)

Table 2 – Selected Financial Data

| Financial Information | 2015 | 2014 |
|---|----------------|----------------|
| Revenue | 52,347,271 | 65,971,888 |
| Operating income | 2,131,165 | 14,449,027 |
| Net (loss) income attributable to owners of the Company | (7,193,859) | 5,046,517 |
| Net operating income per share | 51.8 | 351.4 |
| Weighted average number of shares outstanding | 41,116,694,690 | 41,116,698,456 |
| (Loss) earnings per share (basic and diluted) | (175.0) | 122.7 |
| Total assets | 123,588,190 | 110,923,851 |
| Total equity | 43,100,963 | 48,534,228 |
| Subscribed and paid-in capital | 25,040,068 | 10,279,175 |
| Number of common shares | 41,116,694,690 | 41,116,698,456 |
| Dividends declared per share | - | 133 |
| Total liabilities | 80,487,227 | 62,389,623 |

Our consolidated financial statements for the years ended December 31, 2014 and 2015 were prepared in accordance with IFRS as issued by IASB. References in this annual report to IFRS mean IFRS as issued by the IASB. Our date of transition to IFRS was January 1, 2014. These consolidated financial statements are our first financial statements prepared in accordance with IFRS.

Until December 31, 2014, we prepared our audited consolidated financial statements in accordance with Colombian Government Entity GAAP issued by the *Contaduría General de la Nación* with reconciliations to United States Generally Accepted Accounting Principles, or U.S. GAAP. As required by IFRS 1—First Time Adoption of International Financial Reporting Standards—our financial position and results of operations for the year ended December 31, 2014 have been restated in accordance with IFRS. Note 35 to our consolidated financial statements contains an analysis of the presentation and disclosure effects of adopting IFRS and the effects on equity and net income for the fiscal year ended December 31, 2014 as of January 1 and December 31, 2014. The selected financial information for 2014 included in this annual report differs from the information we previously published for 2014, because it is presented in accordance with IFRS for comparative purposes, as required by IFRS 1. Following our adoption of IFRS, we are no longer required to reconcile our financial statements to U.S. GAAP.

In addition, IFRS differs in certain significant respects from the current reporting standards as in effect in Colombia (“Colombian IFRS”) (which is the accounting standard we use for local reporting purposes). As a result, our financial information presented under IFRS is not directly comparable to any of our financial information presented under Colombian IFRS. For a description of the differences between Colombian IFRS and IFRS see section *Financial Review—Summary of Differences between Internal Reporting Policies and IFRS*.

Our consolidated financial statements were consolidated line by line and all transactions and significant balances between affiliates have been eliminated. These financial statements include the financial results of all subsidiary companies controlled, directly or indirectly, by Ecopetrol S.A. See Exhibit 1 – Consolidated companies, associates and joint ventures, to our consolidated financial statements included in this annual report.

As indicated in paragraphs 9 and 18 of the International Accounting Standard 27 “Consolidated and Separated Financial Statements” we must present our financial information on a consolidated basis as if we were a single entity, combining the financial statements of Ecopetrol S.A. and its subsidiaries line by line, adding assets, liabilities, shareholder’s equity, revenues and expenses of similar nature, removing the reciprocal items among members of the Ecopetrol Group and recognizing non-controlling interest. Beginning with this annual report, we will also be presenting our operating information on a consolidated basis.

The regulations of the SEC do not require foreign private issuers that prepare their financial statements on the basis of IFRS to reconcile such financial statements to U.S. GAAP. Accordingly, while we have in the past reconciled our consolidated financial statements prepared in accordance with Colombian Government Entity GAAP to U.S. GAAP, those reconciliations will no longer be presented in our filings with the SEC. We do continue to provide the disclosure required under the U.S. Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 932 “Extractive Activities—Oil and Gas” (which we refer to as ASC Topic 932), as this is required regardless of the basis of accounting on which we prepare our financial statements. Other than as required under ASC Topic 932, any references to accounting treatments under Colombian Government Entity GAAP or U.S. GAAP relate solely to the application of Colombian Government Entity GAAP or U.S. GAAP to our historical consolidated financial statements.

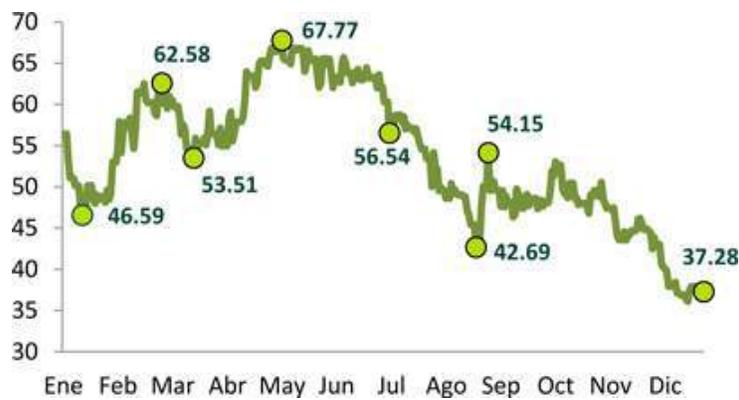
In this annual report, references to “US\$” or “U.S. dollars” are to United States dollars and references to “COP\$,” “Colombian Peso” or “Colombian Pesos” are to Colombian Pesos, the functional currency under which we prepare our financial statements. This annual report translates certain Colombian Peso amounts into U.S. dollars at specified rates solely for the convenience of the reader. Unless otherwise indicated, such Colombian Peso amounts have been translated at the rate of COP\$2,743.39 per US\$1.00, which corresponds to the *Tasa Representativa Promedio del Mercado* (TRM), or Average Representative Market Exchange Rate, for 2015. Such conversion should not be construed as a representation that the Colombian Peso amounts correspond to, or have been or could be converted into, U.S. dollars at that rate or any other rate. On April 22, 2016, the Representative Market Exchange Rate was COP\$2,928.70 per US\$1.00.

Certain figures shown in this annual report have been subject to rounding adjustments and, accordingly, certain totals may therefore not precisely equal the sum of the numbers presented. In this annual report a billion is equal to one with nine zeros.

2. Strategy and Market Overview

Since the second half of 2014, international crude oil benchmark prices have declined dramatically. From its peak in June 2014, the ICE Brent crude oil index monthly contract price fell by more than 65% by the end of 2015, directly impacting the revenue of oil producing companies. It is believed that the main reason behind the drop in prices is the imbalance between global supply and demand. According to estimates published by the Energy Information Administration (“EIA”), global oil demand increased 1.03 mboepd less than supply in 2015. Although non-OPEC supply grew 1.32 mboepd during 2015, it was at a slower pace as compared to 2014, primarily benefited from the United States, which increased 0.95 mboepd. Additionally, OPEC surprised the market by increasing its supply by 1.06 mboepd during 2015 and global demand grew 1.35 mboepd, mainly due to lower gasoline prices and higher economic growth in OECD countries, according to EIA.

**Graph 1 – ICE BRENT\$/BL Year 2015
(USD/BL)**



Graph 2 – Annual Growth of Oil Demand and Supply Worldwide (Mboepd)



Source: Energy Information Administration (EIA), “Short Term Energy Outlook” (January 12, 2016); PIRA Energy Group, “World Oil Market Forecast” (December 22, 2015).

These imbalances have caused a significant rise in global oil inventories during the past two years, with crude inventories from major OECD countries (US/EU/JP) rising by 117 million barrels during 2015. As of December 31, 2015, global inventories were an estimated 888 million barrels, according to PIRA Energy Group. Thus, overall business sentiment points to a sustained period of low crude oil prices i.e. in the range of US\$30 per barrel – US\$50 per barrel. The current environment will keep oil prices under pressure until supply is more balanced to demand and excess inventories of crude oil are consumed.

Although international oil prices and global demand and supply dynamics are significant factors affecting our business and financial condition, Colombia’s local economic factors have also influenced and could continue to influence our performance given that we conduct most of our business in Colombia.

The performance of Colombia’s gross domestic product (GDP) is one of the main drivers of fuel consumption in Colombia. According to the Ministry of Finance and Public Credit, in 2015, Colombia’s GDP grew by 3.1% in real terms, as compared to 4.6% GDP growth in 2014, driven mainly by the performance of the construction, retail, services and financial sectors. Despite the decrease in Colombia’s economic growth, local demand for liquid fuels (diesel, gasoline, jet fuel and LPG) increased by 8.3% mainly due to the increase in the number of vehicles in Colombia. The increase in the demand of liquid fuels also benefited from higher demand for gasoline and diesel following the closure of Colombia’s border with Venezuela, as customers in that area shifted their business to Ecopetrol; and higher consumption of thermal electricity during late 2015, due to warmer weather caused by the “El Niño” climate phenomenon, among other factors.

Recently, the Colombian government reduced its forecasted economic growth for 2016 from 3.5% to 3.2%, reflecting the impact of lower commodity prices, especially crude oil prices. The most important contributors to the expected economic output expansion in 2016 will be the construction sector (+3.8%) and the manufacturing sector (+7.5%), according to the Ministry of Finance and Public Credit. Growth in the manufacturing sector is expected to be influenced by the full operation of our subsidiary Refinería de Cartagena S.A. (“Reficar”) following the completion of its modernization project, expected to produce up to 10% of Colombia’s manufacturing output.

Despite these positive events, Colombia’s economy faces significant challenges as a result of the lower crude oil prices, given that the country is a net oil exporter, and the slow recovery of its main business and trading partners. These factors have resulted in an increase of the current account deficit in Colombia and have placed significant pressure on the exchange rate of the Colombian Peso against the U.S. dollar.

In September 2015, the Energy and Gas Regulatory Commission (“CREG”) for its acronym in Spanish issued the Resolution 213 that gave producers and clients the possibility to negotiate the index that would be used to update the prices of the existing natural gas contracts. 61% of Ecopetrol’s contracts defined the Consumer Price Index of Colombia as this index. The remaining 39% used a formula defined by CREG for those contracts in which producers and clients couldn’t reach an agreement. This formula defined by CREG includes one component related to variations of WTI (West Texas Intermediate) and another to the Producer Price Index of the United States.

2.1 Our Corporate Strategy

During the last decade Ecopetrol exhibited consistent growth that led it to consolidate its position as the largest corporation in Colombia and one of the 40 largest oil companies in the world (as reported in Energy Intelligence Top 100 2015). In May 2015 the board of directors of Ecopetrol (“Board of Directors”) approved the 2015 – 2020 strategy, based on sustainable value creation and a more efficient operation of Ecopetrol Group’s assets.

This strategy is aimed at fulfilling the expectations of Ecopetrol’s shareholders while at the same time enhancing Ecopetrol Group’s environmental and compliance frameworks.

The key guidelines for this strategy are the following:

1. Profitable Growth

- ✓ Seek successful exploration activity by restructuring Ecopetrol’s portfolio, achieving better geographic diversification and decreasing risk through, with focus on high value oil and gas plays.
- ✓ Focus production efforts on high priority mature fields and the development of projects to improve our recovery factor.

2. Operational and Financial Excellence

- ✓ Improve processes and innovate in order to operate more efficiently.
- ✓ Perform under specified financial discipline parameters, making sure that the Ecopetrol Group’s resources are invested in projects that generate value and sustainable growth.
- ✓ Maintain financial metrics within ranges that reflect long term sustainability, debt servicing and cash generation capacity.

3. Business Development

- ✓ Transform the organizational culture by creating a new collaborative environment and reinforcing human talent management.
- ✓ Achieve comprehensive and effective project management in terms of cost and schedules from the planning stage of a project through completion.
- ✓ Develop a comprehensive environmental framework, to compliment the needs of our business and communities.
- ✓ Enforce a strong commitment to ethics and integrity across its business relations and its labor force.

To implement this strategy, during 2015 we designed and launched the 2015-2018 Transformation Program (the “Transformation Program”) comprised of eight key axes: efficiency, exploration, recovery factor, technology, projects, portfolio management, culture and leadership, and community relationships.

- With respect to **efficiency**, Ecopetrol expects to achieve cumulative structural savings through the implementation of best practices in processes and a focus on high-value activities.
- With respect to **exploration**, the Company started a plan to reinforce its technical capabilities in exploration and will launch a capacity-building technology program in order to create sustainable value.

- With respect to the **recovery factor**, it has structured a comprehensive program for the improvement of the current oil recovery factor of 18%, which will maximize cash generation from current producing fields.
- With respect to **technology**, develop business technologies to compliment the Company’s strategy and to strengthen and streamline the Company’s information technology tools upon the capacities of *Instituto Colombiano del Petroleo* and the technical staff of the Company.
- With respect to **project management**, the Transformation Program includes a thorough review of the projects execution with the aim of optimizing capital allocation and ensuring that projects meet their budgets in terms of costs, time and profitability. Lessons learned from recent megaprojects undertaken (i.e. Reficar) will be imperative.
- With respect to **portfolio management**, the Company has a plan to generate cash by means of a dynamic portfolio rotation program to divest non-strategic assets and equity participations. For the period 2016 – 2017, we expect to raise funds between US\$400 and US\$900 million.
- With respect to **culture and leadership**, the Transformation Program includes actions intended to foster the corporate culture of Ecopetrol based on integrity, collaboration, creativity, care for life an operative and financial excellence; and enhance its human talent and leadership.
- With respect to **community relationships**, the Transformation Program includes the implementation of a new relationship model focused on the long-term sustainability of Ecopetrol’s operations by strengthening the ability of government entities and local organizations to foster greater prosperity in regions where Ecopetrol operates and to build safe and environmentally sustainable environments.

In 2015, the Transformation Program led to structural cost savings of approximately US\$800 million vis-à-vis the original budget. The main areas where we saw cost savings were drilling and completion, crude dilution, transport, subsurface maintenance and fluid treatment, which represented 52% of savings, and supplies, services and technology, health, safety and environment (HSE) security and research and development, which represented 24% of savings. These savings reduced Ecopetrol’s costs of operations by 14% in 2015 as compared to 2014.

Consistent with this new corporate strategy in the long term, in December 2015, the Board of Directors approved a U.S.\$4,800 million investment plan for the year 2016. However, the most recent review of oil price scenarios and the prioritization of the project’s portfolio in order to protect the cash flow and the financial health of the Company led to an adjustment of the capital expenditures for 2016, from U.S.\$4,800 million to a range between U.S.\$3,000 and U.S.\$3,400 million. The plan aims at achieving an annual average production of around 715 thousand barrels of oil and gas equivalent per day in 2016 of which approximately 92% would be contributed by Ecopetrol S.A. and the remaining by its subsidiaries.

U.S.\$2,156 million would be invested by Ecopetrol S.A. and U.S.\$847 million by subsidiaries. 93% of the investment would be deployed in Colombia and the remaining 7% abroad. The highest percentage of resources will be allocated to exploration and production, followed by refining, mainly to the completion of the Cartagena refinery and the development of the transportation capacity. The detail of the investments approved per business segment of Ecopetrol S.A. and its subsidiary companies is as follows:

Table 3 – 2016 Investment Plan

| Business Segment | (Millions of US\$) | % Percentage |
|--|---------------------------|---------------------|
| Exploration | \$ 282 | 9.4% |
| Production | 1,116 | 37.3% |
| Transportation and Logistics | 433 | 14.4% |
| Refining, Petrochemicals, and Biofuels | 1,135 | 37.8% |
| Others | 34 | 1.1% |
| TOTAL | \$ 3,000 | 100% |

3. Business Overview

3.1 Our History

We were formed in 1951 by the Colombian government as Empresa Colombiana de Petróleos and began operating the crude oil fields at La Cira-Infantas, the oldest Colombian oil field whose production started in 1918, and the pipeline that connected that field with the Barrancabermeja Refinery and the port of Cartagena. In 1961, we assumed the direct operation of the Barrancabermeja Refinery and continued its transformation into an industrial complex. In 1974, we acquired the Cartagena Refinery, which had been in operation since 1957.

In 1970, we adopted our first bylaws that transformed us into a governmental industrial and commercial company administered by the Ministry of Mines and Energy. In 2003, we were transformed from an industrial and commercial company into a state-owned corporation, and renamed Ecopetrol S.A.

Pursuant to Decree Law 1760 of 2003, we were granted greater autonomy over our business decisions and we accelerated our exploration activities. In that year, the regulatory responsibilities formerly on Ecopetrol were allocated from then on blocks to private and public explorers and operators on a competitive basis. Since 2003, we have been evolving from a wholly state-owned entity to a mixed-economy company with private capital. This process has resulted in a substantial change in the legal framework to which we are subject and in the nature of our relationship with the Nation. We carried out our initial public offering in November 2007 when our common shares became listed on the Colombian Securities Exchange. Our American Depository Shares were listed on the New York Stock Exchange in 2008.

The following table sets forth a list of our material acquisitions since January 1, 2009 and the effective date as of which each acquisition has been reflected in our operating results.

Table 4 – Material Acquisitions since January 1, 2009

| Company | Date | Participation acquired in transaction | Sector | Price (US\$) ⁽¹⁾ |
|---------------------------------------|---------------|---------------------------------------|----------------------------|-----------------------------|
| Offshore International Group Inc. | February 2009 | 50% ⁽²⁾ | Exploration and Production | 639 million |
| Oleoducto Central S.A. (Ocensa) | March 2009 | 24.7% ⁽³⁾ | Transportation | 418 million |
| Hocol Petroleum Limited (Hocol) | March 2009 | 100% ⁽⁴⁾ | Exploration and Production | 807 million |
| Refinería de Cartagena S.A. (Reficar) | May 2009 | 51% ⁽⁵⁾ | Refining | 545 million |
| Equion Energía Limited (“Equion”) | January 2011 | 51% ⁽⁶⁾ | Exploration and Production | 814 million |

(1) Includes amounts of adjustment on transaction prices.

(2) U.S. parent of Savia Perú (formerly Petrotech Peruana S.A.).

(3) As a result of this transaction, our ownership of Oleoducto Central S.A. (“Ocensa”) increased to 60%.

(4) We acquired 100% of Maurel et Prom’s interest in Hocol Petroleum Limited, whose most important assets are Hocol S.A. and Homcol Cayman Inc. As a result of the acquisition, our ownership in Oleoducto de Colombia (“ODC”), increased from 43.85% to 65.57%.

(5) As a result of this transaction, we became the sole owner of Reficar.

(6) As a result of this acquisition, our ownership increased to 72.65% in Ocensa, 73.00% in ODC, and to 85.12% in Oleoducto del Alto Magdalena or OAM. We also obtained a 10.2% interest in Transgas de Occidente.

We are in the process of selling some of our non-core shareholdings:

- We currently own 3.03% of the total outstanding shares of Empresa de Energía de Bogotá. As approved by Decree 2305 of November 13, 2014, we are authorized to offer our remaining 3.03% of total outstanding shares of Empresa de Energía de Bogotá to the general public using the most appropriate mechanism for the volume and value of the remaining shares. The first stage of the divestment plan took place during the second quarter of 2015, in which we placed 352,872,414 shares at COP\$1,740 per share.
- We currently own 1.23% of the total outstanding shares of Interconexión Eléctrica S.A. (“ISA”). As approved by Decree 1800 of September 9, 2015, we are authorized to offer our remaining 1.23% of the total outstanding shares to the general public using the most appropriate mechanism for the volume and value of the remaining shares. Pursuant thereto, during the second auction of the second stage of the divestment plan that took place on April 7, 2016, we placed 45,295,034 shares at COP\$8,325 per share.

- We currently own 100% of the total outstanding shares of Propilco. On January 27, 2016, the Board of Directors of Ecopetrol approved the commencement of a divestment plan to sell Ecopetrol's shares in Propilco. As of the date of this annual report, the date of any potential transaction has not been established. We are in the process of obtaining administrative and governmental authorizations to divest our entire stake in Propilco, as prescribed by law. The next step in the process is to receive approval from the Council of Ministers of Colombia and the issuance of a Presidential Decree with the final approval to begin the divestiture process under Law 226 of 1995.
- We currently own 43.35% of the total outstanding shares of Inversiones de Gases de Colombia S.A. We are currently evaluating how to divest such equity stake. As of the date of this annual report, the timing for any divestment program has not been established.

3.2 Our Corporate Structure

We operate in the following business segments: 1) Exploration and Production; 2) Transportation and Logistics; 3) Refining, Petrochemicals, and Biofuels.

Our subsidiaries Refinería de Cartagena (Reficar), Ecopetrol America Inc. and Ocesa are significant subsidiaries as such term is defined under SEC Regulation S-X.

We have a number of directly and indirectly held subsidiaries both in Colombia and abroad. Our subsidiaries are either directly owned by us or indirectly owned by us through one or more of our other subsidiaries. As of March 31, 2016, we have eight directly owned and 19 indirectly owned subsidiaries.

In January 2016, we organized a new wholly-owned subsidiary, Ecopetrol Costa Afuera Colombia S.A.S., which will be responsible for offshore exploration and production activities in Colombia. The new subsidiary seeks to develop offshore activities in Colombia, which the company currently carries out as operator and non-operator, and take advantage of the benefits of Decree 2682/14, pursuant to which the conditions and requirements are established for declaring the existence of Permanent Offshore Free Trade Zones.

The following table identifies our principal operating subsidiaries, their respective countries of incorporation, and our percentage ownership in each (both directly and indirectly through other subsidiaries), in each case as of March 31, 2016. See Exhibit 8.1 to this annual report for a complete list of our subsidiaries, their respective countries of incorporation, and our percentage of ownership in each.

Table 5 – Our Principal Operating Subsidiaries

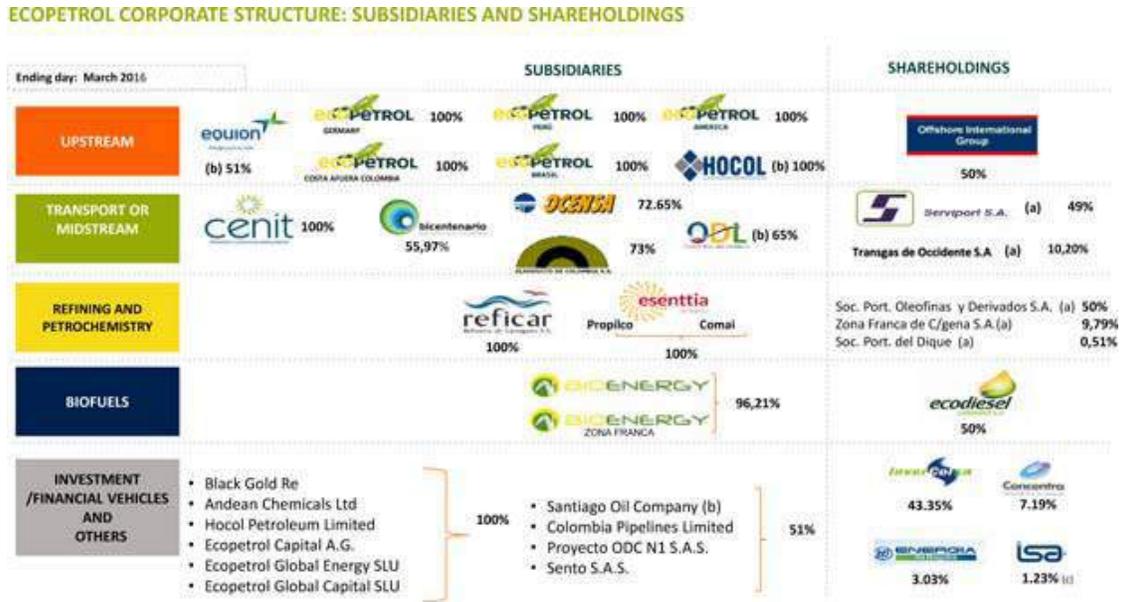
| COMPANY | COUNTRY OF INCORPORATION | OWNERSHIP % |
|--|---------------------------------|--------------------|
| Exploration and Production | | |
| Ecopetrol Óleo e Gás do Brasil Ltda.** | Brazil | 100.00 |
| Ecopetrol del Perú S.A.** | Peru | 100.00 |
| Ecopetrol Germany GmbH** | Germany | 100.00 |
| Ecopetrol America Inc.** | United States | 100.00 |
| Hocol S.A.** | Cayman Island | 100.00 |
| Equion Energía Limited | United Kingdom | 51.00 |
| Transportation | | |
| Oleoducto de los Llanos Orientales S.A. (ODL)** | Panama | 65.00 |
| Oleoducto de Colombia S.A.** | Colombia | 73.00 |
| Oleoducto Central S.A.** | Colombia | 72.65 |
| Oleoducto Bicentenario de Colombia S.A.S.** | Colombia | 55.97 |
| Cenit Transporte y Logística de Hidrocarburos S.A.S. | Colombia | 100.00 |
| Refining and Petrochemicals | | |
| Refinería de Cartagena S.A.* | Colombia | 100.00 |
| Polipropileno del Caribe S.A.* | Colombia | 100.00 |
| Compounding and Masterbatching Industry Ltda.** | Colombia | 100.00 |
| Biofuels | | |
| Bioenergy S.A.** | Colombia | 96.21 |
| Other | | |
| Black Gold Re Ltd. | Bermuda | 100.00 |

* Direct and indirect participation.

** Solely indirect participation through other subsidiaries or affiliates.

The following organization chart illustrates the relationships between Ecopetrol S.A. and its direct and indirect subsidiaries as of March 31, 2016.

Graph 3 – Ecopetrol Corporate Structure



- (a) Stock ownership of an Ecopetrol S.A.'s subordinate company.
- (b) A foreign corporation with a foreign corporation branch in Columbia.
- (c) As a result of the second auction on April 7, 2016, Ecopetrol S.A. sold 4.08% equity share in the company ISA. The final shareholding in ISA is 1.23%.

The stock ownership percentage listed refers to Ecopetrol S.A.'s direct and indirect participation. The data in this structure shows neither the whole ownership nor its decimal figures, so they will be used only for information purposes.

The so-called shareholding (Ecopetrol S.A.'s direct participation), affiliated, subsidiary companies are listed, as well as the stock interest of Ecopetrol S.A.'s subordinate companies.

3.3 Our Business

We are a vertically integrated oil company with a presence primarily in Colombia, Peru, Brazil and the U.S. Gulf Coast. The Nation currently controls 88.49% of our voting capital stock. We are among the top 50 oil and gas companies in the world based on the (Petroleum Intelligence Weekly Top 50 Ranking) and in the top 5 in Latin America based on production volume. We are the largest corporation in Colombia as measured by revenues, EBITDA and shareholders' equity, and we play a key role in the local hydrocarbon market.

3.4 Exploration and Production

Our exploration and production business segment includes exploration, development and production activities in Colombia and abroad. We began local exploration in 1955 and international exploration in 2006. We conduct exploration and production activities directly in Ecopetrol S.A., through some of our subsidiaries, and through joint ventures with third parties. As of December 31, 2015, we were the largest operator and the largest producer of crude oil and natural gas in Colombia, and we maintained the largest acreage under exploration in Colombia.

3.4.1 Exploration Activities

Our exploration plan in Colombia is focused on: (i) exploration of sites in close proximity to existing producing areas, and (ii) currently producing basins and frontier areas, including off-shore areas primarily operated by our business partners, which we believe have the potential for large discoveries. We strive to balance these two focuses and develop the best mix of activities for our business. In addition, our exploration strategy for blocks, that are considered less attractive, is to look for business partners to share our interests or to sell our entire interest.

Our exploration strategy outside of Colombia is focused on locating prospects and establishing joint ventures with experienced operators. In order to implement this strategy, we have a Regional Studies team that manages our New Ventures and a Global Offshore team, which is responsible for ensuring the incorporation of contingent resources from the Caribbean Offshore in Colombia, the U.S. Gulf Coast and Brazil.

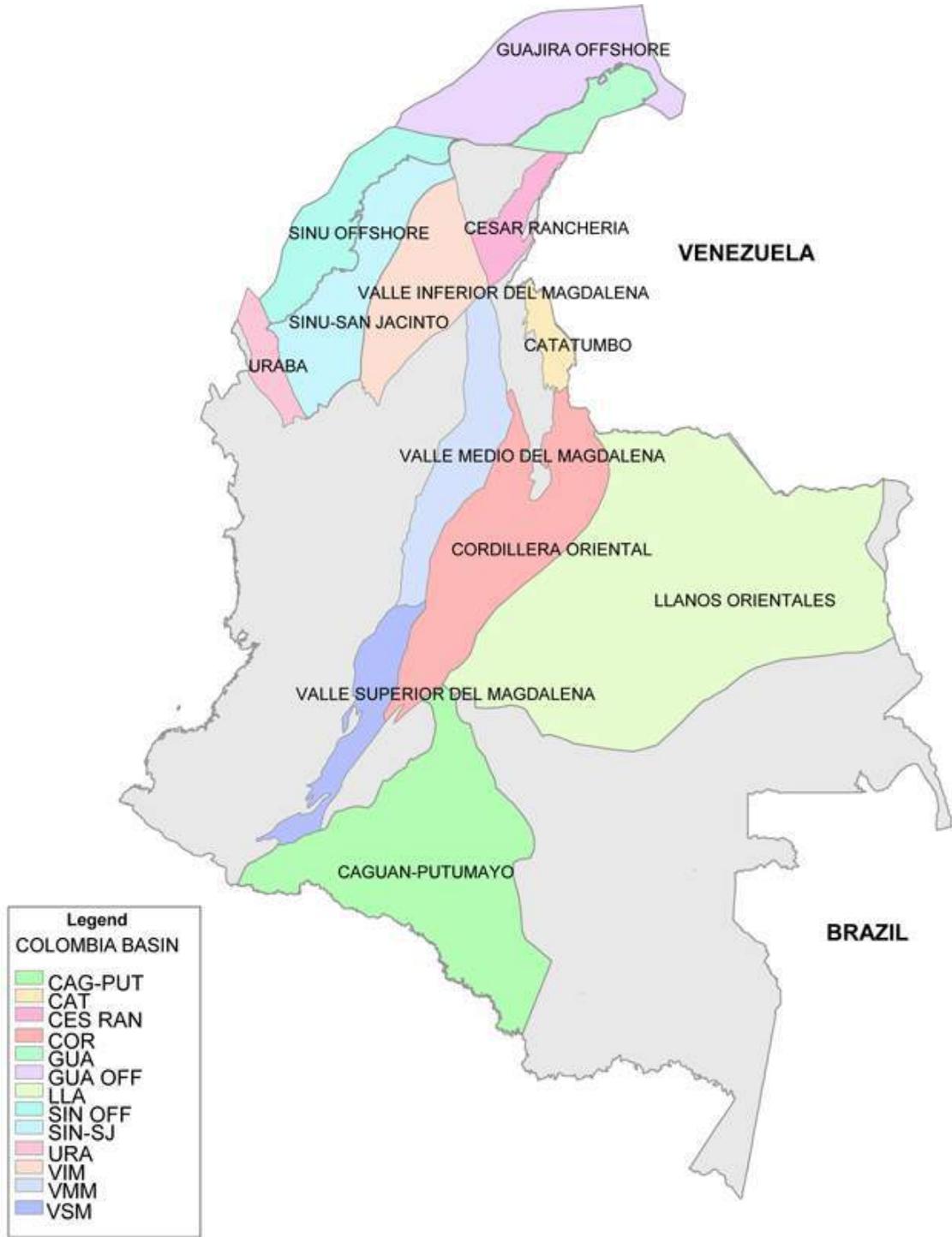
For purposes of this exploration section, “we” refers to Ecopetrol S.A., its subsidiaries and partnerships in which Ecopetrol has an interest. Unless otherwise stated, all figures are given before deductions for royalties.

3.4.1.1 Exploration Activities in Colombia

Currently we have exploration activities in most of the sedimentary basins in Colombia, in which active oil and gas operations are found.

The following map shows the basins where we are currently conducting exploration activities.

Graph 4 – Sedimentary Basins in Colombia



We conduct exploration activities in Colombia on our own and through joint ventures with regional and global oil and gas companies.

In 2015, Ecopetrol S.A. did not acquire any equivalent kilometers of seismic data either directly or through business partners.

Exploratory Wells

The following table sets forth, for the periods indicated, the number of gross and net productive and dry exploratory wells drilled by us and our joint venture partners and the exploratory wells drilled by third parties pursuant to sole risk contracts with us.

Table 6 – Ecopetrol S.A.’s Gross and Net Productive and Dry Exploratory Wells

| | For the year ended December 31, | | |
|---|---------------------------------|-------------|------------|
| | 2015 | 2014 | 2013 |
| | (number of wells) | | |
| COLOMBIA | | | |
| Ecopetrol S.A. | | | |
| Gross Exploratory Wells | | | |
| Owned and operated by Ecopetrol | | | |
| Productive ⁽¹⁾ | – | 3.0 | 4.0 |
| Dry ⁽²⁾ | 1.0 | 9.0 | 2.0 |
| Total | 1.0 | 12.0 | 6.0 |
| Operated by Partner in Joint Venture | | | |
| Productive | 1.0 | 1.0 | 3.0 |
| Dry | 1.0 | 2.0 | 2.0 |
| Total | 2.0 | 3.0 | 5.0 |
| Operated by Ecopetrol in Joint Venture | | | |
| Productive | – | 1.0 | – |
| Dry | – | – | – |
| Total | – | 1.0 | – |
| Net Exploratory Wells⁽³⁾ | | | |
| Productive | 0.5 | 4.1 | 5.5 |
| Dry | 1.5 | 10.7 | 3.0 |
| Total | 2.0 | 14.8 | 8.5 |
| Sole Risk | | | |
| Productive | – | – | – |
| Dry | – | – | – |
| Total | – | – | – |
| Equion | | | |
| Gross Exploratory Wells | | | |
| Productive | – | – | – |
| Dry | – | – | – |
| Total | – | – | – |
| Hocol | | | |
| Gross Exploratory Wells | | | |
| Productive | 1.0 | – | 1.0 |
| Dry | – | 4.0 | 6.0 |
| Total | 1.0 | 4.0 | 7.0 |
| Net Exploratory Wells | | | |
| Productive | 0.5 | – | 0.5 |
| Dry | – | 3.0 | 5.0 |
| Total | 0.5 | 3.0 | 5.5 |

- (1) A productive well is an exploratory well that has evidence of hydrocarbons.
- (2) A dry well or hole is an exploratory well found to be incapable of producing either crude oil or natural gas in sufficient quantities to justify completion as a crude oil or natural gas well.
- (3) Net exploratory wells are calculated according to our percentage of ownership in these wells.

Ecopetrol S.A. drilled a total of three wildcat exploratory wells in 2015. There was evidence of hydrocarbons in one well: Kronos located in the Fuerte Sur Block in the Caribbean Offshore in Colombia, in which Ecopetrol holds a 50% working interest, in partnership with Anadarko (operator). Two wells were dry: Calasu and Muergana Sur.

In December 2014, Ecopetrol S.A. announced the discovery of hydrocarbons in the exploratory Orca-1 well (operated by Petrobras), in which Petrobras holds a 40% working interest, Ecopetrol holds a 30% working interest and Repsol holds a 30% working interest, and located 40 kilometers north of the Guajira province coast. It was the first discovery in deep water in the Caribbean Offshore in Colombia.

Our subsidiary Hocol drilled one successful exploratory well: Bullerengue-1 located in the SSJN-1 Block and operated by Hocol who holds a 50% working interest in partnership with Lewis Energy.

During 2015, bidding rounds were not launched by the National Hydrocarbons Agency to offer licenses for exploratory activities in Colombia.

3.4.1.2 Exploration Activities Outside of Colombia

Our international exploration strategy is focused on participating in bidding rounds to secure blocks available for exploration and entering into joint ventures with international and regional oil companies. We believe exploring outside Colombia allows us to diversify our risks and improve the possibilities of increasing our crude oil and natural gas reserves.

With respect to our seismic data outside of Colombia, during 2015, our subsidiary Ecopetrol Brasil executed a seismic program on Ceará basin, CE-M-715 Block, having acquired 554.71 equivalent kilometers of seismic data, in which Ecopetrol Brasil holds a 50% working interest and Chevron (operator) holds the remaining 50%. Pursuant to their joint venture, Ecopetrol Brasil and Chevron will process the seismic data in 2016. In addition Ecopetrol Brasil established an alliance with the Japanese company JX Nippon Oil & Gas Exploration for exploration of the FZA-M-320 block, located in shallow waters off the Foz do Brasil basin, in the Equatorial rim of the Amazon. The joint venture agreement established that JX Nippon would join exploration in the area with a 30% stake.

With respect to our exploratory drilling outside of Colombia, during 2015, in association with our business partners, we have undertaken deep water exploratory drilling in the U.S. Gulf Coast. The following table sets forth information on our exploratory drilling in the years 2015, 2014 and 2013.

Table 7 – Exploratory Drilling Outside of Colombia

| | For the year ended December 31, | | |
|---|---------------------------------|---------------------------|------------|
| | 2015 | 2014 (number of wells) | 2013 |
| INTERNATIONAL | | | |
| Ecopetrol America Inc. | | | |
| Gross Exploratory Wells | | | |
| Productive ⁽¹⁾ | – | 2.0 | – |
| Dry ⁽²⁾ | 1.0 | 3.0 | 2.0 |
| Total | 1.0 | 5.0 | 2.0 |
| Net Exploratory Wells⁽³⁾⁽⁴⁾ | | | |
| Productive | – | 0.7 | – |
| Dry | 0.5 | 0.5 | 0.5 |
| Total | 0.5 | 1.2 | 0.5 |
| Ecopetrol Óleo e Gás do Brasil Ltda. | | | |
| Gross Exploratory Wells | | | |
| Productive | – | – | – |
| Dry | – | – | 1.0 |
| Total | – | – | 1.0 |
| Net Exploratory Wells | | | |
| Productive | – | – | – |
| Dry | – | – | 0.3 |
| Total | – | – | 0.3 |
| Ecopetrol Germany | | | |
| Gross Exploratory Wells | | | |
| Productive | – | – | – |
| Dry | – | 2.0 | – |
| Total | – | 2.0 | – |
| Net Exploratory Wells | | | |
| Productive | – | – | – |
| Dry | – | 0.2 | – |
| Total | – | 0.2 | – |
| Savia Perú | | | |
| Gross Exploratory Wells | | | |
| Productive | – | – | 1.0 |
| Dry | – | – | – |
| Total | – | – | 1.0 |
| Net Exploratory Wells | | | |
| Productive | – | – | 0.5 |
| Dry | – | – | – |
| Total | – | – | 0.5 |

- (1) A productive well is an exploratory well that has evidence of hydrocarbons.
- (2) A dry well or hole is an exploratory well found to be incapable of producing either crude oil or natural gas in sufficient quantities to justify completion as a crude oil or natural gas well.
- (3) Net exploratory wells are calculated according to our percentage of ownership in these wells.
- (4) None of our international wells were dug pursuant to a sole risk contract.

As set forth in the table above, in 2015, our subsidiary Ecopetrol America Inc. drilled the Sea Eagle exploratory well, in which the company has 50% working interest and our partner Murphy (operator) holds the remaining 50%. The well was declared a dry hole.

We also added 10 blocks to our exploration portfolio as a result of Ecopetrol America Inc.'s participation in partnership in the lease sale 235 and 246 which took place in June, September, October and November of the year 2015.

3.4.2 Production Activities

Our consolidated average production was 760.7 thousand boepd in 2015, an increase of 5.3 thousand boepd as compared to 2014. This increase is mainly the result of an increase in production in the Castilla and Chichimene fields due to the entrance of new facilities and production wells, which contributed to higher average production in 2015.

The following table summarizes the results of our oil and gas production activities for the periods indicated:

Table 8 – Ecopetrol Group’s Oil and Gas Production

| | For the year ended December 31, | | | | | | | | |
|---|---------------------------------|-------|-------|--------------------|-------|-------|--------------------|-------|-------|
| | 2015 | | | 2014 | | | 2013 | | |
| | Oil ⁽¹⁾ | Gas | Total | Oil ⁽¹⁾ | Gas | Total | Oil ⁽¹⁾ | Gas | Total |
| | (thousand boepd) | | | | | | | | |
| Total production in Colombia ⁽²⁾ | 619.2 | 130.4 | 749.6 | 610.9 | 133.3 | 744.2 | 643.9 | 136.6 | 780.5 |
| Total International production ⁽³⁾ | 7.3 | 3.8 | 11.1 | 8.6 | 2.6 | 11.2 | 7.2 | 0.5 | 7.7 |
| Total production of Ecopetrol Group | 626.5 | 134.2 | 760.7 | 619.5 | 135.9 | 755.4 | 651.1 | 137.1 | 788.2 |

- (1) Conversion between mcfpd and boepd is performed at 5,700 mcfpd to 1 boepd.
 (2) Total production in Colombia corresponds to Ecopetrol S.A., Hocol and Equion.
 (3) Total International production corresponds to Savia Perú and Ecopetrol America Inc.

3.4.2.1 Production Activities in Colombia

3.4.2.1.1. Ecopetrol S.A.’s Production Activities in Colombia

For the year ended December 31, 2015, Ecopetrol S.A. was the largest participant in the Colombian hydrocarbons industry, accounting for approximately 58% of crude oil production (according to calculations made by Ecopetrol based on information from the National Hydrocarbons Agency) and approximately 60% of natural gas production (according to calculations made by Ecopetrol based on information from the National Hydrocarbons Agency).

In 2015, Ecopetrol S.A. carried out development drilling in all its producing regions in Colombia, drilling 539 development wells; 209 of those through direct operations and 330 through joint ventures. As part of an internal administrative restructuring process Ecopetrol S.A. reorganized the management of its production activities, which allowed it to improve its control on operations, while at the same time gave it a closer and more effective interaction with communities and partners. Beginning on July 1, 2014, Ecopetrol S.A.’s fully owned fields were divided into three main Vice-presidencies or administrative regions:

- Central Region: comprising 30 fields with active production in 2015 in the Middle Magdalena Valley and Catatumbo regions.
- Orinoquia Region: comprising 21 fields with active production in 2015 in the provinces of Meta, Casanare, Arauca y Vichada.
- Southern Region: comprising 35 fields with active production in 2015 in the provinces of Huila, Tolima, Putumayo, Nariño and Caquetá.

A fourth Vice-presidency, the Vice-presidency of Associated Assets, is responsible for all of the production activities in which a partner is involved, regardless of the location of such activities in Colombia. The Vice-Presidency of Associated Assets is comprised of 116 fields with active production in 2015.

The map below indicates the locations of our operations in Colombia.

Graph 5 – Locations of our Production Operations in Colombia



Crude Oil Production

The average daily production of crude oil in Colombia by Ecopetrol S.A. (excluding its subsidiaries), was 586.2 mbod in 2015, 6.5 mbod higher than in 2014, which represents a year-to-year increase of 1%.

The following chart summarizes Ecopetrol S.A.'s average daily crude oil production in Colombia by Region Vice-Presidency, prior to deducting royalties, for the periods indicated.

Table 9 – Ecopetrol S.A.'s Average Daily Crude Oil Production in Colombia by Region Vice-Presidency

| | For the year ended December 31, | | |
|---|---------------------------------|--------------|--------------|
| | 2015 | 2014 | 2013 |
| | (thousand bpd) | | |
| Central Region Vice-Presidency | | | |
| 1) La Cira – Infantas | 22.9 | 24.6 | 23.5 |
| 2) Casabe | 21.9 | 22.0 | 22.8 |
| 3) Yarigui | 17.8 | 16.7 | 14.9 |
| 4) Other | 23.7 | 21.0 | 20.3 |
| Total Central Region | 86.3 | 84.3 | 81.4 |
| Orinoquía Region Vice-Presidency | | | |
| 1) Castilla | 122.5 | 104.4 | 112.9 |
| 2) Chichimene | 78.0 | 56.2 | 53.1 |
| 3) Cupiagua | 14.0 | 16.4 | 18.5 |
| 4) Other | 21.1 | 26.0 | 23.8 |
| Total Orinoquia Region | 235.6 | 203.0 | 208.3 |
| Southern Region Vice-Presidency | | | |
| 1) San Francisco | 8.1 | 9.2 | 10.0 |
| 2) Huila Area | 7.8 | 8.2 | 7.9 |
| 3) Tello | 4.5 | 4.3 | 4.4 |
| 4) Other | 11.0 | 11.8 | 11.8 |
| Total Southern Region Vice-Presidency | 31.4 | 33.6 | 34.2 |
| Associated Operations | | | |
| 1) Rubiales | 94.3 | 104.3 | 120.0 |
| 2) Quifa | 24.2 | 33.0 | 33.5 |
| 3) Caño Limon | 25.6 | 30.0 | 36.4 |
| 4) Cusiana | 5.2 | 7.0 | 8.8 |
| 5) Other | 83.6 | 84.6 | 90.0 |
| Total Associated Operations | 232.9 | 258.9 | 288.7 |
| Total average daily crude oil production Ecopetrol S.A. (Colombia) | 586.2 | 579.7 | 612.6 |

Table 10 – Ecopetrol S.A. Production per Type of Crude

| | 2015 (mbod) | Year-on-Year Δ (%) | 2014 (mbod) | Year-on-Year Δ (%) | 2013 (mbod) |
|--------------|------------------------|-------------------------------|------------------------|-------------------------------|------------------------|
| Light | 44.6 | 0.2% | 44.5 | (9.4)% | 49.1 |
| Medium | 187.1 | (5.8)% | 198.6 | (8.0)% | 215.8 |
| Heavy | 354.5 | 5.3% | 336.6 | (3.2)% | 347.7 |
| Total | 586.2 | 1.1% | 579.7 | (5.4)% | 612.6 |

Ecopetrol S.A.'s crude oil production during 2015 consisted of approximately 39% light and medium crudes and 61% heavy crudes. In 2014, approximately 42% of the crude oil production corresponded to light and medium crudes while the remaining 58% to heavy crudes. During 2013, production distribution was approximately 43% of light and medium crudes and 57% of heavy crudes.

Our most important heavy crude oil assets are:

- Cubarral Block. Located in the Orinoquia region and comprised of the Castilla and Chichimene fields. Together, these fields produced approximately 200 mbod in 2015.
- Rubiales - Quifa. The Rubiales and Quifa fields are part of our associated operations and are developed in joint venture with Metapetroleum. These fields produced 118 mbod in 2015. Both the Rubiales risk participation contract and the Piriri association contract expire on June 30, 2016 and Ecopetrol will take over full participation and the operation of the Rubiales field on July 1, 2016.

Natural Gas Production

In 2015, the average daily production of natural gas by Ecopetrol S.A. reached 121.2 mboed, including NGLs, a 3% reduction when compared with 2014 production.

We have three main natural gas production fields, Guajira, Cusiana and Cupiagua. The majority of our production of natural gas in Colombia is undertaken by joint ventures. In the Guajira field, we have partnered with Chevron. In the development of Cusiana field, our partners are Equion, Emerald Energy PLC and Santiago Oil Company. In contrast, Ecopetrol S.A. directly operates the Cupiagua field.

The Tauramena joint venture expires on July 3, 2016. The Tauramena block is part of the Cusiana unified exploitation plan wherein as a consequence of the termination of the Tauramena joint venture Ecopetrol's participation will increase from 63.4% to 97.8%. Ecopetrol will assume the operation of the Cusiana unified exploitation plan as from the termination of the Tauramena joint venture.

Of our total natural gas production as of December 31, 2015, approximately 35% was supplied from the Guajira field, approximately 22% from the Cusiana field, approximately 20% from the Cupiagua field and the remaining 23% from other fields.

The following table sets forth Ecopetrol S.A.'s average daily natural gas production in Colombia, including NGLs, prior to deducting royalties, for the years ended December 31, 2015, 2014, and 2013.

Table 11 – Ecopetrol S.A.'s Average Daily Natural Gas Production in Colombia

| | For the year ended December 31, | | |
|--|---------------------------------|--------------------------|---------------|
| | 2015 | 2014 (thousand boepd) | 2013 |
| COLOMBIA | | | |
| Central Region | | | |
| 1) La Cira – Infantas | 0.12 | 0.16 | 0.14 |
| 2) Casabe | 0.00 | 0.00 | 0.04 |
| 3) Yarigui | 0.56 | 0.50 | 0.60 |
| 4) Other | 10.78 | 10.60 | 10.32 |
| Total Central Region | 11.46 | 11.26 | 11.10 |
| Orinoquía Region | | | |
| 1) Cupiagua | 24.09 | 22.80 | 20.08 |
| 2) Other | 1.18 | 1.37 | 1.48 |
| Total Orinoquía Region | 25.27 | 24.17 | 21.55 |
| Southern Region | | | |
| 1) Huila Area | 0.85 | 1.14 | 1.09 |
| 2) Tello | 0.35 | 0.26 | 0.20 |
| 3) Other | 0.03 | 0.04 | 0.02 |
| Total Southern Region | 1.23 | 1.43 | 1.31 |
| Associated Operations | | | |
| 1) Guajira | 42.71 | 50.11 | 58.97 |
| 2) Cusiana | 27.03 | 26.53 | 23.93 |
| 3) Other | 13.47 | 11.87 | 12.04 |
| Total Associated Operations | 83.21 | 88.52 | 94.94 |
| Total Natural Gas Production (Colombia) | 121.17 | 125.38 | 128.90 |

Note: Conversion between mcfpd and boepd is performed at 5,700 mcfpd to 1 boepd.

Projects to Increase the Recovery Factor:

During 2015, eight new pilot projects were initiated with the aim of increasing the recovery factor through water injection and chemical injection, meeting the goal of pilots that was originally set for the year. These pilots were developed in the fields, Provincia, Tisquirama, Llanito, Chichimene, Castilla, Suria and Caracara.

Among the key results for the year, the implementation of the water injection pilots into heavy crude fields of high importance for the company as Castilla and Chichimene is highlighted, which showed positive results in areas where the interventions took place, reporting an increase of around 1.8 mbod as of December 2015. This cumulative additional production currently represents an increase in the recovery factor of 1.2% in the area of contact of the Chichimene field pilot, and of 0.15% in the area of contact of the Castilla field pilot.

In addition, the air injection pilot project in Chichimene field reached 94% completion on construction of surface facilities, thereby completing most of the project's main works. Connectivity tests were also concluded with positive results, demonstrating the continuity in the sands and the connection between the injection well and production wells. The start of air injection is planned for the fourth quarter of 2016.

Including the pilot projects started in 2015, the Company currently has 29 recovery pilots underway, of which 22 have shown positive results in increasing pressure and 15 have shown an increase in crude production in the areas impacted.

Development Wells

The following table sets forth the number of gross and net development wells drilled exclusively by Ecopetrol S.A. and by its joint ventures in Colombia for the years ended December 31, 2015, 2014 and 2013.

Table 12 – Ecopetrol S.A.’s Gross and Net Development Wells in Colombia

| | For the year ended December 31, | | |
|---|--|-------------|-------------|
| | 2015 | 2014 | 2013 |
| | (number of wells) | | |
| COLOMBIA | | | |
| Central Region | | | |
| Gross wells owned and operated by Ecopetrol | 79 | 104 | 67 |
| Orinoquía Region | | | |
| Gross wells owned and operated by Ecopetrol | 109 | 65 | 77 |
| Southern Region | | | |
| Gross wells owned and operated by Ecopetrol | 21 | 8 | 2 |
| Total gross wells owned and operated by Ecopetrol S.A. in Colombia | 209 | 177 | 146 |
| Associated Operations | | | |
| Gross wells in joint ventures | 330 | 584 | 628 |
| Net wells ⁽¹⁾ | 146 | 374 | 404 |
| Total gross wells in joint ventures Ecopetrol S.A. in Colombia | 330 | 584 | 628 |
| Total net wells in joint ventures Ecopetrol S.A. in Colombia⁽¹⁾ | 146 | 374 | 404 |

(1) Net wells correspond to the ownership percentage of wells owned in joint ventures with our partners.

Production Acreage

The following table sets forth Ecopetrol S.A.’s developed and undeveloped gross and net acreage of crude oil and natural gas production in Colombia for the year ended December 31, 2015.

Table 13 – Ecopetrol S.A.’s Developed and Undeveloped Gross and Net Acreage of Crude Oil and Natural Gas Production in Colombia

| | Production Acreage as of December 31, 2015 | | | |
|----------------|---|------------|--------------------|------------|
| | (acres) | | | |
| | Developed | | Undeveloped | |
| | Gross | Net | Gross | Net |
| Ecopetrol S.A. | 438,920 | 318,398 | 5,050,710 | 3,703,170 |

Gross and Net Productive Wells

The following table sets forth Ecopetrol S.A.'s total gross and net productive wells by region as of December 31, 2015.

Table 14 – Ecopetrol S.A.'s Gross and Net Productive Wells by Region

| | As of December 31, 2015 (number of wells) | | | |
|---------------------------------|--|--------------|----------------------------|-----------|
| | Crude Oil ⁽¹⁾ | | Natural Gas ⁽²⁾ | |
| | Gross | Net | Gross | Net |
| COLOMBIA | | | | |
| Ecopetrol S.A. | | | | |
| Central region | 2,264 | 1,824 | 10 | 10 |
| Orinoquía region | 921 | 911 | 19 | 19 |
| Southern region | 540 | 479 | 3 | 3 |
| Region of Associated Operations | 3,202 | 1,558 | 24 | 9 |
| Total (Ecopetrol S.A.) | 6,927 | 4,772 | 56 | 41 |

Note: The above table reflects the productive wells that directly contribute to hydrocarbon production and therefore excludes wells used for injection, disposal, water abstraction, or other similar activities.

- (1) We consider crude oil wells to be those in which the main operation is oil production, although many of these wells produce gas associated with oil production that, in some cases, have a commercial purpose.
 (2) Natural gas wells are those in which operations are directed only toward the production of commercial gas.

3.4.2.1.2. Ecopetrol S.A.'s Affiliates and Subsidiaries' Production Activities in Colombia

Crude Oil Production

The following table sets forth our average daily crude oil production from Hocol and Equion, prior to deducting royalties, for the periods indicated.

Table 15 – Ecopetrol S.A.'s Subsidiaries in Colombia Average Daily Crude Oil Production

| | For the year ended December 31, | | |
|--|---------------------------------|-------------|-------------|
| | 2015 | 2014 | 2013 |
| | (thousand bpd) | | |
| COLOMBIA | | | |
| Hocol | | | |
| Joint venture operation | 2.1 | 2.5 | 2.6 |
| Direct operation | 19.3 | 18.8 | 18.6 |
| Total Hocol | 21.4 | 21.3 | 21.2 |
| Equion | | | |
| Joint venture operation | – | – | – |
| Direct operation | 11.6 | 10.0 | 10.1 |
| Total Equion | 11.6 | 10.0 | 10.1 |
| Production tests | – | – | – |
| Total average daily crude oil production (Subsidiaries in Colombia) | 33 | 31.3 | 31.3 |

Hocol's 0.5% production increase in 2015 as compared to 2014 was mainly due to: (1) an increase in production from the Pintado Norte 1, Guarrojo 8, La Cañada 19 and La Cañada 20 wells which were drilled in December 2014 and (2) the transfer of Ecopetrol's ownership in Toldado, Quimbaya, Toy, Toqui-Toqui, Totare, Rio Saldaña Puli and Chenche fields to Hocol.

Equion's 16% production increase in 2015 as compared to 2014 was mainly due to higher base production in the Piedemonte fields.

Natural Gas Production

The following table sets forth our subsidiaries' average daily natural gas production, prior to deducting royalties, for the periods indicated.

Table 16 – Ecopetrol S.A.'s Subsidiaries in Colombia Average Daily Natural Gas Production

| | For the year ended December 31, | | |
|--|---------------------------------|------------|------------|
| | 2015 | 2014 | 2013 |
| | (thousand boepd) ⁽¹⁾ | | |
| Hocol | | | |
| Joint venture operation | 0.0 | – | – |
| Direct operation | 0.2 | 0.1 | 0.2 |
| Total Hocol | 0.2 | 0.1 | 0.2 |
| Equion | | | |
| Joint venture operation | – | – | – |
| Direct operation | 9 | 7.8 | 7.5 |
| Total Equion | 9 | 7.8 | 7.5 |
| Production Tests | – | – | – |
| Total Natural Gas Production (Subsidiaries in Colombia) | 9.2 | 7.9 | 7.7 |

Note: Conversion between mcfpd and boepd is performed at 5,700 mcfpd to 1 boepd.

Development Wells

The following table sets forth the number of gross and net development wells drilled exclusively by our subsidiaries and in their joint ventures in Colombia for the periods indicated.

Table 17 – Ecopetrol S.A.'s Subsidiaries in Colombia Gross and Net Productive Wells

| | For the year ended December 31, | | |
|---|---------------------------------|-----------|-----------|
| | 2015 | 2014 | 2013 |
| | (number of wells) | | |
| Hocol | | | |
| Gross wells owned and operated by Hocol | 13 | 16 | 18 |
| Gross wells in joint ventures | 1 | 6 | 4 |
| Net wells ⁽¹⁾ | 13 | 17 | 18 |
| Equion | | | |
| Gross wells owned and operated by Equion | 5 | 2 | 6 |
| Gross wells in joint ventures | – | – | – |
| Net wells ⁽¹⁾ | 1 | 1 | 2 |
| Total gross wells owned and operated in Colombia | 18 | 18 | 24 |
| Total gross wells in joint ventures in Colombia | 1 | 6 | 4 |
| Total net wells (Subsidiaries in Colombia) | 14 | 18 | 20 |

(1) Net wells correspond to the sum of wells owned and operated by our subsidiaries and their ownership percentage of wells owned in joint ventures with their partners.

The following table sets forth our subsidiaries' developed and undeveloped gross and net acreage of crude oil and natural gas production in Colombia for the year ended December 31, 2015.

Table 18 – Ecopetrol S.A.'s Subsidiaries in Colombia Developed and Undeveloped Gross and Net Acreage of Crude Oil Production

| | Production acreage as of December 31, 2015 | | | |
|---|--|---------------|----------------|---------------|
| | Developed | | Undeveloped | |
| | Gross | Net | Gross | Net |
| | (in acres) | | | |
| Hocol | 4,752 | 4,424 | 702 | 678 |
| Equion | 30,113 | 6,512 | 109,437 | 22,557 |
| Total (Subsidiaries in Colombia) | 34,865 | 10,946 | 110,139 | 23,235 |

The following table sets forth our subsidiaries' total gross and net productive wells in Colombia for the year ended December 31, 2015. We consider crude oil wells to be those in which the main operation is oil production, although many of these wells produce gas associated with oil production that, in some cases, have a commercial purpose. Natural gas wells are those in which operations are directed only towards production of commercial gas. Information in the table below reflects productive wells that directly contribute to hydrocarbons production and therefore excludes wells used for injection, disposal, water abstraction, or other similar activities.

Table 19 – Ecopetrol S.A.'s Subsidiaries in Colombia Developed and Undeveloped Gross and Net Acreage of Natural Gas Production

| | As of December 31, 2015 | | | |
|---------------------------------------|-------------------------|------------|-------------|-----------|
| | Crude Oil | | Natural Gas | |
| | (number of wells) | | | |
| | Gross | Net | Gross | Net |
| Hocol | 269 | 197 | 3 | 2 |
| Equion | 41 | 17 | 41 | 17 |
| Total Subsidiaries in Colombia | 310 | 214 | 44 | 19 |

3.4.2.2 Production Activities Outside Colombia

Crude Oil Production

The following table sets forth our average daily crude oil production outside Colombia, prior to deducting royalties, for the periods indicated.

Table 20 – Ecopetrol S.A.'s Subsidiaries Outside Colombia Average Daily Crude Oil Production

| | For the year ended December 31, | | |
|---|---------------------------------|------------|------------|
| | 2015 | 2014 | 2013 |
| | (thousand bpd) | | |
| Savia Perú | 4.8 | 5.9 | 5.0 |
| Ecopetrol America Inc. | 2.5 | 2.6 | 1.4 |
| Total average daily crude oil production (International) | 7.3 | 8.5 | 6.4 |

Natural Gas Production

The following table sets forth our average daily natural gas production outside Colombia, prior to deducting royalties, for the periods indicated.

Table 21 – Ecopetrol S.A.'s Subsidiaries Outside Colombia Average Daily Natural Gas Production

| | For the year ended December 31, | | |
|---|---------------------------------|------------|------------|
| | 2015 | 2014 | 2013 |
| | (thousand boepd) | | |
| Savia Perú | 1.2 | 0.5 | 0.3 |
| Ecopetrol America Inc. | 2.6 | 2.1 | 0.2 |
| Total average daily natural gas production (International) | 3.8 | 2.6 | 0.5 |

The following table sets forth the number of gross and net development wells outside Colombia, drilled exclusively by us and in joint ventures for the periods indicated. Information in the table below reflects productive wells that directly contribute to hydrocarbons production and therefore excludes wells used for injection, disposal, water abstraction, or other similar activities.

Table 22 – Ecopetrol S.A.’s Subsidiaries Outside Colombia Gross and Net Productive Wells

| | For the year ended December 31, | | |
|--|---------------------------------|---------------------------|-----------|
| | 2015 | 2014 (number of wells) | 2013 |
| Savia Perú | | | |
| Gross wells | 0 | 13 | 20 |
| Net wells ⁽¹⁾ | 0 | 6.5 | 10 |
| Ecopetrol America Inc. | | | |
| Gross wells | 2 | - | - |
| Net wells ⁽¹⁾ | 0.4 | - | - |
| Total gross wells (International) | 2 | 13 | 20 |
| Total net wells (International) | 0.4 | 6.5 | 10 |

(1) Net wells correspond to the sum of wells entirely owned by us or our subsidiaries and our ownership percentage of wells owned in joint ventures with our partners.

The following table sets forth our developed and undeveloped gross and net acreage of crude oil and natural gas production outside Colombia for the year ended December 31, 2015.

Table 23 – Ecopetrol S.A.’s Subsidiaries Outside Colombia Developed and Undeveloped Gross and Net Acreage of Crude Oil and Natural Gas Production

| | Production acreage as of December 31, 2015 | | | |
|---------------------------------------|--|---------------|---------------|--------------|
| | Developed | | Undeveloped | |
| | Gross | Net | Gross | Net |
| | (in acres) | | | |
| Savia Perú | 137,246 | 79,575 | 57,671 | 1,095 |
| Ecopetrol America Inc. ⁽¹⁾ | 49,680 | 10,645 | 18,261 | 1,095 |
| Total (International) | 186,926 | 90,220 | 75,932 | 2,190 |

(1) Production and acreage from Ecopetrol America Inc. is related to the K2, Dalmatian and Gunflint field blocks in the Gulf of Mexico. For K2, there are four blocks in the production stage. For Dalmatian, there are six blocks, five of which are held by production. For Gunflint, there are four blocks held by suspension of production until the production starts.

The following table sets forth our total gross and net productive wells outside Colombia for the year ended December 31, 2015.

Table 24 – Ecopetrol S.A.’s Subsidiaries Outside Colombia Gross and Net Productive Wells

| | As of December 31, 2015 | |
|------------------------------|-------------------------|---------------|
| | Crude Oil | |
| | Gross | Net |
| | (number of wells) | |
| INTERNATIONAL | | |
| Savia Perú | 650 | 325 |
| Ecopetrol America Inc. | 11 | 1.64 |
| Total (International) | 661 | 326.64 |

3.4.2.3 Marketing of Crude Oil and Natural Gas

In 2015, Ecopetrol sold 1,005.9 mboepd, out of which 550.7 mboepd represented sales of crude oil (54.7%), 92.5 mboepd natural gas (9.2%) and 362.7 mboepd of fuels and petrochemicals (36.1%).

Export sales of crude oil increased by 5.2 mbopd as compared to 2014 primarily due to the growth in Ecopetrol's crude oil production and higher volumes being moved through our transportation systems, mainly Caño Limón – Coveñas pipeline due to a decline in the number of attacks against our infrastructure. Domestic sales of crude oil fell 40.4% (9.1 mbopd) because customers that produce IFOS (Intermediate Fuel Oil) for the bunkers industry in Colombia switched to buying fuel oil from the Barrancabermeja Refinery, thereby reducing our crude oil sales.

Despite higher demand by thermal power plants due to “El Niño” climate phenomenon, Ecopetrol's natural gas sales fell 8.6% (8.7 mboepd) as compared to 2014 due to the expiration of the contract for gas exports to Venezuela in June 2015 and the decline of Guajira field.

Crude Oil Export Sales

Our crude oil export sales are made both in the spot market and through term contracts, primarily to refiners in Asia, the U.S. Gulf Coast, U.S. Atlantic Coast, Europe, Central America and the Caribbean.

The Castilla blend is the principal type of crude oil for foreign sales, with 348 mbopd sold during 2015 (a 73.5% share of our crude oil basket) representing an 11.1 mbopd increase as compared to 2014, followed by the Vasconia Norte blend with 67.4 mbopd (a 14.2% share in our crude oil basket) representing a 2.4 mbopd decrease as compared to 2014. While South Blend sales decreased approximately 7.7 mbopd, mainly due to lower availability of the Oleoducto Trasandino in comparison to 2014, this decrease was partially offset by an increase in Magdalena Blend sales of approximately 4.2 mbopd.

In 2015, the price of our crude basket decreased by US\$43.4 per barrel, as compared to 2014, due primarily to a general decline in international prices as the decline in the price of the ICE Brent was close to US\$45.85 per barrel (according to Bloomberg).

A market diversification strategy has allowed Ecopetrol to improve its presence in markets other than the U.S. Gulf Coast, a destination that experienced a decrease in our crude oil exports, in terms of volume, from 28.6% of total export sales in 2014 to 23.7% in 2015. In contrast, other destinations, such as the U.S. Atlantic Coast and the U.S. West Coast, experienced an increase in crude oil exports, in terms of volume, from 6.9% of total export sales in 2014 to 12.6% in 2015. In particular, exports to the U.S. West Coast enabled Ecopetrol to capture a higher value for its crude oil from some of the most profitable refining hubs in the world.

Ecopetrol's crude oil sales volume to the Asian market decreased from 37.2% in 2014 to 31.6% in 2015 mainly due to: (i) the increased supply coming into this market from the Middle East and (ii) the increase in opportunities for Ecopetrol S.A. to sell in the Caribbean and Central America spot market, where some clients temporarily stored crude oil. The Central America and Caribbean market represented 17.4% of our total crude oil exports in 2015, followed by the European market, which represented 12.9% of our total crude oil exports.

Crude Oil Purchase Contracts

Ecopetrol has signed a number of crude oil purchase contracts with third parties. We also purchase crude oil received by the ANH as royalties from us and other producers in Colombia. Crude oil purchased from the ANH and our business partners is either processed in our refineries or exported. The purchase price is negotiated as an export parity, which discounts logistic costs and quality adjustments, based on international market prices, plus a commercial fee.

The term of some of our purchase contracts is linked to the term of the exploration and production contracts signed with our business partners. Other clauses of the contracts such as price and place of delivery may be subject to renegotiation during the term of the contract. Certain purchase contracts not linked to joint venture agreements may be extended and renegotiated by the parties.

The table below sets forth the volumes of crude oil purchased from our business partners and third parties and volumes of crude oil purchased from the ANH corresponding to royalties for the years ended December 31, 2015 and 2014.

Table 25 – Ecopetrol Consolidated Crude Oil Purchases

| | For the year ended December 31, | |
|--|--|-------------|
| | 2015 | 2014 |
| | (million barrels) | |
| Ecopetrol Corporate Group | | |
| Crude oil purchased from the ANH | 45.6 | 45.4 |
| Crude oil purchased from third parties | 15.6 | 20.9 |

Import of Diluents

In 2015 we increased by 10.8% (6.3 mboepd) the imports of diluents (principally naphtha) used to allow our heavy crudes to be pumped through pipelines, as compared to 2014, due to an increase in production of heavy crude oil and a change in the quality specifications of our diluents.

Natural Gas Sales

In 2015, we supplied 656.4 gbtud of the total natural gas demand in Colombia, representing a market share of 63.5% (according to calculations made by Ecopetrol S.A. and Hocol based on internal information and data from Concentra – Inteligencia SAS) which is stable as compared to 2014, with production used for our own consumption at refineries and for sale to natural gas distributors. Our market share in 2015, including foreign sales, was 63.0% and 63.4% in 2014.

Despite the increase in local demand from power plants to 143.7 gbtud in 2015 from 131.1 gbtud in 2014, total demand for natural gas in 2015 decreased 7.3% compared to the previous year. Demand in 2015 was 1,071 gbtud, mainly as a result of the completion of our export contract with Venezuela in 2015. For 2014 demand for natural gas was 1,155 gbtud.

Ecopetrol sells natural gas to distribution companies through firm, interruptible and conditional contracts. These distributors supply natural gas to the residential market, for compressed natural gas for vehicles and to industries in Colombia. We also market and sell natural gas to the industrial sector and to gas-fired and combined cycle power plants.

Ecopetrol S.A. also exports natural gas. In 2007, we and our partner Chevron entered into a long-term natural gas supply contract with PDVSA. This contract was amended in June 2014, and expired on June 30, 2015. In the first half of 2015, Chevron and Ecopetrol sold 38 gbtud to PDVSA, from which 19 gbtud was exported by us and the remaining 19 gbtud were exported by Chevron. In 2014, Chevron and Ecopetrol delivered 98 gbtud to PDVSA, exceeding the quantity of natural gas we agreed to supply in our gas export contract. Of the total volume of gas delivered in 2014 to PDVSA, 66% came from us and 34% came from Chevron. In 2013 and 2012, Chevron and Ecopetrol delivered 204 gbtud and 186 gbtud respectively. Pursuant to the terms of the agreement, Chevron assumed 43%, and Ecopetrol 57%, of the responsibility to deliver natural gas to PDVSA.

Natural Gas Delivery Commitments

In August 2013, the CREG issued natural gas sale guidelines through Resolution 089 of 2013. Ecopetrol S.A., in accordance with those guidelines, initiated a marketing process for natural gas during 2015, in which nine contracts were signed with seven different companies, which contract commitments are mandatory for the buyers. Through that process, Ecopetrol S.A. sold 100% of Ecopetrol's Guajira gas (5.47 gbtud available for commitments of one year) and 98% of the Ecopetrol's available gas from the Cusiana and Cupiagua fields for five years (56.55 gbtud). Those commitments are in addition to the existing agreements (approximately 24.1 gbtud from Guajira and approximately 233.8 gbtud from the Cusiana and Cupiagua fields) due to expire in 2018.

The table below sets forth the commitments we have in Colombia under firm contracts with local natural gas distribution companies, local industries, gas fired power generators, and internal agreements with our refineries and fields.

Table 26 – Ecopetrol Consolidated Third Parties and Self-consumption Volumes

| | For the year ended December 31, | | | |
|--------------------------------|---------------------------------|--------------|--------------|--------------|
| | 2016 | 2017 | 2018 | 2019 |
| | (gbtud) | | | |
| Volume for sales third parties | 501.7 | 501.1 | 479.8 | 261.1 |
| Volume for self-consumption | 211.3 | 225.2 | 231.1 | 269.1 |
| Total Commitments | 713.0 | 726.3 | 710.9 | 530.2 |

Ecopetrol America Inc. is not included in the table above. In respect of Ecopetrol America Inc., it does not have any natural gas delivery or supply commitments. The natural gas produced at Ecopetrol America Inc.'s K2 field is purchased by CIMA Energy Ltd. at the Neptune Gas Plant in Louisiana and the natural gas produced at Ecopetrol America Inc.'s Dalmatian field is purchased by Murphy E & P at the Petronious Platform. Neither of these arrangements has minimum or maximum quotas.

3.4.3 Reserves

The reserves audit process was conducted in accordance with SEC definitions and rules set forth in Rule 4-10(a) of Regulation S-X and the disclosure guidelines contained in the SEC's Modernization of Oil and Gas Reporting final rule dated December 31, 2008 and effective as of January 1, 2010.

The estimated reserve amounts presented in this report, as of December 31, 2015, are based on the average prices during the 12-month period prior to the ending date of the period covered in this report, determined as the unweighted arithmetic averages of the prices in effect on the first day of the month for each month within such period, unless prices were defined by contractual arrangements, as required by the SEC regulations.

Our crude oil and natural gas net proved reserves include reserves from our subsidiaries located in the United States (Gulf of Mexico) and Peru, and Equion and Hocol's assets in Colombia.

Estimated Net Proved Reserves

The following table sets forth our estimated net proved developed reserves of crude oil and gas by region for the years ended December 31, 2015, 2014 and 2013.

Table 27 – Net Proved Developed Reserves

| Net Proved Developed Reserves | Colombia | North America | South America excluding Colombia | Total |
|---|-----------------|----------------------|---|--------------|
| Net Proved Developed oil reserves in million barrels oil equivalent | | | | |
| At December 31, 2013 | 870 | 1 | 9 | 880 |
| At December 31, 2014 | 967 | 2 | 10 | 979 |
| At December 31, 2015 | 849 | 3 | 6 | 858 |
| Net Proved Developed NGL reserves in million barrels oil equivalent | | | | |
| At December 31, 2013 | 52 | 0 | 1 | 53 |
| At December 31, 2014 | 62 | 0 | 1 | 63 |
| At December 31, 2015 | 54 | 0 | 1 | 55 |
| Net Proved Developed gas reserves in billion standard cubic feet | | | | |
| At December 31, 2013 | 2,654 | 2 | 7 | 2,663 |
| At December 31, 2014 | 3,260 | 14 | 9 | 3,284 |
| At December 31, 2015 | 3,156 | 16 | 5 | 3,176 |
| Net Proved Developed oil, NGL and gas reserves in million barrels oil equivalent | | | | |
| At December 31, 2013 | 1,387 | 2 | 11 | 1,400 |
| At December 31, 2014 | 1,602 | 5 | 12 | 1,618 |
| At December 31, 2015 | 1,457 | 5 | 7 | 1,470 |

The conversion rate used is 5,700 standard cubic feet = 1 barrel of oil equivalent.

We are required, as are all oil companies undertaking exploratory and production activities in Colombia, to pay a percentage of our production to the Government as royalties. However, the ANH's Resolution 877 of 2013, Resolution 351 of 2014 and Resolution 640 of 2014 require natural gas royalties to be paid in cash, which means that the determination of the property rights to the quantities of natural gas we produce is based on the total volume produced without deductions on account of royalties. The main producing gas fields are Cusiana, Cupiagua, Pauto, Chuchupa, Gibraltar, and Ballena which represent 93% of our gas reserves due to the change in the form of royalty payments.

The following table summarizes our proved oil, NGL and natural gas reserves, which includes 237.8 billion standard cubic feet of fuel gas within our natural gas results and 744.6 billion cubic feet of royalties, as of December 31, 2015.

Table 28 – Proved Oil, NGL and Natural Gas Reserves

| Reserves Category | Oil (million barrels) | NGL (million barrels) | Natural Gas (bcf) | Total Oil and Gas (Mmboe) |
|--|------------------------------|------------------------------|--------------------------|----------------------------------|
| PROVED DEVELOPED RESERVES | | | | |
| Total (Colombia) | 849 | 54 | 3,156 | 1,457 |
| International | | | | |
| North America | 3 | 0 | 16 | 5 |
| South America | 6 | 1 | 5 | 7 |
| TOTAL PROVED DEVELOPED RESERVES | 858 | 55 | 3,176 | 1,470 |
| PROVED UNDEVELOPED RESERVES | | | | |
| Total (Colombia) | 295 | 17 | 291 | 364 |
| International | | | | |
| North America | 7 | 0 | 9 | 9 |
| South America | 6 | 0 | 3 | 7 |
| TOTAL PROVED UNDEVELOPED RESERVES | 308 | 18 | 303 | 379 |
| TOTAL PROVED RESERVES | 1,166 | 73 | 3,479 | 1,849 |

The conversion rate used is 5,700 standard cubic feet = 1 barrel of oil equivalent.

Reserves Replacement

The reserves replacement ratio is defined as the sum of additions and revisions of proved reserves divided by produced volumes in any given period. The following table presents the changes in reserves in each category relating to the reserve replacement ratio for the years 2015, 2014 and 2013.

Changes in Proved Reserves

Table 29 – Changes in Proved Reserves

| | As of December 31 | | |
|---|-------------------|------------|------------|
| | 2015 | 2014 | 2013 |
| <i>Consolidated Company (million barrels oil equivalent) ⁽¹⁾</i> | | | |
| Revisions of previous estimates | (25) | 270 | 232 |
| Purchase of Minerals | 0 | 0 | 9 |
| Improved Recovery | 16 | 34 | 27 |
| Extensions and discoveries | 24 | 51 | 75 |
| Sales | 0 | 0 | (3) |
| Total reserves additions | 16 | 355 | 340 |
| Production | (251) | (243) | (245) |
| Net change in proved reserves | (235) | 112 | 95 |

(1) Includes Fuel gas and royalties (28 billion standard cubic feet).

The reserves replacement ratio for 2015 was 0.06 compared to 1.46 in 2014. The average replacement ratio for the last three years was 0.97.

Table 30 – Reserves Replacement Ratio

| | As of December 31 | | |
|--|-------------------|------|------|
| | 2015 | 2014 | 2013 |
| <i>Reserves replacement ratio (including purchase and sales)</i> | | | |
| Annual | 0.06 | 1.46 | 1.39 |
| Three year average | 0.97 | 1.31 | 1.37 |

Revisions of Previous Estimates

In 2015, revisions reduced reserves by 25 million boe due to economic factors and reevaluated projects, together resulting in a decrease of 199 million boe, as follows: (i) economic factors, primarily the substantial decrease in oil prices, led to a 141 million boe decrease in reserves (the ICE Brent crude price was 45% lower in 2015 as compared to 2014, which resulted in the lowering of economic limits in some of our fields) and (ii) our portfolio of projects decreased by 58 million boe.

This decrease was partially offset by:

- (i) Better production in our existing fields, as a result of new drilling operations mainly in the Castilla and Rubiales fields and positive revisions of some fields (+122 million boe) due to better than expected production performance, such as in the Chichimene field amongst other fields (+6 million boe). In addition, positive revisions were primarily driven by the Company's Transformation Program that led to a better cash flow due to higher operational efficiency.
- (ii) Development projects in the Cajua, Castilla, Chichimene, Pauto, Quifa, Rubiales, and Yarigui – Cantagallo fields, which resulted in a 97.2 million boe increase in reserves.
- (iii) A 47 million boe increase in fuel gas reserves, which represented 2.5% of total reserves and are composed of 13 producer's fields: Ballena, Chuchupa, Cupiagua, Cusiana, Floreña, Gibraltar, Infantas, La Cira, Pauto, Provincia, Recetor, and Yarigui.

Improved Recovery

In 2015, improved recovery increased reserves by 15.8 million boe. The additions were associated with the continued development of waterflood projects through existing wells, although additional drilling may be required to fully optimize the development configuration. The main additions were in Dina Cretaceo, La Cira, Tibú, Palogrande, and Casabe fields, which collectively accounted for an 11.3 million boe increase.

Extensions and Discoveries

Extensions and discoveries during 2015 amounted to 24 million boe, which is comprised of 22 million boe of extensions of proved acreage and 2 million boe from newly discovered fields and reservoirs. The newly discovered fields in Colombia corresponded to two fields, Aullador and Lisama Norte. New reservoirs were discovered in Rex, Terecay and Vigia Sur. The extensions of proved acreage resulted mainly from activities in new proved areas in five fields (Castilla, Chichimene, San Roque, Ocelote and Yarigui), which accounted for 19 million boe of the total of 22 million boe from extensions of proved acreage. The remaining 3 million boe corresponds to smaller changes in several other fields.

Purchases & Sales

In 2015, we neither purchased nor sold any participation in producing oil or gas properties.

Development of reserves

As of December 31, 2015, our total proved undeveloped oil and gas reserves amounted to 379 million boe, 54% of which are related to the Castilla, Pauto, and Rubiales fields in Colombia which have continuous development activities. The Caño Sureste, Quifa, and Tibú fields collectively account 16% of total proved undeveloped oil and gas reserves with the remaining 30% from several other fields.

Our proved undeveloped reserves represent 21% of our total proved reserves.

The company's year-end development plans are consistent with SEC guidelines for the development of proved undeveloped reserves within five years.

The following table reflects the developed and undeveloped proved reserves estimates through the past three fiscal years.

Table 31 – Developed and Undeveloped Proved Reserves

| Proved Reserves as of December 31, | Oil Mmbls | NGL Mmbls | Gas Bcf | Total Mmboe |
|------------------------------------|--------------|--------------|------------|----------------|
| 2015 proved reserves | | | | |
| Developed | 858 | 55 | 3,176 | 1,470 |
| Undeveloped | 308 | 18 | 303 | 379 |
| 2014 proved reserves | | | | |
| Developed | 979 | 63 | 3,284 | 1,618 |
| Undeveloped | 405 | 18 | 245 | 466 |
| 2013 proved reserves | | | | |
| Developed | 880 | 53 | 2,663 | 1,400 |
| Undeveloped | 497 | 4 | 405 | 572 |

Of the total amount of proved undeveloped reserves that Ecopetrol had at the end of 2014 (466 million boe), we converted approximately 76 million boe, or 16%, to proved developed reserves during 2015, primarily associated with the development of crude oil projects through drilling and workovers in the Castilla, Rubiales, Tibú, Chichimene, Yarigui – Cantagallo, Pauto, Ocelote, and Provincia, fields. These projects accounted for approximately 82% of the total conversion while the remaining 18% is associated with development execution in other fields such as the Moriche, Bonanza, and Pauto fields, among others. The amount of investments made during 2015 to convert proved undeveloped reserves to proved developed reserves was US\$1,322 million.

Changes in Undeveloped Proved Reserves

The following table reflects the main changes in undeveloped proved reserves during 2015.

Table 32 – Changes in Undeveloped Proved Reserves in 2015

| <i>Consolidated Companies</i> <i>(million barrels oil equivalent)</i> | |
|--|------|
| Revisions of previous estimates | (23) |
| Improved recovery | 9 |
| Extensions and discoveries | 4 |
| Proved Undeveloped converted to Proved Developed | (76) |
| Net change in unproved reserves | (87) |

The conversion rate used is 5,700 standard cubic feet = 1 barrel of oil equivalent.

Reserve Estimation Process

Ecopetrol's reserves process is supervised and coordinated by the Corporate Reserves Director, a highly experienced geologist and engineer, who reports to the Chief Financial Officer. The reserves audit group is comprised of reserves coordinators who are geologist and petroleum engineers, each with more than 10 years of experience in reservoir characterization, field development, estimation and reporting of reserves and who have supervision and supporting responsibilities over the professionals involved in the estimation and reporting process.

Reserves are first estimated internally, supervised and coordinated by the Corporate Manager of Reservoirs, a geologist who holds a Master's degree in geology and has more than 20 years of experience in projects associated with reservoir characterization and development, estimation, and reporting of reserves. The employees involved in the reserves process meet the Society of Petroleum Engineers qualifications for reserves estimators. Internally estimated reserves are submitted to an external audit process, which was conducted by the external engineers (Ryder Scott and DeGolyer and MacNaughton). According to our corporate policy, we report the reserves values obtained from the external engineers, even if they are lower than our internal estimated reserves.

The reserves estimation process ends when the Corporate Reserves Director consolidates the results and presents them to the Reserves Committee, which is composed of the Chief Financial Officer and the Vice-President of Development and Production. Results are presented to the Audit Committee of the Board of Directors and finally approved by the Board of Directors.

Petroleum engineering consultants DeGolyer and MacNaughton and Ryder Scott have audited Ecopetrol's proved reserves as of December 31, 2015. These external engineers audited 99% of our estimated net proved reserves. The reserves reports of the external engineers are included as exhibits to this annual report. The external engineers DeGolyer and MacNaughton, Ryder Scott audited 99% of our estimated net proved reserves for the year ended December 31, 2014 and DeGolyer and MacNaughton, Ryder Scott and Gaffney and Cline audited 99% of our estimated net proved reserves for the year ended December 31, 2013.

Ecopetrol uses deterministic methods that are commonly used internationally to estimate reserves. These methods have some uncertainty with respect to degradation, and thus, the estimates should not be interpreted as being exact amounts. However, the technology used to estimate reserves is considered reliable. The majority of the producing proved reserves were estimated by applying appropriate decline curves or other performance relationships. In analyzing decline curves, reserves were estimated by calculating economic limits that are based on current economic conditions. In certain cases, where the methods previously employed could not be used, reserves were estimated by analogy with similar reserves for which more complete data was available.

Estimates of reserves were prepared by geological and engineering standard methods commonly used in the oil and gas industry. The method or combination of methods used in the analysis of each reserve was adopted from experience analogy reserves, including information on the stage of development, quality and completeness of basic data and production history.

The following table reflects the estimated proved reserves of oil and gas as of December 31, 2013 through 2015, and the changes therein.

Table 33 – Estimated Proved Reserves of Oil and Gas

| Consolidated companies | Colombia | North America | South America | Total |
|--|----------|---------------|--------------------|---------|
| | | | excluding Colombia | |
| Net proved oil, NGL and gas reserves in mboe | | | | |
| At December 31, 2013 | 1,934 | 17 | 21 | 1,972 |
| Revisions | 264.7 | 1.7 | 4.0 | 270.4 |
| Purchase of Minerals | 0.0 | 0.0 | 0.0 | 0.0 |
| Improved Recovery | 34.1 | 0.0 | 0.0 | 34.1 |
| Extensions and discoveries | 50.1 | 0.8 | 0.0 | 50.9 |
| Sales | 0.0 | 0.0 | 0.0 | 0.0 |
| Production | (239.6) | (1.5) | (2.0) | (243.0) |
| At December 31, 2014 | 2,043 | 18 | 23 | 2,084 |
| Revisions | (14.8) | (2.8) | (7.1) | (24.7) |
| Purchase of Minerals | 0.0 | 0.0 | 0.0 | 0.0 |
| Improved Recovery | 15.8 | 0.0 | 0.0 | 15.8 |
| Extensions and discoveries | 24.4 | 0.0 | 0.0 | 24.4 |
| Sales | 0.0 | 0.0 | 0.0 | 0.0 |
| Production | (247.5) | (1.4) | (1.8) | (250.7) |
| At December 31, 2015 | 1,821 | 14 | 14 | 1,849 |

For more information regarding the potential impacts of oil prices on our reserve estimates, see the sections *Financial Review—Trend Analysis and Sensitivity Analysis* and *Risk Review—Risk Factors*.

3.4.4 *Joint Venture and Other Contractual Arrangements*

We conduct our exploration and production business through a variety of types of contractual arrangements with the Colombian government or third parties. Below is a general description of each type of contractual arrangement to which we were a party as of December 31, 2015:

Association Contract

The association contract was created by the Decree 2310 of 1974. Its purpose is the exploration of the area covered by the contract, and the exploitation of hydrocarbons found in that area. This type of contract, together with E&P contracts and Special Contracts (Casabe and La Cira) which are described below, are the most significant in terms of our production and proved reserves.

Under association contracts, the exploratory risk is assumed entirely by Ecopetrol S.A.'s contractual partner, the associate. If there is a discovery and Ecopetrol S.A. agrees that the relevant field is commercially viable, Ecopetrol S.A. will participate in the field's development. A joint account will be created and Ecopetrol S.A. and the partner will participate in the expenses and investments in the proportions established in the contract. Ecopetrol S.A. will reimburse the direct exploratory expenses incurred by the contractual partner in the proportions established by the contract.

If Ecopetrol S.A. does not believe that the relevant field is commercially viable, the partner has the right to execute on its own all activities considered necessary for the field's exploitation as a "sole risk operation", and to be reimbursed for a defined percentage of all investments for such sole risk operation in accordance with the contract.

Every association contract provides for an executive committee that makes all technical, financial and operational decisions if Ecopetrol S.A. has agreed that a field is economically viable. All major decisions of this committee must be made unanimously by the parties.

The maximum term of an association contract is 28 years. The first six years of the contract is for the exploratory phase, and is extendible for 1 or 2 more years at the partner's request. The remaining time is for the exploitation phase.

Incremental Production Contract

We enter into incremental production contracts to obtain incremental hydrocarbon production beyond a base production curve that is established based on the proven reserves of a specific field or well. Under this type of arrangement, Ecopetrol S.A. owns 100% of the hydrocarbons defined by the base production curve. The incremental production (i.e. the hydrocarbon volume obtained beyond the basic production as a result of investment activities), will be owned by the parties to such incremental production contract in the proportions established by such contract.

The initial phase of an incremental production contract has a term of up to three years, in which the contractual partner executes an initial work program approved by Ecopetrol S.A. in order to gain the right (but not the obligation) to continue with the second phase. If Ecopetrol's partner decides to continue with the project for the second phase (the complementary phase), it must inform Ecopetrol S.A. in writing no later than 90 days prior to the termination date of the initial phase and deliver a proposed development plan for each covered field. The second phase is the production phase and has a maximum term of 22 years minus the length of the initial phase.

Incremental production contracts provide for an executive committee that is responsible for taking all decisions in order to approve, control, and supervise all operations that take place during the duration of the contract. These contracts also provide for a steering committee, which is responsible for the supervision of the execution of the work programs, the annual budget, and other items.

Risk Production Contract for Discovered Undeveloped and Inactive Fields (First Round 2003)

We have entered into risk production contracts for discovered undeveloped fields to promote exploration by private companies of both undeveloped and inactive fields. Under these contracts, the contracting party assumes all costs and expenses for the development and operation of a field in exchange for a percentage interest in the fields' production as specified in the contract. This type of contract has a ten-year term calculated as from its date of execution; one year for the evaluation period and a maximum of nine years for the development period. Some of these contracts have subsequently been extended beyond their original term.

Operation for Risk Production Contracts for Discovered Undeveloped and Inactive Fields (Second Round 2005)

The contracts awarded in the second round of undeveloped and inactive discovered fields are service contracts wherein services rendered are payable with a percentage of the production. Ecopetrol S.A. keeps all rights to explore and exploit hydrocarbons found in the area.

These contracts have a 10 year term, including an evaluation period of 8 months, within which the operator has to comply with a minimum commitment to conduct a technical evaluation of the field at its own risk.

The facilities built during the term of the contract, other than facilities associated with drilled wells, will be owned by the operator, who will remain responsible for it, even after contract ends. Only drilled wells become property of Ecopetrol S.A. upon the contract's termination.

Risk Participation Contract

The purpose of this contract is the exploration of the contracted area, and the exploitation of the oil found in the contracted area. Unlike in the association contract, Ecopetrol S.A., shares exploratory risks and costs with the contractual partner, the associate, together with the oil produced, in the proportions established by the contract.

Risk participation contracts provide for an executive committee which is created upon the execution of the contract.

These contracts have 28 year terms, including an exploratory period of six years (which period is extendible under certain contracts for one or two years), after which the exploitation period commences.

Special Contracts

We are party to a Joint Venture Contract for Exploration and Exploitation of "La Cira-Infantas" Area; and a Services and Technical Collaboration Contract for the "Casabe" field.

Joint Venture Contract for Exploration and Exploitation of “La Cira-Infantas” Area

The contract between Ecopetrol S.A. and Occidental Andina LLC, executed on September 6th, 2005, has as purpose a joint collaboration between the parties with the goal of increasing the economic value of the La Cira Infantas field, by means of hydrocarbon exploration and production activities including, among others, an incremental production project to improve the recovery factor, process optimization, and exploratory activities.

Ecopetrol S.A. partially assigned its exploratory and production rights in the Contracted Area to Occidental Andina LLC. Ecopetrol S.A. provides financial resources and the preferential rights of use for the existing infrastructure in that zone and Occidental Andina LLC provides financial resources and the technical and operative experience in mature fields redevelopment projects and enhanced recovery technologies.

Ecopetrol S.A. is the operator, and on behalf of the parties is responsible for the conduction, execution and control, directly or via contractors, of the operational activities.

The contract’s term is divided in three phases. The first phase lasts 180 days, the second 730 days and the third up to the economical limit.

The incremental production, after deduction of the royalties, is owned 52% by Ecopetrol S.A. and 48% by Occidental Andina LLC. These same percentages apply to the participation in the operational and direct expenses. Adjustments to the participations for the benefit of Ecopetrol S.A. will occur if there are high production levels or high prices.

Services and Technical Collaboration Contract “Casabe”

The purpose of the contract executed between Ecopetrol S.A. and Schlumberger Surencó S.A. on April 26, 2004, is the evaluation, design and execution of work programs specifically with the purpose of increasing the value in the Casabe field, by means of development of activities to obtain incremental production, application of new technologies, application of techniques for deposits management and operational costs reduction. Ecopetrol S.A. is the operator and Schlumberger Surencó S.A. keeps the right of first option regarding the activities to be executed in the area of interest.

Both parties can invest in all the activities seeking to evaluate, obtain and incorporate incremental value in the area of interest. Such activities are developed directly by the parties or via contractors (Ecopetrol) or subcontractors (Schlumberger). Amounts expended pursuant to the contract are reimbursed depending on the incremental value (monthly valuation in USD of the results obtained from the execution of the work programs) created through the contract and the activities executed thereunder.

Both Ecopetrol S.A. and Schlumberger Surencó S.A. commit to assume full responsibility for damages and/or losses suffered by their respective personnel and goods in development of the contract, regardless of the cause. The maximum authority is the Management Committee.

The contract had an initial term of 10 years, and was amended several times to include an additional term of six years for which a new business was structured.

The National Hydrocarbons Agency (ANH) and its Contracts

The National Hydrocarbon Agency was created by Decree Law 1760 of 2003 and was given the authority to administer all national hydrocarbon reserves under contracts executed beginning on January 1, 2004 (Decree Law 1760 of 2003 states, “The Empresa Colombiana de Petróleos, Ecopetrol, is split, its organic structure is modified, and the Agencia Nacional de Hidrocarburos and the Sociedad Promotora de Energía de Colombia S.A. are created”). Prior to January 1, 2004, Ecopetrol S.A. had the authority to contract with third parties for the exploration and production of new areas. The creation of the ANH did not modify the rights or obligations of Ecopetrol or other parties with respect to contracts in existence at the time when ANH was created and Ecopetrol retains the authority to execute agreements with respect to all areas that it held as of January 1, 2004 when the ANH was created.

Below, we include a brief description of each type of contract that we have entered into with the ANH:

Technical Evaluation Agreement

This type of contract grants to the contractor the right to develop technical evaluation operations with operational autonomy at its own cost and risk, seeking to appraise the hydrocarbon potential, with the purpose of identifying the zones of prospective interest in the area by means of the execution of an exploratory program. The contractor has the option to request the conversion of a technical evaluation agreement ("Technical Evaluation Agreement" or "TEA") into one or more E&P Contracts that cover the area of the TEA (or a portion thereof).

The contractor can conduct evaluation activities for terms that vary between 18, 24 and 36 months, depending on the terms of reference of the ANH's bidding round.

E&P Contract

The ANH enters into concession contracts pursuant to which the Nation grants exploration and production rights, and receives royalties and taxes. In turn, the contractor provides 100% of the investment and expenses resources, and receives 100% of the production after royalties and taxes. The ANH has named this contract an "Exploration and Production Contract" (E&P Contract).

Pursuant to the first contractual model, the ANH only received a percentage of oil revenues in two cases: (i) when the international oil prices rose beyond a specified price, above which the ANH has a right to participate in a share of the increased revenues generated, or (ii) in the case of recognition of production rights in an extended contractual phase.

Under all E&P contracts executed since ANH's 2008 bidding round, the ANH receives a percentage of the production from the beginning of the contract, and not only in the extension phase of the contract as mentioned in the previous paragraph, in addition to economic rights when the price of oil exceeds a reference price set in the contract (high price fee) and the superfiary canon.

E&P contracts have two phases: an exploration period, which term is six years counted from the effective date, renewable for two additional years, and a production period, which is, with respect to each production field, 24 years plus any extensions, which are counted from the date of declaration of commerciality of the corresponding field. The above-mentioned terms have been modified during ANH's 2014 bidding round for unconventional and offshore reservoirs to an exploration period of nine years and a 30 years exploration period.

ANH and Ecopetrol Agreements (*Convenios*)

At the time of termination or extension of any association contract (executed by Ecopetrol S.A. before December 31, 2003), the rights over the production area and over the movable and immovable assets therein will continue to belong to Ecopetrol S.A. Pursuant to article 2 of Decree 2288 of 2004, which regulates Decree Law 1760 of 2003, Ecopetrol S.A. must execute an agreement with the ANH to regulate the exploration and exploitation terms and conditions of the relevant area, previously subject to an association contract.

Decree 2288 of 2004 also established that Ecopetrol S.A. would have to execute agreements with ANH covering fields directly operated by Ecopetrol S.A. Under these agreements ANH recognizes the exclusive right of Ecopetrol S.A. to explore and exploit the hydrocarbons property of the Nation that are obtained in the areas they cover, until resource depletion or until Ecopetrol S.A. returns the area to the Nation through the ANH.

These agreements also provide the conditions under which Ecopetrol S.A. is able to assign, partially or completely, its rights and duties thereunder to third parties.

3.5 Transportation and Logistics

3.5.1 Open Access Business Model

In October 2012, Ecopetrol transferred its direct interests in Ocesa, ODC, Oleoducto Bicentenario de Colombia S.A.S. ("Oleoducto Bicentenario"), ODL S.A. and Serviport S.A. to Cenit. On April 1, 2013, Ecopetrol S.A. transferred its hydrocarbon transport and logistics assets (crude oil and multipurpose pipelines and loading and unloading facilities) to Cenit, and Cenit started its operations as owner of the transportation and logistics infrastructure. On January 1, 2014 Ecopetrol transferred its port concessions and assets to Cenit.

The purpose of Cenit is to serve the strategic transportation and logistical needs of the country's oil and refined products industry. Furthermore, it is designed to strengthen and expand the network with high standards of industrial safety and reliability and to contribute to environmental preservation.

Cenit's commitment is to introduce transparency, equal and open access as well as to increase the focus on customer service in the hydrocarbon transportation business. In line with this, Cenit undertook initiatives to better understand customer needs, quarterly client meetings and an annual satisfaction tracker.

This decision is a step forward in the growth of the industry, as well as a signal of transparent rules to the market, by separating Ecopetrol's role as owner, planner, operator and user of transport systems. Cenit operates with an open model in which all interested parties have the possibility of accessing crude oil transportation capacity in Colombia.

Cenit contracts capacity for its pipelines to third parties, and oversees and manages transportation infrastructure projects. Cenit also takes the lead in finding and exploiting profitable transportation and logistics opportunities. Cenit's responsibilities include commercial management, system planning and development, new businesses and third-party liability.

On April 1, 2013, Ecopetrol S.A. entered into a number of contracts with Cenit establishing their ongoing relationship. Pursuant to transportation and service agreements, Cenit provides Ecopetrol S.A. for a term of 30 years with hydrocarbon and refined products transportation, storage, loading and unloading and logistics services through the transportation assets transferred to it as an in-kind capitalization. Ecopetrol S.A. also entered into an operation and maintenance agreement with Cenit pursuant to which Ecopetrol S.A. is in charge of the operation and maintenance of the transportation assets for a term of 15 years. In return, Cenit will pay Ecopetrol S.A. a variable monthly payment for the services rendered. The companies also entered into a project management agreement, pursuant to which Ecopetrol S.A. provides project management services on market terms to Cenit for a term of 15 years.

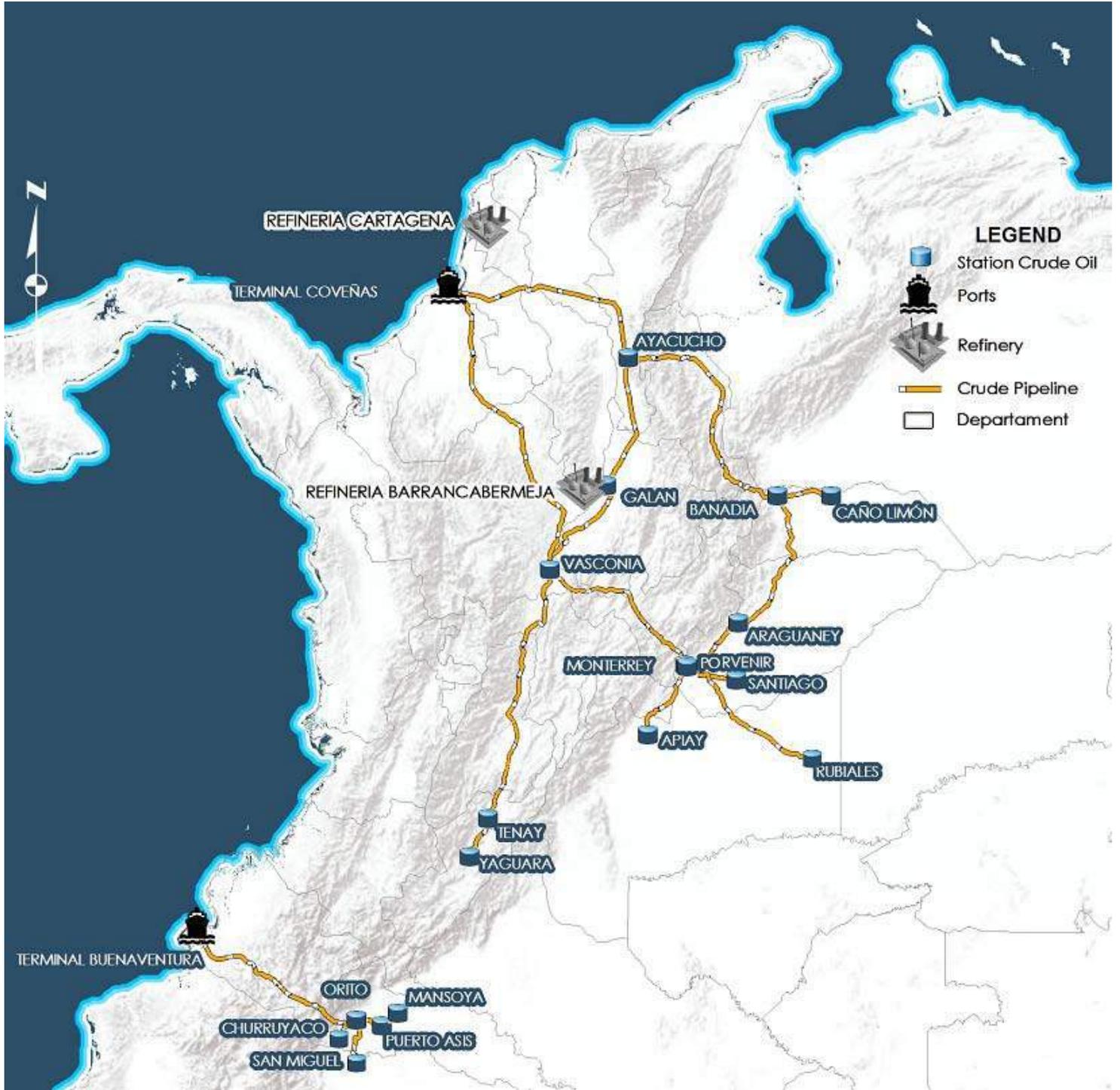
In December 2014, Ecopetrol S.A. received authorization from the Colombian Superintendence of Ports to merge its wholly owned subsidiary EPI into Cenit. This merger action was completed on December 19, 2014, adding COP\$1 billion in assets to Cenit. As a result, Cenit is now a direct wholly-owned subsidiary of Ecopetrol S.A.

3.5.1.1 Transportation Activities

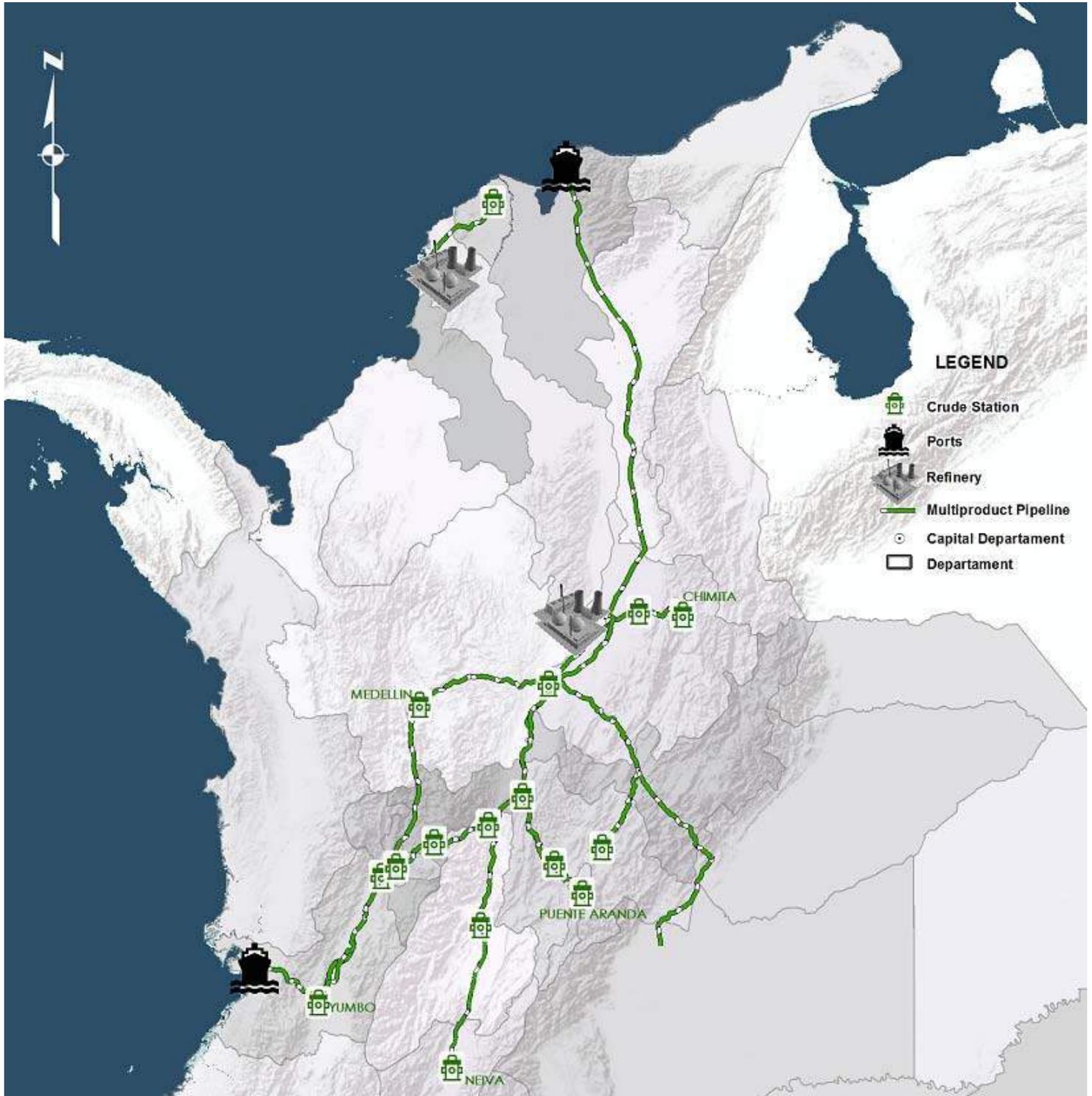
The transportation and logistics segment includes the transportation of crude oil, motor fuels, fuel oil and other refined products including diesel and biofuels. We conduct most of these activities through our wholly-owned subsidiary Cenit and Cenit's subsidiaries.

The map below shows the locations of the main transportation networks owned by our business partners and us.

Graph 6 – Map of Pipelines



Graph 7 – Map of Multipurpose Pipeline



The table below sets forth the volumes of crude oil and refined products transported through the crude oil pipelines and multipurpose pipelines owned by us.

Table 34 – Volumes of Crude Oil and Refined Products Transported

| | For the year ended December 31, | | |
|---|---------------------------------|--------------|--------------|
| | 2015 | 2014 | 2013 |
| | (thousand bpd) | | |
| Crude oil transport ⁽¹⁾ | 978 | 954 | 950 |
| Refined products transport ⁽²⁾ | 254 | 251 | 237 |
| Total | 1,232 | 1,205 | 1,187 |

(1) The crude oil transported volumes correspond to the following systems: Ocesa Segment 3, ODC, Vasconia-Galan, Ayacucho-Galan, Ayacucho-Coveñas and Trasadino Pipeline.

(2) The pipelines transporting refined products include the following: Galan-Sebastopol, Galan-Salgar, Galan-Bucaramanga, Buenaventura-Yumbo and Cartagena-Baranoa.

The volume of crude oil transported by the main Cenit systems and those of affiliates increased in 2015 by 2.5% compared to the previous year. This was mainly the result of higher volumes transported in the Caño Limón - Coveñas and Oleoducto Transandino systems due to the decline in the number of attacks against our infrastructure. Of the total volume of crude transported by oil pipeline, approximately 71% was Ecopetrol's corporate group's product.

The volume of refined products transported by Cenit increased by 1.2% in 2015 mainly due to the larger volume of naphtha (heavy crude diluent) transported in the Pozos Colorados – Galán and Galán – Apiay systems and to higher volumes being transported through the Galan – Bucaramanga system in response to increased demand in the region as a result of the closure of the Venezuela border. Of the total volume of refined products transported in refined product pipelines during the year, 23% belonged to Ecopetrol's corporate group.

Transportation Capacity

During 2015, we increased the capacity of our primary and secondary oil pipelines and loading facilities due to projects carried out by Cenit and its subsidiaries. Our main crude oil pipeline systems' operating capacity increased from 1,328,000 bpd in 2014 to 1,336,000 bpd in 2015.

Our main refined products pipeline systems increased from 457,300 bpd in 2014 to 529,000 bpd in 2015. The foregoing increase in capacity was primarily the result of the expansion in the Galan-Sebastopol and Pozos – Galan systems.

References to our crude oil transportation capacity in this annual report refer to the capacity of the pipelines that belong to Cenit and its subsidiaries to transport crude oil volumes either to the Barrancabermeja Refinery or to our export facilities. In addition, we have other feeder systems that transport oil volumes from producing facilities or other pumping stations to these main pipelines. References to our refined products transportation capacity refer to the capacity of pipelines that begin in the Galan and Cartagena station (Barrancabermeja and Cartagena Refineries).

3.5.1.2 Pipelines

As of December 31, 2015, we, directly or indirectly with private sector participants, owned, operated and maintained an extensive network of crude oil and refined products pipelines connecting our own and third-party production centers, import facilities and terminals to refineries, major distribution points and export facilities in Colombia. Cenit directly owns 46% of the total crude oil pipeline shipping capacity in Colombia (according to calculations made by Cenit). When aggregated with the crude oil pipelines in which Cenit owns an interest, Cenit owns 79% of the oil pipeline shipping capacity in Colombia (according to calculations made by Cenit). By December 31, 2015, our network of crude oil and multipurpose pipelines was approximately 8,986 kilometers in length. The transportation network consists of approximately 5,269 kilometers of main crude oil pipeline networks connecting various fields to the Barrancabermeja refinery and Reficar, as well as to export facilities. We also own 3,717 kilometers of multipurpose pipelines for transportation of refined products from the Barrancabermeja Refinery and from Reficar to wholesale distribution points.

Out of the 5,269 kilometers of crude oil pipelines owned by us 3,029 kilometers of crude oil pipeline are wholly owned and 2,240 kilometers of crude oil pipeline is owned through non-wholly owned subsidiaries.

The following table sets forth our main pipelines in which we own an indirect interest as of December 31, 2015.

Table 35 – Our Main Pipelines

| Pipeline | Kilometers | Capacity (kbpd) | Product Transported | Origin | Destination | Indirect Ownership Percentage |
|--------------------------------------|------------|-----------------|---------------------|-------------|-------------------|-------------------------------|
| Caño Limón-Coveñas | 771 | 250 | Crude Oil | Caño Limón | Coveñas | 100.00% |
| Oleoducto de Alto Magdalena (OAM) | 397 | 110 | Crude Oil | Tenay | Vasconia | 87.29% |
| Oleoducto de Colombia (ODC) | 480 | 236 | Crude Oil | Vasconia | Coveñas | 73.00% |
| Oleoducto Central (Ocensa Segment 2) | 836 | 616 | Crude Oil | Cupiagua | Coveñas | 72.65% |
| Oleoducto de los Llanos (ODL) | 262 | 340 | Crude Oil | East fields | Monterrey Cusiana | 65.00% |
| Oleoducto Bicentenario de Colombia | 230 | 110(1) | Crude Oil | Araguaney | Banadia | 55.97% |

(1) Represents the contractual crude oil transportation capacity for the project currently in operation.

As of December 31, 2015, we owned 66 stations: 32 located in crude oil pipelines, 30 in refined products pipelines, two in crude oil ports and two in refined product ports. As of December 31, 2015, we had a nominal storage capacity associated with the transportation network of 16 million barrels of crude oil and 4 million barrels of refined products. We also sell storage capacity to third parties in our Pozos Colorados, Tocancipa and Mansilla facilities and in the Coveñas port. We do not own any tankers.

Pipeline Projects

SAN FERNANDO – MONTERREY

The San Fernando – Monterrey project’s objectives include ensuring the ability to transport 390,000 bpd of diluted crude oil from the Chichimene and Castilla fields to the Monterrey pumping station, the reversion of the Monterrey – Araguaey pipeline to transport 53,000 bpd of crude oil and the transportation of 85,000 bpd of diluent (naphtha) between the Apiay station and the Castilla and Chichimene fields.

The scope of the project includes the construction of a new 30” 171 km crude oil pipeline, a receipt, storage and pumping station, and the reversion/conversion of the existing pipeline of 16” between the Castilla II plant and the Apiay station in order to transport diluent (naphtha) from the Apiay station to the Castilla II plant.

In 2015, we finished a loop increasing the capacity between Apiay and Monterrey to 300,000 bpd and continued the construction of the remaining activities of the project.

COSTA NORTE COLOMBIANA – GALÁN

The Costa Norte – Galán project’s objective is to increase the transportation capacity from 90,000 to 160,000 bpd in the Pozos – Galán system for the transportation of imported naphtha of up to 100,000 bpd and refined products (motor fuels and oils and gasoline) of up to 60,000 bpd.

The scope of the first module of the project, designed to increase capacity by 130,000 bpd, involves the construction of new infrastructure and optimization of the existing infrastructure from Pozos Colorados to Galán; the main effort is the installation of new pumping units in the Pozos Colorados and Copey stations. The second module, designed to increase capacity by 30,000 bpd, includes the construction of two storage tanks in Pozos Colorados. We began construction of the first module in 2015 and completed the project during the first quarter of 2016.

MAGDALENA MEDIO 100

The Magdalena Medio 100 project’s main objectives include increasing the storage capacity in the Coveñas – Cenit terminal to 1,200,000 barrels and the transportation capacity of crude oil in the Ayacucho – Coveñas 16” system pipeline to 100,000 bpd. During 2015, we completed the construction of four tanks and increased storage capacity in Coveñas. The project to increase the transportation capacity of crude oil in the Ayacucho – Coveñas 16” system pipeline to 100,000 bpd is currently being evaluated.

OCENSA (P135)

The OCENSA P135 project's main objective is to increase the pipeline transportation capacity by 135,000 bpd starting in the first six months of 2016. The project involves improving the pumping system and increasing the storage capacity. We currently expect the project to be completed by June 2016.

OLEODUCTO AL PACIFICO SAS

Cenit is participating in the Oleoducto al Pacífico SAS, led by Enbridge, which will transport heavy crude oil to the eastern market. In 2015, the scope of work was focused on reviewing the business case for the development of the project, conducting advance prior consultations with communities along the rights of way, negotiating project governance matters and reviewing regulatory, commercial and technical issues.

Due to the environment of the oil industry and uncertain about future volume of oil production in Colombia, the project continuity is under revision and in a hold status.

TRANSPORTATION OF HIGHER VISCOSITY CRUDES

At the close of 2015, testing was conducted successfully on various systems and information was gathered to move ahead with the analyses to transport crudes with higher level of viscosity that will allow Ecopetrol to reduce dilution costs.

The main modifications will be made on: the Los Llanos Pipeline (ODL - Oleoducto de los Llanos; Rubiales – Cusiana), on OCENSA Segment I (Cusiana – Porvenir), Segments II & III (El Porvenir – Vasconia – Coveñas) and on the Colombia Pipeline (ODC – Oleoducto de Colombia). This project, combined with the expansion of capacity on Ocesa (P-135), will make it possible to transport higher viscosity crudes.

3.5.1.3 Export and Import Facilities

We currently have concessions granted by the Nation for four export/import docks for crude oil and refined products: Coveñas, Tumaco, Pozos Colorados and Buenaventura. Our export capacity reached 1.14 million bpd for crude oil. Our import capacity of refined products reached 0.16 million bpd.

Our crude oil loading facilities can load tankers of up to 350,000 deadweight tonnage, or DWT. Adjacent to these loading facilities we also have crude oil storage facilities that are capable of storing 7.7 million barrels. Our docks used for import and export of refined products can load tankers of 70 thousand DWT. Additionally, these facilities have storage capacity of up to 1.2 million barrels.

3.5.2 Other Transportation Facilities

We have entered into transportation agreements with tanker-truck and barge companies in order to transport crude oil from locations that do not have pipeline connections to refineries and export facilities. The volume of refined products that cannot be transported in pipelines or in tanker trucks because of capacity limitation is transported by barges. During 2015, 38 million barrels of crude oil and refined products were transported by tanker trucks and 7.6 million barrels of crude oil and refined products were transported by barges, specially using Rio Magdalena, connecting Barrancabermeja with Barranquilla and Cartagena.

3.5.3 Vice-Presidency of Transportation and Logistics

Ecopetrol S.A., through its Vice-Presidency of Transportation and Logistics, operates Cenit's pipelines pursuant to a contract with Cenit. The Vice-Presidency of Transportation and Logistics focuses on maintaining the integrity of the transportation infrastructure by improving our operational risk model for transportation infrastructure with respect to weather conditions and damage caused by third parties, as well as deploying new technologies to monitor transportation infrastructure and its environment and to permit intervention in portions of the infrastructure where it is susceptible to incidents that could have severe consequences.

The Vice-Presidency of Transportation and Logistics now comprises four main areas: Operations and Maintenance, Comprehensive Transportation and Logistics Solutions, Asset Management, and Commercial and Customer Service. All of these areas aim to accomplish their obligations to their customers: Cenit, ODL, ODC, Ocesa and Oleoducto Bicentenario.

During 2015, we met our customer satisfaction index goal, and we maintained our ISO 9001:2008, GP1000:2009, ISO 14001:2004 and OHSAS 18001:2007 certifications for all of our transportation processes. We also attained the certification by the Oil Companies International Marine Forum, which provides standards for hydrocarbons reception, storage, dispatch by pipes and pipelines and the import and export facilities of our ports.

3.5.4 Marketing of Transportation Services

Cenit and its subsidiaries' main line of business is the crude oil pipeline transport (57% of revenues), followed by the refined products pipeline transport (29% of revenues) and ports and related services (8% of revenues).

Transportation contracts of crude oil may take several forms: ship or pay (payment for the availability of a fixed capacity in the system), ship and pay (payment for volumes actually transported) or spot. The main clients for the crude oil transportation business are Ecopetrol S.A., Pacific Rubiales Energy, Occidental de Colombia, Hocol, Mansarovar and Gran Tierra, who collectively represented 94% of this business segment's revenues in 2015. Transportation services for crude oil provided to Ecopetrol S.A. represented 69% of this business segment's crude oil transport revenues.

Cenit also transports refined products. The main client for this service is Ecopetrol S.A., which accounted for 37% of refined products pipeline transport revenues in 2015, principally due to the transport of naphtha. Cenit also has 15 other fuel wholesaler customers for whom it transports other refined products. Wholesalers representing most of the volume are Organizacion Terpel, ExxonMobil, Chevron Petroleum Company, Biocombustibles and Petrobras Colombia.

Cenit transports LPG for 16 clients, under written contracts. LPG transport represents less than 1% of Cenit's revenue.

Deregulated businesses such as ports and crude loading facilities represent a smaller portion of Cenit's revenue (8% in 2015). Clients for these businesses include some of the same parties for which Cenit provides crude oil and refined products transportation services.

3.6 Refining and Petrochemicals

3.6.1 Refining

Our main refineries are the Barrancabermeja Refinery, which Ecopetrol S.A. directly owns and operates, and a refinery in the Free Trade Zone in Cartagena that is operated by Reficar S.A., a wholly owned subsidiary of Ecopetrol S.A. Ecopetrol S.A. also owns and operates two other minor refineries – Orito and Apiay, but these are considered part of the exploration and production segment since the majority of the products produced by them are used by us.

Our refineries produce a full range of refined products, including gasoline, diesel, jet fuel, liquefied petroleum gas (LPG), and heavy fuel oils, among others.

The following table sets forth our daily average installed and actual refinery capacity for each of the last three years:

Table 36 – Daily Average Installed and Actual Refinery Capacity

| | For the year ended December 31, | | | | | | | | |
|------------------------|---------------------------------|--------------------------|------------|-------------------|--------------------------|------------|-------------------|--------------------------|------------|
| | 2015 | | | 2014 | | | 2013 | | |
| | Capacity (bpd) | Through- put (bpd) | % Use | Capacity (bpd) | Through- put (bpd) | % Use | Capacity (bpd) | Through- put (bpd) | % Use |
| Barrancabermeja | 250,000 | 221,900 | 89% | 250,000 | 226,900 | 91% | 250,000 | 214,845 | 86% |
| Reficar ⁽¹⁾ | 165,000 | 10,428 | 6% | 80,000 | 10,420 | 13% | 80,000 | 66,314 | 83% |
| Apiay ⁽²⁾ | 2,500 | 1,604 | 64% | 2,500 | 1,380 | 55% | 2,500 | 1,303 | 52% |
| Orito ⁽²⁾ | 2,500 | 929 | 37% | 2,500 | 1,784 | 71% | 2,500 | 900 | 36% |
| Total | 420,000 | 234,861 | 56% | 335,000 | 240,484 | 72% | 335,000 | 283,362 | 85% |

(1) Reficar operations were shut down in March 2014 for the expansion and modernization plan. The new crude unit began start-up process in October 2015. As of the date of this annual report, the construction of the entire expansion and modernization project has been completed.

(2) Apiay and Orito are considered to be part of the exploration and production segment, not the refining segment, and the majority of products produced by them are used by us (self-consumption).

3.6.1.1 *Barrancabermeja Refinery*

At the Barrancabermeja Refinery, we produce a variety of fuels, such as regular and premium unleaded gasoline, diesel fuel, kerosene, jet fuel, aviation fuel, LPG, fuel oil and sulfur. We also produce petrochemicals and industrial products, including paraffin waxes, lube base oils, low-density polyethylene, aromatics, asphalts, alkylates, cyclohexane and aliphatic solvents, as well as refinery grade propylene. The Barrancabermeja Refinery supplies 75.6% of the fuels consumed in Colombia according to internal calculations based on the Barrancabermeja refinery's production and Colombia's fuels consumption reported by the Ministry of Finance.

The following table sets forth the production of refined products of Barrancabermeja for the periods indicated.

Table 37 – Production of Refined Products of Barrancabermeja

| | For the year ended December 31, | | |
|---|---------------------------------|----------------|----------------|
| | 2015 | 2014 | 2013 |
| LPG, Propylene and Butane | 13,623 | 13,834 | 13,572 |
| Gasoline Fuels and Naphtha | 59,487 | 68,914 | 67,592 |
| Diesel | 46,212 | 44,273 | 45,179 |
| Jet Fuel and Kerosene | 22,388 | 23,227 | 19,546 |
| Fuel Oil | 64,306 | 66,928 | 58,852 |
| Lube Base Oils and Waxes | 521 | 1,103 | 1,468 |
| Aromatics and Solvents | 3,197 | 2,640 | 2,632 |
| Asphalts and Aromatic Tar | 9,519 | 7,501 | 6,174 |
| Polyethylene, Sulfur and Sulfuric Acid | 1,318 | 1,094 | 1,118 |
| Total | 220,571 | 229,515 | 216,133 |
| Difference between Inventory of Intermediate Products | 142 | (640) | 538 |
| Total Production | 220,713 | 228,875 | 216,671 |

In 2015, total production in the Barrancabermeja Refinery decreased 3.5% from 228,875 bpd in 2014 to 220,713 bpd in 2015 due to the scheduled maintenance of one of its crude refining units in August 2015.

The gross refining margin increased from US\$14.60 per barrel in 2014 to US\$16.80 per barrel in 2015, primarily due to: 1) an increase in the yields achieved by medium distillates, 2) an increase in the prices of LPG, Gasoline and Fuel Oil, and 3) the implementation of operating initiatives to increase the value of LPG and residual streams.

The average conversion ratio for Barrancabermeja Refinery was 73.5% in 2015 and 71.4% in 2014. This increase in the conversion ratio was primarily caused by more efficient operations by the crude units and higher throughput in the cracking units.

During 2015, the Barrancabermeja Refinery delivered 29.82 mboepd of low sulfur gasoline (less than 300 parts per million sulfur content) and 36.35 mboepd of low sulfur diesel (less than 50 parts per million sulfur content) to meet existing fuel quality standards while partially satisfying rising domestic demand, which was supplemented with imports. In order to do so, in 2015 we decreased imports of ultra-low sulfur diesel by 2 mboepd from the 2014 level and increased imports of gasoline by 17.1 mbpd from the 2014 level.

Natural gas from the Ballena terminal located in the La Guajira fields is transported to the Barrancabermeja Refinery pursuant to a natural gas transportation agreement entered into on October 1, 2008, between Ecopetrol and TGI for the transportation of 116,500 thousand cfpd from December 1, 2012 to December 31, 2020. Pursuant to the terms of the agreement, we pay to TGI a regulated transportation tariff composed of a fixed fee, variable fee depending on transported volumes and an administration, operation and maintenance fee. Payments for transported volume are quoted in U.S. dollars and settled in Colombian Pesos. During 2015, we paid COP\$153.3 billion to TGI under the agreement.

3.6.1.2 Reficar

The following table sets forth the production of refined products of Reficar for the periods indicated.

Table 38 – Production of Refined Products of Reficar

| | For the year ended December 31, ⁽¹⁾ | | |
|---|--|---------------|---------------|
| | 2015 | 2014 | 2013 |
| | (bpd) | | |
| LPG, Propylene and Butane | 0 | 0 | 3,264 |
| Motor Fuels | 1,558 | 1,997 | 19,679 |
| Diesel | 2,282 | 2,254 | 15,669 |
| Jet Fuel and Kerosene | 1,202 | 812 | 6,090 |
| Fuel Oil | 2,826 | 3,352 | 15,468 |
| Aromatic Tar | 0 | 0 | 691 |
| Other Products | 0 | 0 | 27 |
| Total | 7,868 | 8,415 | 60,888 |
| Difference between Inventory of Intermediate Products | 2,476 | 1,896 | 6,613 |
| Total Production | 10,344 | 10,311 | 67,502 |

(1) The table shows the entire production of Reficar. The refinery was shut down in March 2014 and began the start-up process in October of 2015.

In connection with its expansion and modernization project, Reficar was shut down for most of the year 2015. Following the planned start-up of its units, Reficar operated at half capacity from November to December of 2015.

The following tables set forth the imports and sales of refined products of Reficar for the periods indicated.

Table 39 – Imports and Sales of Refined Products of Reficar

| | For the year ended December 31, | | |
|-----------------------|--|---------------|---------------|
| | 2015 | 2014 | 2013 |
| | (bpd) | | |
| Imports | | | |
| Motor Fuels | 15,112 | 11,460 | 5,742 |
| Diesel | 21,979 | 18,334 | 17,490 |
| Jet Fuel and Kerosene | 4,384 | 3,419 | 0 |
| Total Imports | 41,475 | 33,213 | 23,232 |
| Sales | | | |
| Motor Fuels | 16,101 | 14,154 | 21,561 |
| Diesel | 22,692 | 21,942 | 34,548 |
| Jet Fuel and Kerosene | 5,012 | 3,681 | 5,468 |
| Fuel Oil | 2,066 | 4,335 | 15,014 |
| Other Products | 2,281 | 2,194 | 11,448 |
| Total Sales | 48,152 | 46,306 | 88,039 |

During 2015, Reficar imported products to cover the North Coast sales demand. In connection with the startup of the crude oil unit in October 2015, Reficar also imported fuel oil, virgin naphtha and butanes in order to fulfill local demand. We expect to increase the competitiveness and profitability of Reficar through the modernization of its facilities and processes, and the improvement of its reliability based on the much higher automation capability. We currently expect to complete the modernization process and reach the normal operating condition during the second quarter of 2016.

Upon full completion of the project and once all the performance tests are completed, Reficar will have the capacity to processing between 150 - 165 thousand barrels of oil per day. Further we expect to improve refining margins by processing lower cost heavy and acid crude oils, taking advantage of the current buyer's market. We have also started processing foreign crudes for the first time, to identify the best crude blend for the new facility in order to improve our conversion ratio, and producing a higher quality slate of products. We also expect to reduce the sulfur content in gasoline and diesel fuel, thus complying with current national and international fuel standards without the need to blend imported ultra low sulfur diesel. Being able to produce better quality fuels will also allow us to explore new markets abroad.

On December 30, 2011, with the approval from the Ministry of Finance and Public Credit, Reficar executed a US\$3.5 billion project finance to partially fund the expansion and modernization of the refinery in Cartagena, loans with tenures of 14 and 16 years for Commercial Banks and Export Credit Agency Facilities, respectively. The aggregate amount drawn under these finance agreements as of December 31, 2015 totaled US\$3,496.5 million. As of December 31, 2015, the principal amount owed to the senior lenders under these finance agreements was US\$3,065.3 million. Interest payments during 2014 and 2015 were US\$96 million and US\$92 million, respectively.

As part of the project finance structure, Ecopetrol S.A. entered into a Construction Support Agreement (the "Construction Support Agreement") and a Debt Service Guarantee Agreement (the "Debt Service Guarantee Agreement") to support certain obligations of Reficar. Pursuant to the terms of the Construction Support Agreement, Ecopetrol S.A. agrees to support up to the completion date, any additional costs, expenses or delays incurred during the construction phase of the expansion and modernization of the refinery in Cartagena.

During 2015, the requested amount by Reficar under the Construction Support Agreement was US\$722 million, which was contributed by means of capital injections.

By means of the Debt Service Guarantee Agreement, Ecopetrol S.A. provides a liquidity mechanism, allowing Reficar to pay its debt service in situations in which there are liquidity shortfalls, as well as being a mechanism to exit the project finance by transferring its debt at the level of Ecopetrol S.A. in case of the occurrence of a Mandatory Debt Assumption Event as defined in the credit agreement.

During 2015, the requested amount by Reficar under the Debt Service Guarantee Agreement was US\$378 million, which was contributed by means of capital injections of US\$193 million to cover the debt service in the first half of 2015 and US\$185 to cover the debt service in the second half of 2015.

In total, the Reficar modernization project has had capital expenditure needs of US\$8,016 million and interest and commission payment needs of US\$424 million during construction, for a total of US\$8,440 million. This amount has been financed as follows:

- An initial contribution of US\$1,503 million from Ecopetrol which was received from 2008 to 2011;

- US\$3,496.5 million from the project finance loans described above; and
- Contributions of US\$3,441 million from Ecopetrol through the Construction Support Agreement described above.

In addition and in order to cover the existing refinery needs for 2015, Reficar requested an additional capital injection from Ecopetrol S.A. of US\$289 million, which was granted. Further, in order to finance the requirements of the startup process of the new refinery, Ecopetrol S.A. provided Reficar with an additional capital injection of US\$194 million in 2015. As a result, total capital injections during 2015 from Ecopetrol S.A. to Reficar reached an amount of US\$1,583 million.

3.6.2 Petrochemicals and Other Products

We own and operate four petrochemical plants and one paraffin and lube plant located within the Barrancabermeja Refinery. In 2015, we produced 44,161 tons per year of low-density polyethylene, an increase of 42% compared to the production of 31,051 tons per year in 2014. This increase was due primarily to the recovery of the Turbo expander unit, which resumed operations in August 2015 and supplied a greater amount of feedstock (ethylene) to polyethylene plants. We produced 2,259 mboepd of aromatics (benzene, toluene, xylene, orthoxylene, heavy aromatics and cyclohexane), a 113% increase as compared with the production of 1,118 mboepd of aromatics in 2014. The growth was mainly the result of the stability of the unit during 2015 as compared to the scheduled turnaround of the unit in 2014.

3.6.2.1 Polipropileno del Caribe S.A.

During 2015, Propilco production totaled 434 thousand tons of petrochemical products, an 11.5% increase compared to the 390 thousand tons produced in 2014, due to higher sales volumes explained by greater competitiveness and lower availability of Asian competitors in the local market. The total contribution margin in 2015 (including the contribution of polypropylene, polyethylene and masterbatches) was 24% higher than in 2014, an increase from US\$239.00 per ton in 2014 to US\$297.00 per ton in 2015. The increase in contribution margin was primarily due to the execution of a new commercial strategy focused on differentiation and value-added products and services.

Table 40 – Operating Capacity of Propilco

| | For the year ended December 31, | | |
|------------------|---------------------------------|---------|---------|
| | 2015 | 2014 | 2013 |
| | (Metric Tons) | | |
| Average capacity | 470,000 | 475,000 | 475,000 |
| Throughput | 434,484 | 389,604 | 395,869 |
| % Use | 92% | 82% | 83% |

3.6.2.2 Biofuels

We have investments in two biofuels companies: (i) Bioenergy S.A., in which we own 96.2% of the shares, currently advancing on the construction of an ethanol plant with theoretical capacity of 480,000 liters / day, and (ii) Ecodiesel S.A., in which we own 50% of the shares, currently in operations with a theoretical capacity of 100,000 tons per year of biodiesel.

3.6.3 Marketing and Supply of Refined Products

We are the main producer and supplier of refined products in Colombia. We market a full range of refined and feed-stock products including regular and high octane gasoline, diesel fuel, jet fuel, natural gas and petrochemical products, among others.

In 2015, Ecopetrol sold 1,005.9 mboepd, out of which 362.7 mboepd represented sales of products (36.1%) including refined products like liquid fuels, LPG and fuel oil, petrochemicals and industrials.

The sales of products grew 13.6 mboepd, an increase of 3.9% compared with 2014. Out of this, fuel domestic sales increased by 22.5 mboepd, 8.4% more, mainly due to: (i) the rise in demand for gasoline and diesel resulting from the increase of number of vehicles in Colombia, (ii) the closure of Colombia's border with Venezuela as customers in that area shifted their demand to Ecopetrol and (iii) a higher consumption of thermal electricity during late 2015 due to warmer weather caused by the "El Niño" climate phenomenon, among other factors. Exports of fuels decreased by 8.9 mboepd, a reduction of 10.8% as compared to 2014, due to lower fuel oil production in the Barrancabermeja Refinery and decreased exports by Reficar. This reduction was partially offset by an increase in Propilco's exports of close to 1.1 mboepd in 2015 as compared to 2014.

In addition, local sales of petrochemicals (included in domestic sales of products) remained stable over the previous year (21.6 mboepd in 2015 compared with 20.2 mboepd in 2014), due to an increase in asphalt and aromatic solvents sales by Ecopetrol S.A. and an increase in Propilco's sales.

Local sales of regular gasoline, LPG, jet fuel and diesel fuel are subject to government price regulation with reference to international benchmarks.

The CREG, has the responsibility of setting forth regulations for the control and surveillance of the activities of refining, importation, storage, distribution and transportation of liquid fuels derived from petroleum. Until 2011, according to Decree 4130, this function was performed by the Ministry of Mines and Energy.

The responsibilities assigned to the CREG are:

- Setting the prices of petroleum products along the entire chain of production and distribution (except for regular gasoline, diesel and biofuels, the retail prices for which are set by the Ministry of Mines and Energy)
- Regulating the activities of refining, importation, storage, distribution and transportation of liquid fuels derived from petroleum.
- Regulate tariffs for transportation of liquid fuels.
- Regulating LPG, including LPG prices.

3.7 Research and Development; Intellectual Property

The Vice-Presidency of Technology and Innovation was created in March 2012 to add value to our business segments through innovation and the development of technology, knowledge management and a competitive advantage. The Vice-Presidency of Technology oversees three directorates: the Colombian Petroleum Institute, the Directorate of Information Technology and the new Strategic Directorate of Knowledge, Innovation and Technology.

Our applied scientific research and technology development activities are conducted by the Colombian Petroleum Institute. The focus in technology development is on designing high value-add products and solutions for us and the Colombian oil industry. The scope of the Colombian Petroleum Institute activities covers all of our value chain segments: exploration, production, refining, transportation and commercialization, as well as environmental sustainability, asset integrity and automation. Our total budget in science and technology during 2015 was approximately US\$75 million. Each year we present to the Colombian Institute for the Development of Science and Technology (*Instituto Colombiano para el Desarrollo de la Ciencia y la Tecnología*, or COLCIENCIAS) our research, technology development projects and innovation initiatives in order to obtain certification for our science and technology investments. COLCIENCIAS certifies science and technology investments, which are deductible from income tax upon execution; and we take advantage of that tax benefit. In 2015, we obtained US\$28 million in tax benefits from our science and technology investments that COLCIENCIAS certified in previous years.

Our intellectual capital is preserved through a technological value-generation process and an intellectual property protection process, which includes the consolidation of trade secrets, patents, copyrights, trademarks and publications in specialized journals. We filed 188 patent applications in the last ten years, including 15 in 2015, for new technologies related to equipment and processes for enhanced oil recovery, in-situ combustion, artificial lift system processes, heavy oil acidity reduction, specialized coatings for transportation pipelines and planning of refinery processes, among others. In 2015, Ecopetrol filed its first trade secret, which is related to palynology and biostratigraphy-related information from Colombian basins and formations.

We currently hold 70 patents in Colombia, the United States, China, Mexico, Russia, Peru, Venezuela, Ecuador, Brazil, Nigeria, Korea and Indonesia. In 2015, we were granted 10 new patents and 63 copyrights. We also have 33 trademarks.

In 2015, five technological products developed by Ecopetrol were licensed to national and multi-national companies for marketing and after-sales support. To date, we have licensed a total of 16 technologies. These licensed technological products have been tested and successfully used in our organization to solve problems related to refining, production and transportation of hydrocarbons, and some have potential uses in other industries.

3.8 Applicable Laws and Regulations

3.8.1 Principal Regulatory Bodies

The main authorities that regulate our activities in Colombia are: the Ministry of Mines and Energy, the National Hydrocarbons Agency (ANH), the Energy and Gas Regulatory Commission (CREG), the Ministry of Environment and Sustainable Development, and the National Authority on Environmental Licensing (ANLA).

Ministry of Mines and Energy

The Ministry of Mines and Energy is responsible for managing and regulating Colombia's non-renewable natural resources, ensuring their optimal use by defining and adopting national policies regarding exploration, production, transportation, refining, distribution and export of minerals and hydrocarbons.

National Hydrocarbons Agency – ANH

The ANH's purpose is to manage the hydrocarbon reserves owned by the Nation through the design, promotion and negotiation of the exploration and production agreements in areas where hydrocarbons may be found that are not (i) subject to joint ventures executed before December 31, 2003 and still in force or (ii) directly operated by Ecopetrol S.A.

The ANH is also responsible for creating and maintaining attractive conditions for investments in the hydrocarbon sector and for designing bidding rounds for exploration blocks. Furthermore, the ANH is responsible for managing all the royalties paid by oil and gas producers in Colombia.

From 1974 until the issuance of Decree Law 1760 of 2003, the role that the ANH currently has as administrator of the Nation's hydrocarbon resources was performed by Ecopetrol. As part of this public function, Ecopetrol had the authority to assign areas for exploration and to execute various types of contracts with third parties, with the exception of concession contracts. As from 2003, and with the issuance of Decree Law 1760 of 2003, the public function of administration of the Nation's hydrocarbon resources was assigned to the ANH, and Ecopetrol transferred all exploratory areas to the ANH, with certain exceptions as indicated below.

The aforementioned Decree Law provided that Ecopetrol would continue administrating association contracts executed by Ecopetrol with third parties before the date of entry into force of Decree Law 1760. It also provided that Ecopetrol would keep the exploration and productions rights to all areas that it was operating directly and/or subject to other service contracts or incremental production contracts different to association contracts. Therefore, the reform enacted in 2003 created a transitional regime by virtue of which Ecopetrol kept the administration of association contracts. This administration authority was confirmed by Decrees 4137 of 2011, and 714 of 2012 wherein it is clearly stated that ANH does not administrate association contracts.

Energy and Gas Regulatory Commission – CREG

The CREG, a special administrative unit of the Ministry of Mines and Energy, is responsible for establishing the standards for the exploitation and use of energy and regulating the domestic utilities of electricity and fuel gas (liquefied petroleum gas and natural gas). CREG is also responsible for fostering the development of the energy services industry, promoting competition and responding to consumer and industry needs. It sets prices of petroleum products, except for regular motor gasoline, diesel and biofuels, along the entire chain of production and distribution; determines criteria and methodology for calculating the price of fuel; carries out the studies required for the determination and pricing of natural gas destined for use as automotive fuel and other purposes inherent in the commercialization of the same; regulates the rates in Colombian Pesos per kilometer/gallon for transportation through the pipeline system; and regulates the activities of refining, import, storage, distribution and transportation of liquid fuels derived from petroleum.

Ministry of Environment and Sustainable Development

The Ministry of Environment and Sustainable Development has among its main functions the issuance of public policies regarding the use and exploitation of natural resources and the regulation of national environmental laws.

The Ministry of Environment and Sustainable Development defines the procedures and guidelines that regulate the issuance of environmental licenses and permits necessary for the development of the following activities: production, exploration, extraction, transportation and refining.

National Authority on Environmental Licensing (ANLA)

The National Authority on Environmental Licensing issues environmental licenses and permits required for hydrocarbon-related activities. The ANLA is an administrative unit of the Ministry of Environment and Sustainable Development. Additionally, the National Authority on Environmental Licensing constantly monitors license compliance, handles complaints and grievances presented by local communities, and has overall responsibility for regulating the procedures by which the environmental permits needed for Ecopetrol's operation are issued and enforced. The ANLA also has power to impose preventive measures and/or sanctions to offenders of environmental laws and regulations.

Other Authorities Related to Environmental Matters

Regional Autonomous Corporations (Corporaciones Autónomas Regionales)

The regional autonomous corporations are the entities responsible for the administration of natural resources located within their respective jurisdictions. Although they do not have legal jurisdiction over issues related to the oil industry, they are responsible for granting permits for the use of certain natural resources, such as water, air and soil necessary for the development of our activities.

Ministry of Internal Affairs

The Ministry of Internal Affairs is responsible for certifying the existence of ethnic communities, such as Aboriginal, Afro-Colombian and "Raizales", a Colombian legal term that refers to the people born in the San Andrés Island archipelago. Such certification is intended to establish the presence of ethnic communities in areas in which seismic, exploration, extraction, transportation and refining activities are intended to take place. In addition, the Ministry has the ability to issue general guidelines that must be fulfilled through consultation with the relevant communities and which are necessary for the viability of any work, project or activity intended to be done in the territories of those communities.

3.8.2 Regulation of Exploration and Production Activities

3.8.2.1 Business Regulation

Pursuant to the Colombian Constitution, the Nation is the exclusive owner of all hydrocarbon resources located in Colombia and has full authority to determine the rights to be held and royalties or compensation to be paid by investors for the exploration or production of any hydrocarbon reserves. The Ministry of Mines and Energy and the ANH are the authorities responsible for regulating all activities related to the exploration and production of hydrocarbons in Colombia.

Decree Law 1056 of 1953 (the Petroleum Code, or *Código de Petróleos*) declares that the hydrocarbon industry and its activities of exploration, exploitation, refinement, transportation are of public interest, which means that, in the interest of the hydrocarbon industry, the Colombian government may order necessary expropriations in order to develop such industry. The hydrocarbon industry is under governmental supervision and control, regulated mainly by the Ministry of Mines and Energy and the ANH.

Ministry of Mines and Energy Resolution 18 1495 of 2009, as amended by Resolution 40048 of 2015, establishes a series of regulations regarding hydrocarbon exploration and production.

Ministry of Mines and Energy Resolution 18 0742 of 2012, as amended by Resolution 90341 of 2014, included a series of technical regulations for unconventional hydrocarbon resources, including the procedures for advancing the exploration and exploitation of unconventional reserves. It also establishes the types of wells and their classification as well as the fulfillment of those minimum (drilling and abandoning) conditions, necessary to initiate or perform E&P activities. Furthermore, it contemplates the applicable procedure to resolve disputes between mining sector and the oil and gas sector, regarding the coexistence of their rights in some specific projects.

On May 26, 2015, the Ministry of Mines and Energy issued Decree 1073 which compiles the majority of Colombian decrees and regulations in force regarding the administrative sector of mines and energy.

Agreement (*Acuerdo*, a type of regulation) 004 of 2012, as issued by the ANH, amends Agreement 008 of 2004 and sets forth the rules governing the award of exploration and production areas and the execution of contracts.

Agreement 003 of 2014, as issued by the ANH, complements Agreement 004 of 2012 by setting forth the contractual framework for the carrying out of activities in unconventional reservoirs, the procurement regulations for the exploration and exploitation of unconventional fields and the procurement process for the awarding of hydrocarbon exploration and exploitation areas.

Agreement 002 of 2015, as issued by the ANH, amends Agreement 004 of 2012 and sets forth the initial rules and measures the Government can take to mitigate the adverse effects of the decline of international oil prices. The main measures established by this agreement are the following:

- (i) The extension of terms and deadlines for the execution of activities related to investments in exploration and evaluation phases and for the declaration of commercial discoveries; and
- (ii) The establishment of procedures to transfer investments in exploration programs between allocated areas.

Agreement 003 of 2015, as issued by the ANH, modifies and also amends Agreement 004 of 2012, and provides certain rules and measures the Government can take to mitigate the adverse effects of the decline of international oil prices. This agreement permits performance guarantees required under E&P contracts to be reduced in the same amount as the works actually performed during the term of the respective phase.

Agreement 004 of 2015, as issued by the ANH, also amends Agreement 004 of 2012, and provides certain rules and measures for the Government to mitigate the adverse effects of the decline of international oil prices. This agreement allows contractors to attribute additional activities carried out under a TEA to commitments under the first phase of an E&P contract.

3.8.2.1.1. Environmental Licensing and Prior Consultation

Law 99 of 1993 and other environmental regulations, such as particularly Decree 1076 of 2015, impose on companies, including oil and gas companies, the obligation to obtain an environmental license prior to undertaking any activity that may result in the serious deterioration of renewable natural resources, or that have the capacity of materially modifying the physical environment.

The National Authority on Environmental Licensing (ANLA), created by means of Decree 3573 of 2011, is the entity responsible for evaluating the applications and issuing the environmental licenses for oil & gas-related activities, as well as surveilling and overseeing all hydrocarbons projects and monitoring the environmental compliance of such activities.

If the projects or activities could have a direct impact over the territories or the interests of indigenous, Afro-Colombian or Raizal communities, the Colombian Constitution provides that the companies developing such projects or activities must undertake a consultancy process with those communities before initiating such projects or activities. This consultation procedure is a pre-requisite for obtaining the required environmental licenses.

In addition, the Colombian Constitution and laws establish that, as part of the public participation mechanisms, Colombian individuals may request information regarding the activities of the project and their potential impacts. They may also request to undertake an environmental hearing so as to obtain information the project.

On May 26, 2015, the Ministry of Environment and Sustainable Development issued Decree 1076, which compiles the majority of Colombian regulations in force regarding environment and sustainable development.

The environmental licensing process encompasses all of the necessary permits, authorizations, concessions and other control instruments necessary under Colombian environmental law to undertake a project or activity that may result in the serious deterioration of renewable natural resources, or that have the capacity of materially modifying the physical environment. The licensing process establishes specific conditions under which the beneficiary of the license may undertake such project or activity. This process begins when the company files an Environmental Impact Study (EIA) related to the project with the ANLA. The licensing process includes an application for the use of natural renewable resources (water, soil and air), the filing of an EIA and a plan to prevent, mitigate, correct and compensate for any activity that may harm the environment, known as the Environmental Management Plan (PMA).

A new environmental licensing process came into force in Colombia on January 1, 2015 as a result of the enactment of Decree 2041 of 2014, which now is compiled by Decree 1076 of May 26 2015, repealing the licensing process defined in decree 2820 of 2010. According to the regulation currently in effect, the procedure to obtain an environmental license shall not take more than 90 business days but, depending on the complexity of the information requested by the ANLA and administrative delays, including whether it is necessary to establish a government committee to determine the viability of the project, the procedure may take between 165 and 265 business days, depending on whether the applicant is required to file additional information. The new procedure incorporates an oral hearing between the ANLA and the applicant in order to evaluate the information provided in the license application and whether it is necessary to request additional information about the proposed project. The ANLA will have no other opportunities to request additional information after this hearing.

The Ministry of Environment and Sustainable Development is also responsible for establishing guidelines regarding climate change policies for the hydrocarbon sector in Colombia. We are in compliance with those guidelines. At present, the Ministry of Environment and Sustainable Development has not proposed any specific steps for the implementation of the Kyoto Protocol as it relates to our operations. We are continuously monitoring climate change requirements that could be applicable to us.

A company that does not comply with the applicable environmental laws and regulations, does not execute the Environmental Management Plan (PMA) approved by the environmental authority or ignores the requirements imposed by an environmental license may be subject to an administrative proceeding initiated by the National Authority on Environmental Licensing or the regional environmental authorities established by Law 1333 of 2009. The proceeding may result in oral or written warnings, monetary penalties, fines, license revocation or the temporary or permanent suspension of the activity being undertaken. Apart from administrative sanctions, the Colombian judiciary or other law enforcement authorities may also impose civil and even criminal sanctions if environmental damages are verified as a consequence of having breached the environmental laws and regulations applicable to the project.

3.8.2.1.2. Royalties

In Colombia, the Nation is the owner of minerals and non-renewable resources located in the subsoil, including hydrocarbons. Thus, companies engaged in exploration and production of hydrocarbons, such as Ecopetrol, must pay to the National Hydrocarbons Agency (ANH), as representative of the National Government of Colombia, a royalty on the production volume of each production field, as determined by the ANH.

Royalties may be paid in kind or in cash. Each production contract has its applicable royalty arrangement in accordance with applicable law. In 1999, a modification to the royalty regime established a sliding scale for royalty payments for crude oil and natural gas production fields discovered after July 29, 1999 and depending on the quality of the crude oil produced. Since 2002, as a result of the enactment of Law 756 of 2002, the royalty rate was fixed as a sliding scale depending on the produced volume from 8% for fields producing up to five thousand bpd to 25% for fields producing in excess of 600 thousand bpd. Changes in the royalty regime only apply to new discoveries and do not apply to fields already in the production stage as of July 29, 1999. Producing fields pay royalties in accordance with the royalty law in force at the time of the discovery.

Regarding natural gas, in accordance with Resolution 877 of 2013, as amended by Resolution 640 of 2014, starting on January 1, 2014, the ANH has received royalties in cash rather than in kind. Thus, the producer may dispose of its gas production volumes corresponding to royalties paid in cash.

3.8.3 Regulation of Transportation Activities

Hydrocarbon transportation activity is considered a public interest activity in Colombia and a public service. As such, it is under governmental supervision and control, regulated mainly by the Ministry of Mines and Energy and the CREG.

Transportation and distribution of crude oil, liquefied petroleum gas and refined products must comply with the Petroleum Code, the Code of Commerce and all governmental decrees and resolutions. According to Law 681 of 2001, multipurpose pipelines owned by Ecopetrol (through Cenit) must be open to third-party use on the basis of equal access to all.

Notwithstanding the general rules for hydrocarbon transportation in Colombia, natural gas transportation is subject to regulations specific to the natural gas industry as issued by CREG, due to the categorization of natural gas distribution as a public interest activity under Colombian laws.

Transportation systems, classified as crude oil pipelines and refined product pipelines, may be owned by private parties. Pipeline construction, operation and maintenance must comply with environmental, social, technical and economic requirements under national guidelines and international standards for the oil and gas industry.

Construction of transportation systems requires licenses and local permits awarded by the Ministry of Mines and Energy, the Ministry of Environment and Sustainable Development and regional environmental authorities, respectively.

Crude oil transport

The regulatory framework relating to crude oil transportation accounts for both private use and public use pipelines. Private use pipelines are those built by the operating or refining entity for its own exclusive right and that of its affiliates. Public access pipelines are defined as pipelines built and operated by a public or private legal entity, for the purpose of publicly providing crude oil transportation services. The Colombian government, through the ANH, has a preferential right to use up to 20% of the total capacity of any public or private access pipeline to transport its share of production. However, for both private and public access pipelines, the ANH must pay the tariff for the pipeline use to transport its percentage of production.

The Ministry of Mines and Energy is responsible for reviewing and approving the design of and tracks for crude oil pipelines. The Ministry establishes transport rates based on information provided by the service providers. It also oversees the calculation and payment of hydrocarbon transport-related taxes and manages the information system for the oil product distribution chain.

In 2014, the Ministry updated the transport regulation and the rate calculation method for this line of business. It introduced a framework for the secondary market and incentives for new pipeline construction and current pipeline capacity expansions. According to the Petroleum Code, rates are to be revised every four years. During the scheduled revision of 2015 and due to the dramatic changes in international crude oil prices, the Ministry of Mines and Energy allowed, by means of Resolution 31 325 of 2015, transportation companies and oil production companies to engage in direct negotiations in order to agree on a tariff suitable for both parties. The negotiation period extends until June 2016, after which if no agreement is reached, tariffs are to be set by the Ministry of Mines and Energy in accordance with the criteria previously established by Resolution 72 146 of 2014.

The Port Superintendence is the authority that oversees the port business for crude oil and refined products. Although this business is not regulated, market participants are required to report certain information to the Port Superintendence.

As a result of the enactment of Decree 119 of 2015, operators of private use hydrocarbon ports are currently able to provide hydrocarbon transport services to third parties pursuant to a mechanism established under that decree.

Refined products transport

In 2014 the CREG assumed responsibility for regulating product pipeline transportation from the Ministry of Mines and Energy, in addition to its pre-existing regulatory responsibility for liquefied petroleum gas, natural gas and electric energy transportation.

CREG is in the process of defining and introducing the transportation regulation and the rate calculation method for refined products. On September 25, 2015, CREG published the draft resolution that establishes the proposed regulations for transport of liquid fuels and liquefied petroleum gas. The primary goals and components of the proposed regulation are: a) to ensure access to the transport systems for liquid fuels and the LPG pipeline systems without discrimination; b) to promote the timely expansion of the transport system in line with the needs of the market; c) to promote competition and prevent restrictive practices; d) to separate the operations of refining and transport; and e) to ensure the efficient and continuous operation of transport systems. The CREG expects to finalize its transportation regulations in the third quarter of 2016.

3.8.4 Regulation of Refining and Petrochemical Activities

Article 58 of the Petroleum Code establishes that oil refining activities can be developed throughout the Colombian territory and are not reserved to the State. However, Article 4 establishes that such activities are considered of public interest subject to governmental regulation, and the development of those activities must comply with technical requirements established by regulation.

In 2008, Law 1205 was issued with the main purpose of contributing to a cleaner environment. It established the minimum quality specifications for fuels in Colombia. Since August 2010, Ecopetrol has been selling diesel and gasoline at its refinery in Barrancabermeja in order to produce diesel and gasoline that complies with the requirements of the aforementioned law.

3.8.4.1 Regulation of Liquefied Petroleum Gas (LPG) and Liquid Fuels

Wholesale marketing, transport, distribution and retail marketing of LPG are mainly regulated by CREG Resolution 74 of 1996, and subsequent resolutions. LPG in Colombia is primarily obtained through Ecopetrol's refineries, field production and imports. The LPG must meet minimum quality standards to be marketed. Our wholesale marketing and transport activities are regulated by Resolution 53 of 2011 (as amended by Resolutions 108 of 2011, 154 of 2014 and 019 of 2015) and Resolution 092 of 2009 (as amended by Resolution 153 of 2014). The LPG price is regulated by CREG Resolutions 66 of 2007 and 59 of 2008.

According to Article 212 of the Petroleum Code and Law 39 of 1987 (added by Law 26 of 1989), the distribution of liquid fuels and their derivatives is considered a public utility. Consequently, individuals or entities engaged in these activities are subject to regulations issued by the Colombian government. The Government has the power to determine quality standards, measurement and control of liquid fuels, and establish penalties that may apply to dealers who do not operate in compliance therewith.

The Ministry of Mines and Energy is the entity that controls and exercises technical supervision over the distribution of liquid fuels derived from petroleum, including the refining, import, storage, transportation and distribution in the country. Law 812 of 2003 identified the agents of the supply chain of petroleum-based liquid fuels.

The distribution of liquid fuels, except LPG, is governed by Decree 1073 of 2015, which establishes the requirements, obligations and penalties applicable to supply agents in the distribution, refining, import, storage, wholesale, transportation, retail sale and consumption of liquid fuels.

Decree 1073 of 2015 establishes the minimum technical requirements for the construction of storage plants and service stations. This Decree also regulates the distribution of liquid fuels, establishing the minimum requirements for distributors and the activities and types of agreements permitted for these agents. The Ministry of Mines and Energy also regulates the types of liquid fuels that can be sold and purchased and the penalties for noncompliance with governmental regulations.

The distribution of fuels in areas near Colombian borders is subject to specific regulations that impose strong control procedures and requirements. Ecopetrol is not responsible for fuel distribution in these areas. That responsibility was transferred to the Ministry of Mines and Energy, pursuant to Law 1430 of 2010.

The Ministry of Mines and Energy establishes the safety standards for LPG, storage equipment, maintenance and distribution of LPG. Resolution 31514 of 1992 established that any LPG household, commercial and industrial facility with a storage capacity of LPG greater than 420 pounds must receive an authorization from the Ministry of Mines and Energy prior to commencing operations.

The Domestic Public Service Superintendence also oversees the liquefied petroleum gas transportation business. Cenit reports key operational and financial indicators to it on a monthly basis.

3.8.4.2 Regulation Concerning Production and Prices

According to the Decree - Law 4130 of 2011, it corresponds to the CREG set the prices of petroleum by-products throughout the entire chain of production and distribution except for current gasoline engine, diesel and biofuels. On the other hand, by Decree 381 of 2012, as amended by Decree 1617 of 2013, the Ministry of Mines and Energy is in charge of setting the methodology to determine the reference price of gasoline, diesel (ACPM), biofuels and mixtures thereof.

Then, since May 2012, CREG regulates the prices for most crude oil by-products, but for gasoline, diesel, ACPM and biofuels, CREG determines the methodology to calculate the price of those by-products, and the Ministry of Mines and Energy sets the relevant prices in accordance with the methodology established by CREG. The ANH does not intervene in the definition of prices of gasoline and diesel fuel.

The methodology for calculating jet fuel prices is set out in Law 1450 of 2011, and jet fuel prices themselves are set by the Ministry of Mines and Energy.

The ANH determines the formula that is used to calculate royalty payments corresponding to the production of crude oil and the crude oil price reference for local refining.

Decree 381 of 2012 and 1617 of 2013, as amended by Decree 2881 of 2013, restructured the Ministry of Mines and Energy and gave it the responsibility to study industry problems and implement short- and long-term refining planning policies. The Ministry is also responsible for establishing the governmental policies and goals to ensure the reliability, stability and continuity for the production of liquid fuels, biofuels and others.

Pursuant to Article 58 of the Petroleum Code, any refining company operating in Colombia must provide a portion or, if needed, the total of its production to supply local demand prior to exporting any production. If local demand increases, and imported crudes are needed, the refining company may charge the State additional transportation costs in proportion to the imported crudes delivered to the refinery.

The Fuel Price Stabilization Fund (FEPC) was created by means of Law 1151 of 2007 with the aim to mitigate in the domestic market, the impact of fluctuations in fuel prices (gasoline and motor fuel oil) in international markets. As per article 2.3.4.1.3 of Decree 1068 of 2015, the funding for the operation of the FEPC comes from the following sources: (i) financial returns on the funds of the FEPC; (ii) extraordinary contributions from the National Treasury; and (iii) resources from the General Budget of Colombia.

The FEPC is currently regulated by Decree 1068 which compiles Decree 1880 of 2014, which sets forth the calculation method of the Differential as the product of the volume reported by the refiner and/or importer to the Ministry of Mines and Energy times the difference between the international parity price and the reference price. It also provides that refiners and/or importers shall submit monthly reports to the Ministry of Mines and Energy on the volume, origin and type of fuel (gasoline and motor fuel oil) sold in the domestic market for said period. Based on those reports the Ministry of Mines and Energy shall calculate and liquidate the Net Position every six months by issuing a resolution provided, however, that such Net Position results from the sum of the Differentials for the relevant six-month period. Decree 1068 of 2015 also provides that the FEPC shall pay in Colombian Pesos the value corresponding to the six-month Net Position of each refiner and/or importer within the term that the Ministry of Mines and Energy establishes and based on availability of resources of the FEPC.

Under Resolutions 31580 and 31581, the FEPC has paid to Ecopetrol COP\$853.5 million and to Reficar COP\$182.5 million relating to the last quarter of 2013 and the first and second quarter of 2014. The Ministry of Mines and Energy has not calculated the Net Positions for other quarters. According to the financial statements of Ecopetrol S.A., the estimated amount owned by the FEPC to Ecopetrol S.A. is COP\$155.8 million based on the same methodology used by the Ministry to calculate the last payment, which possibly will be changed by the Ministry of Mines and Energy.

3.8.4.3 Regulation of Biofuel and Related Activities

The sale and distribution of biofuels is regulated by the Ministry of Mines and Energy. Regulations establish the quality and pricing standards for biofuels and impose minimum requirements for mixing ethanol with gasoline and biodiesel with diesel.

3.8.5 Regulation of the Natural Gas Market

Decree 1073 of 2015, issued by the Ministry of Mines and Energy, established that all producers have to issue a production statement that includes the volumes of natural gas available for sale for a period of ten years. This decree established the regime for the selling and marketing of natural gas in Colombia, including specific procedures that regulate the Colombian market in order to manage the remaining natural gas reserves owned by the Nation, and to protect domestic consumers, especially residential consumers, by prioritizing delivery of gas to residential consumers, regulating the export of natural gas and setting forth the export restrictions applicable during an internal shortage of natural gas.

Currently in Colombia, other than with respect to the Opón field, the price of natural gas is determined by the market.

CREG issued Resolutions 088 of 2013 and 089 of 2013 that established the procedures for marketing natural gas in Colombia. Pursuant to Decree 1073 of 2015, however, such procedures do not apply to the following activities: a) natural gas exports; b) natural gas as raw material in petrochemical production; c) natural gas commercialization from minor fields (production capacity under 30 million cfpd); d) natural gas commercialization from hydrocarbon fields under testing phase or which have not yet been declared commercially viable; e) natural gas commercialization from unconventional reservoirs and f) internal consumption from natural gas producers.

CREG determines which agents can participate in the primary and secondary markets. Ecopetrol is authorized to participate as a seller in the primary market as a natural gas producer and as a buyer in the secondary market when Ecopetrol requires natural gas from other producers for its own needs. CREG regulations provide that a natural gas producer cannot participate as a merchant of natural gas in the secondary market except that it may purchase gas to meet its existing contractual obligations. Ecopetrol is also able to re-sell available natural gas transportation capacity into the secondary market.

Priority for the Supply of Natural Gas

The export of natural gas, in contrast, is not considered a public utility activity under Colombian law and therefore is not subject to Law 142 of 1994. Nevertheless, the internal supply of natural gas is a priority for the Colombian government and is considered to be a public utility complementary activity, and therefore public utility regulations apply to the internal supply of natural gas.

Decree 1073 of 2015 (amended by Decree 2345 of 2015) provides that in the event the supply of natural gas is reduced or halted as a result of a shortage, the Colombian government has the right to suspend the supply of natural gas for exportation. If such export contracts are suspended by the Colombian government, the export agents are entitled to receive compensation in accordance to article 2.2.2.2.15 and 2.2.2.2.38 of Decree 1073, 2015. Notwithstanding the foregoing, Decree 1073 of 2015 establishes freedom to export natural gas under normal gas-reserve conditions. Producers of natural gas may enter into natural gas export contracts if the ratio of proved reserves to consumption exceeds seven years, as determined by the Colombian Energy Planning Authority (or UPME for its Colombian acronym).

Decree 1073 of 2015 (amended by Decree 2345 of 2015) establishes an order of supply when restrictions are placed on the supply of natural gas or serious emergency situations arise that preclude the continued provision of certain services, as follows: (i) essential demand, as established in Decree 1073 of 2015, (ii) non-essential demand under an existing agreement with a warranty of uninterrupted provision, and (iii) fair exports delivery.

The order of priority for the supply of natural gas is as follows: (i) the operation of the compressor stations of the National Transportation System, (ii) residential users and small business users engaged in the distribution network, (iii) vehicular compressed natural gas and (iv) gas refineries, excluding those destined for self-generation of electricity that can be replaced with energy from National Transportation System, which has first priority. The Ministry of Mines and Energy also establishes distribution priorities in the event of a natural gas shortfall derived from supply or infrastructure issues. This order of priority is based on the type of contract, with firm supply contracts having priority over interruptible supply contracts.

Decree 1073 of 2015 and CREG Resolutions 089 of 2013 and 204 of 2013 provide specific procedures and forms of supply agreements determined by CREG pursuant to which an agent may sell and buy natural gas in the Colombian primary and secondary market produced from large fields (capacity of more than 30 million cfpd). Decree 1073 of 2015 and CREG Resolution 089 of 2013 permits the sale of natural gas from small fields (capacity under 30 million cfpd) pursuant to contracts that fulfill certain regulatory requirements but whose form is not prescribed by law.

3.9 Sustainability Initiatives

3.9.1 HSE

This section describes the health, safety and environmental (HSE) practices of Ecopetrol S.A. Currently, subsidiaries of Ecopetrol S.A. establish their own HSE models, provided that these models must be consistent with guidelines established by Ecopetrol S.A.

3.9.1.1 Ecopetrol S.A.

One of the principles that guide Ecopetrol is our commitment to our employees and the development of those communities in which we operate. For that reason, Ecopetrol S.A. is devoted to improving our health, safety and environmental (HSE) practices.

HSE management is essential for us; it promotes policies designed to recognize and understand process risks and prevent occupational accidents and other major incidents.

We have several programs in place aimed at increasing the safety of our industrial processes and minimizing the number of occupational accidents and other major incidents. Our HSE management model is based on key focus areas that are aligned with our integrated management system. Based on these key focus areas, we have implemented the following aspects:



Strategy and management

- Align HSE policies with the Company Strategy, and generate programs to improve performance.

People

- Make HSE the highest priority for every employee and contractor.
- Promote participation and open communication with management.
- Establish a management control structure for HSE issues.
- Implement operational discipline designed to assure compliance in all operating and maintenance procedures.
- Institute safety corporate practices, including improving the competency of our employees and contractors with respect to critical processes of the company.
- Perform assessments of Process Safety Management (PSM) factors during the selection process of our contractors.

Information and knowledge-building

- Take inventory of information and technology related to PSM, especially as related to the processing of chemicals, and to design and develop a plan to update such information and technology for all facilities and to train our workers based on such updates.

Operations

- Ensure that our contractors perform critical maintenance procedures.
- Improve preparedness and emergency responses.

Resources

- Reduce risks through an inspection, testing and maintenance program designed to ensure the integrity of our critical equipment and parts.

Risks and controls

- Carry out our risk management strategies.
- Mitigate the impacts of occupational accidents and other major incidents by the implementation of controls.
- Intervene and remediate any technological risks identified in order to mitigate their effects.
- Improve the electrical skills of employees.

Monitoring and improving

- Promote self-assessments and perform regular mandatory assessments.

The results of these strategies in 2015, compared with the prior year, were:

- Zero fatalities associated with accidents.
- A 32% decrease in road accidents, due to improvements in real-time monitoring of drivers' safety habits.

- Improved performance during maintenance activities, in order to ensure proper safety practices.
- 25,022 critical procedures training sessions for our workers.
- A reduction in the severity of occupational incidents.
- A reduction to zero of accidents during the start-up of projects or major maintenance.
- A reduction in oil spills.
- Improvement in reporting of minor oil spills and identification of their causes.

Contingency Plans and Environmental Remediation

All of our operational areas have preparedness and emergency response plans, each in accordance with Colombian legal requirements and our new internal guidelines for emergency management.

Our preparedness and emergency response plans have been developed based on our analysis of risk scenarios, the estimated consequences of these events and the implementation of strategies to be followed in response to each scenario.

The objectives of our contingency plans are to:

- Protect the health and safety of our workers, contractors and the communities in which we operate.
- Prevent oil spills and leaks of harmful substances in offshore and onshore areas, fires and explosions and mitigating environmental impacts.

Our contingency plans include:

- Procedures for the containment of oil and other harmful substances, as well as procedures to safeguard the safety of affected communities and the personnel involved in such containment actions.
- Strategies for responding to emergencies located outside of our facilities and mutual aid emergency plans, including actions developed with local environmental authorities, stakeholders, the local community and other organizations for containment and recovery of spilled product, and cleaning and recovery of affected areas, monitoring of the environmental effects and compensation for local communities and other affected persons.

Further, we are upgrading the skills of our fire brigade, ensuring the reliability of firefighting and emergency equipment and working on improving our performance during drills.

In offshore operations, our operator has the responsibility of designing and implementing plans and strategies aligned with international best practices that cover various emergency response scenarios.

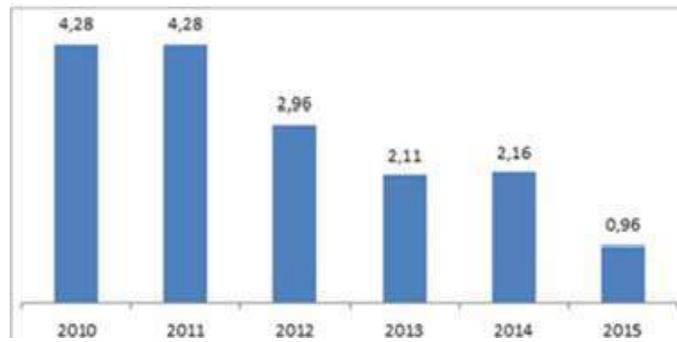
Total Recordable Incident Rate – Employees and Contractors

Ecopetrol S.A. places an important emphasis on understanding, monitoring and controlling our impacts on workers and contractors.

Ecopetrol S.A. monitors a standard measure of occupational safety known as the Total Recordable Incidents Frequency Index (TRIF), which represents the number of employee or contractor injuries that require medical treatment or time off for every million hours worked.

TRIF has improved from 4.28 incidents per million hours worked in 2010, to 0.96 in 2015. In 2015, 62% of occupational accidents affecting our employees and contractors resulted in a medical treatment, restricted work or time away from work that lasted for three days or less. This represents a significant decline in the seriousness of injuries resulting from such occupational accidents. Additionally, in 2015, we had our best overall year in personal safety, as measured by recordable injuries and injuries requiring time away from work, and in process safety, as measured according API-754, which in turn results from the application of the HSE management system.

Figure 1 – Total Recordable Incident Rate – Employees and Contractors (*) ()**



* Number of employee or contractor injuries requiring medical treatment or time off for every million hours worked

** Includes data for Ecopetrol S.A. and the Vice-Presidency of Transport and Logistics, but does not include data for subsidiaries of Ecopetrol S.A.

Frequency of process safety incidents

Since 2009, we have been working on a “Process Safety Management” (PSM) system aimed at minimizing operational incidents, such as fire, explosion, loss of primary containment and multiple fatalities. Our PSM strategy is to: first, define high-risk processes; second, prioritize intervention in high-risk processes; and third, apply all PSM elements in the prioritized high-risk processes.

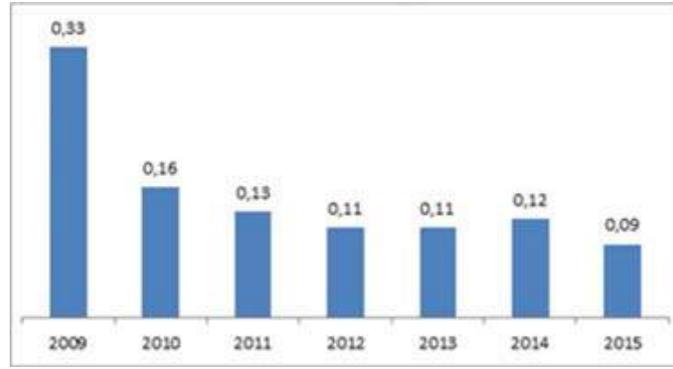
Loss of primary containment is the number of unplanned or uncontrolled releases of oil, gas or other hazardous materials.

We report tier 1 process safety events per million hours worked, which are the losses of primary containment of greatest consequence causing harm to a member of the workforce, costly damage to equipment or exceeding defined quantities according to API-754. We reduced our tier 1 process safety indicator by 18% compared to 2014 (2015: 0.09 and 2014: 0.12). Additionally, the consequence in costs associated with these incidents has declined by 70% in 2015 as compared to 2014. The reporting thresholds for API-754 Tier 1 is an unplanned or uncontrolled release of any material, including non-toxic and non-flammable materials, from a process that results in one or more health, safety or environmental consequences set forth under those guidelines. In 2015, there were 0.09 Tier 1 process safety incidents per million hours worked.

The consequences of these incidents decreased in 2015 compared to 2014.

Frequency of Tier 1 process safety incidents per hours worked (per million hours worked):

Figure 2 – Tier 1 Process Safety Incidents (*) ()**



* Tier 1 process safety incidents per million hours worked (API-754)

** Includes data for Ecopetrol S.A. and the Vice-Presidency of Transport and Logistics classified according to the criteria in API-754 Tier 1, but does not include figures for Ecopetrol S.A.’s subsidiaries.

Environmental Incidents

In 2015, Ecopetrol S.A. recorded 11 environmental incidents compared with 29 in 2014 and 34 in 2013. The volume of oil spills was 207 barrels in 2015, a substantial decrease from 885 barrels in 2014 and 6,843 barrels in 2013. The decrease in the numbers of environmental incidents and oil spills was the result of the identification of critical equipment operating in high or very high risk conditions, and the implementation of asset integrity plans designed to mitigate those risk conditions.

3.9.1.2 Cenit

While Cenit had previously followed Ecopetrol’s HSE guidelines, in 2015, Cenit established its own HSE practice and set and defined its own HSE Key Performance Indicators (KPIs) and targets in respect of its non-operative facilities and offices. This resulted in significant cost reductions with no change in risk levels. Local and field operations, however, are still conducted under Ecopetrol’s HSE model and guidelines.

3.9.1.3 Refinería de Cartagena

In 2015, around 32.9 million man-hours were employed conducting Reficar’s business activities. Our HSE performance indicators for Total Accident Frequency Rate (AFR), Total Recordable Cases (TRIF), Total Accident Severity Rate (ASR) and Environmental Incident Index (EI) were well-within our established guidelines, as shown in the table below:

Table 41 – Performance Indicators

| INDICATOR | OUTCOME 2015 |
|-----------|--------------|
| AFR* | 0.95 |
| ASR** | 0 |
| TRIF | 1.73 |
| EI | 0 |

* Total Accident Frequency Rate (AFR) Construction (includes CB&I and construction subcontractors of CB&I)

** Total Accident Severity Rate (ASR) (includes CB&I and construction subcontractors of CB&I)

The results of other related performance indicators during 2015 were:

- Lost Time Injury Incidents: 26 incidents, which includes zero for Chicago Bridge & Iron Company (CB&I), 12 incidents for Ecopetrol and 14 incidents for Reficar and subcontractors.

- Medical Treatment Injury: nine incidents without having an impact on working hours, which includes four incidents for Chicago Bridge & Iron Company (CB&I), zero incidents for Ecopetrol and five incidents for Reficar and subcontractors.
- Restricted Work Incidents: 22 incidents without having an impact on working hours, which includes one incident for Chicago Bridge & Iron Company (CB&I), four incidents for Ecopetrol and 17 incidents for Reficar and subcontractors.
- Environmental Incidents: zero incidents.
- First Aid Cases: 467 incidents.

In addition, in 2015 some of Reficar's activities and results included:

- Performance of pre-start safety checks and receipt of "Ready For Start-Up" certificates for 100% of the units during the start-up process.
- Obtained accreditation of Reficar's Vocational Center by the Colombian Ministry of Labor. 10,179 employees were trained to fulfill Resolution 1409 of 2012, which provides workplace safety standards for persons working at heights. Additionally, 23,412 employees were trained in several other labor certifications.
- Receipt of awards for excellence in HSE (Occupational Hazard Insurance of Reficar) from the workers' compensation insurance company, ARL Sura.
- Implementation of emergency plans for all of Reficar's units.
- Development of emergency drills before the commencement of operations of Reficar's process units.
- Organized the HSE Occupational Health Week in Cartagena and Bogotá for Reficar, EPC contractors and other subcontractors.
- Development of campaigns to strengthen HSE culture and leadership in Reficar.
- Outstanding results of our Yearly Environmental Auditing Report, which revealed zero breaches of environmental regulations related to Reficar's expansion project.
- Approval from the Colombian Geological Survey of the operation license of 63 radioactive sources for the Cartagena Refinery.
- Approval from the Colombian Geological Survey to import 63 radioactive sources for the Cartagena Refinery.
- 9,401 maintenance trees planted under our Forestry Compensation Program regulated by environmental authorities.
- 200 wildlife relocated under our wildlife program regulated by environmental authorities.

Recent Performance

Over the last three years, our HSE performance has continuously improved. The following table and chart cover our Total Accident Frequency Rate (AFR) and Total Accident Severity Rate (ASR) from 2013 to 2015 for Construction and Total Recordable Incidents of Reficar, which includes Reficar’s EPC Contractors, CB&I and Reficar’s subcontractors. The first table presents statistics relating solely to the construction activities during the modernization and expansion project, whereas the second table provides general statistics for 2015, not only construction-related activities, but also pre-commissioning, start-up and operating activities. Reficar reported more than 110 million man-hours without a high severity accident (permanent injury or death).

Table 42 – Total Accident Frequency Rate

| | For the year ended December 31, | | |
|----------------------|---------------------------------|------------|------------|
| | 2015 | 2014 | 2013 |
| Man-Hours | 15,836,845 | 36,065,413 | 26,106,164 |
| Recordable Accidents | 15 | 37 | 49 |

| | For the year ended December 31, |
|----------------------|---------------------------------|
| | 2015 |
| Man-Hours | 32,944,698 |
| Recordable Accidents | 57 |

Figure 3 – Accident Frequency Rate (AFR) Construction (*)

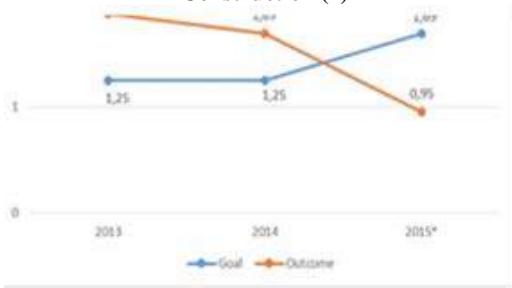


Figure 4 – Total Accident Severity Rate (ASR) Construction (*)



(*) Year-on-year figures are shown from December to December of each year.

3.9.2 Human rights

Ecopetrol has a Human Rights Policy with an integrated and systemic management approach to human rights based on the due diligence principle, which we continued to strengthen in 2015.

Ecopetrol maintains corporate mechanisms to ensure its compliance with national and international human rights laws and certain non-binding international standards, as well as to generate value to the company and to society through the promotion of human rights. These mechanisms are:

- The Human Rights Committee;
- The Tactical Plan on Human Rights;
- The Human Rights Monitoring System; and
- Human rights and international humanitarian law risks analysis.

In view of our commitment to respect and promote human rights, Ecopetrol continues promoting these values in all of its controlled subsidiaries. In 2015 Ecopetrol developed a project to align the human rights standards among its subsidiaries, establishing an internal standard to manage human rights that takes into account the United Nations’ “Protect, Respect and Remedy Framework”, Global Compact Principles and Voluntary Principles on Security and Human Rights.

Regarding human rights risks analyses, our monitoring process has been strengthened in order to prevent and mitigate negative impacts on human rights. As part of our monitoring process several human rights risks analyses have been conducted for particular projects in Ecopetrol. Additionally, Ecopetrol S.A. continues its work in promoting human rights in the several territories where it has operations, by promoting initiatives that support:

- Human rights dialogue with stakeholders,
- Rights of ethnic groups,
- Equal gender rights,
- Children and teenager rights,
- Right of association and collective bargaining and
- Business and peace.

Ecopetrol S.A. has carried out a human rights risk assessment in order to evaluate and mitigate human rights impacts. As a result of this assessment, Ecopetrol S.A. has focused its efforts on the following principles:

- Right to life, liberty and personal security,
- Right of association and collective bargaining,
- Abolition of forced or compulsory labor,
- Abolition of child labor,
- Equality and non-discrimination at work,
- Just, equitable, and satisfactory conditions of work,
- Rights of ethnic groups, and
- Collective rights and the environment.

3.9.3 Dow Jones Sustainability Index

For the fifth consecutive year, Ecopetrol was listed in the Dow Jones Sustainability Index-World (DJSI). The DJSI is a global indicator that monitors the financial performance of leading companies committed to corporate sustainability. Ecopetrol remained within the top 10% (13 companies) of oil & gas companies around the world, among the 2,500 companies listed and included in the Dow Jones Index.

3.9.4 Environmental Sustainability

3.9.4.1 Environmental Practices

Ecopetrol S.A.

During 2015, the environmental management strategy of Ecopetrol included the following components:

1. **Environmental Viability:** this strategy concentrates on obtaining environmental licenses and permits as well as adequate land management that ensures the sustainability of operations through timely prevention efforts and management of environmental impacts, constant and systematic relationships with stakeholders and participation in the sustainable development of the territories in which we operate.
2. **Climate Change:** this strategy aims to decrease our carbon emissions and reduce the vulnerability of our operations and our facilities to the effects of climate change through the implementation of four strategic action lines:
 - Mitigation: reducing our carbon dioxide emissions and creating carbon offset alternatives;

- Vulnerability and Adaptation: reducing the risks and impacts to our operations posed by climate variability and change;
 - Research and Technology: reducing our greenhouse gas emissions through action on research and development, process optimization, implementation of energy efficient strategies, carbon capture and sequestration and diversification into low carbon energy sources; and
 - Involvement in Policymaking: informing and influencing government policies on climate change.
3. **Biodiversity:** this strategy aims to reduce Ecopetrol’s impacts on the ecosystems in areas where we operate. This strategy mainly focuses on knowledge building and conservation efforts in areas where we operate.
 4. **Eco-efficiency:** this strategy aims to maximize our efficient use of resources and mitigate our environmental impacts. Through this strategy, which extends to our supply chain, we seek to utilize energy, materials, and in general all natural resources as efficiently as we can, thereby reducing the environmental impacts from our operations and projects and minimizing emissions, effluents and waste disposal from our operations and projects while taking into account our production benchmarks.
 5. **Integrated Management of Water Resources:** this strategy aims to ensure compliance with water resources laws and reduce conflicts over water use in the areas near our projects and operations. Our core focus areas under this strategy are aligned with the objectives defined by the 2010 National Water Policy for the Management of Water Resources in Colombia which focuses on water supply, demand, quality, risk governance and institutional strengthening.

Since 2009, Ecopetrol has reported its achievements in the sphere of environmental management to various relevant organizations focused on promoting sustainable business practices, such as the Dow Jones Sustainability Index, the Carbon Disclosure Project (CDP) and the CDP Water Information Request; Environmental Benchmarking of ARPEL.

Refinería de Cartagena

Environmental Investments

In order to comply with EIA and Colombian regulations instituted in 2015, the following environmental investments were made:

Table 43 – Environmental Investments

| Activity Description | Amount <i>(in millions of Colombian Pesos)</i> |
|---|--|
| Collection, Transport and Disposal of Medical and Hazardous Materials | 91.4 |
| Collection of Ordinary Materials | 2,227.1 |
| Wildlife Relocation and Vector Control | 842.9 |
| Leasing and Maintenance of Portable Bathrooms | 2,744.3 |
| Forestry Compensation Program (Waterbed of Refinery’s Stream) | 297.9 |
| Forestry Compensation Program (Ciénaga de la Virgen) | 38.6 |
| Project Monitoring Services (Air Quality and Noise Levels) | 87.4 |
| Environmental Audits | 59.7 |
| Total | 6,389.3 |

3.9.5 Extractive Industries Transparency Initiative (EITI)

Colombia has officially adhered to the Extractive Industries Transparency Initiative (EITI) which promotes transparency on revenues and accountability in the extractive sector.

Ecopetrol S.A. is participating in this initiative in two roles: (i) as a member of the National Tripartite Committee CTN, and (ii) as one of the 18 companies of the extractive industry chosen by the Colombian government for its importance and materiality that is working jointly with the Colombian government and other companies to contribute significantly to the transparency and public access to information of the sector.

Under the leadership of the Ministry of Mines and Energy and the participation of over 18 companies of the oil, gas and mining industry, including Ecopetrol S.A., the Colombian government prepared the first EITI report in Colombia using figures from fiscal year 2013. That report was published in February of 2016.

3.9.6 Energy Projects

Refining

Ecopetrol's refining companies have been undertaking significant efforts to make efficient and rational use of energy resources in its production processes and reduce energy consumption and costs and carbon dioxide emissions. We focus on efficiency, reliability and optimization, and energy diversification. During 2015, the refinery's segment's average monthly energy consumption was 61.726 MWhm (megawatts per hour per month) equivalents, from which 98.9% was provided through self-generation and the remaining 1.1% with non-regulated energy purchased from the National Transmission System.

The Barrancabermeja Refinery accomplished the following during 2015 in respect of energy projects:

- Construction of base lines of crude and the residual processing units to manage the reduction of energy consumption.
- Increased sales of excess electricity to other related parties.
- Commissioning and startup of a turbogenerator with additional production of vapor to increase energy efficiency.
- Reduction of gas consumption in boilers.

Reficar accomplished the following during 2015 in respect of energy projects:

- Monitoring of 13 new base lines to manage the reduction of energy consumption.
- Increased the refinery's capacity to generate gas-turbine electricity;
- Added a sophisticated combined cycle design, to generate power in the most efficient way (state of the art).
- Installed software for monitoring and optimization of energy performance; and
- Optimization of the hydrogen network.

Production

Ecopetrol's corporate strategy with respect to efficiency accomplished the following savings in the production sector during 2015:

- COP\$2.7 billion from new and improved tariffs as a result of contract renegotiations with Ecopetrol's contractors;
- COP\$1.5 billion from the substitution of certain fuel sources; and
- COP\$1.7 billion due to the startup of new generation centers.

Further, during 2015, Ecopetrol S.A.'s production sector had an average a monthly energy consumption of 238.3 MW for its direct operation, from which 79% was provided through self-generation and the remaining 21% with non-regulated energy purchased from the National Transmission System.

Energy Surplus Sales

According to CREG and Public Services Superintendency regulations, a company that has power self-generation capacity, such as Ecopetrol, can sell its energy surplus to related companies, that is, companies from the same economic group.

In 2015, Ecopetrol, which has capacity in excess of its consumption of self-generated energy, sold surpluses of self-generated energy at the Barrancabermeja Refinery to Cenit and to Ecodiesel for COP\$19.08 billion.

In the first quarter of 2016, the "El Niño" climate phenomenon caused Colombia's dams to generate lower levels of energy, which had a great impact on the national electric system. To mitigate this situation, the Colombian government has allowed all companies with surplus energy, including Ecopetrol, to sell their surpluses of energy in the national electrical system.

3.10 Related Party Transactions

Set forth below is a description of material related party transactions. For additional information about transactions with related parties, see Note 32 – Related Parties to our consolidated financial statements.

Ocensa

Ecopetrol S.A. has entered into a number of agreements with its 72.65%-owned subsidiary Ocensa, of which the following are the most significant:

- In March 1995, Ecopetrol S.A. entered into an agreement for the transportation of crude oil through the Ocensa pipeline. Pursuant to the terms of this agreement, Ecopetrol S.A. was required to make monthly payments that varied depending on both the volume of crude oil transported through the pipeline and a tariff imposed by Ocensa on the basis of Ocensa's financial projections and their expected volumes of crude oil. On January 17, 2013, this agreement was amended as a result of Ocensa's new business model. Among other changes, this amendment to the transportation agreement establishes the payment of the tariff calculated according to Resolutions issued in 2010 by the Ministry of Mines and Energy. In 2013, another amendment was executed that modified the terms by which the payments of invoices should be made. In 2015, payments made by Ecopetrol S.A. under this agreement amounted to US\$925 million.
- In December 2011, Ecopetrol S.A. entered into an operation and maintenance agreement for the Porvenir, Miraflores and Vasconia pumping stations with Ocensa. In 2015, pursuant to the terms of this agreement, Ecopetrol S.A. received payments of approximately US\$9 million at fixed and variable costs plus applicable taxes. Pursuant to the terms of the agreement, in September 2015 Ocensa notified Ecopetrol of its decision not to extend the term of the contract, which expired in March 2016.
- On July 10, 2012, Ecopetrol entered into a ship or pay agreement for the unloading of up to 8 thousand barrels per day of crude oil barrels at Ocensa's unloading facilities. This agreement was later amended on March 12, 2013 and on July 19, 2013. The fees correspond to a cost of US\$1.50 per barrel of crude oil that is unloaded. The agreement has a term of five years. On April 11, 2014 Ecopetrol entered into an additional ship or pay agreement for the operation of Ocensa's unloading facilities by means of which Ecopetrol has the right to unload an additional volume of up to 2,000 barrels per day. The additional agreement has a five year term. On 2015, as a result of certain modifications made by Ocensa to the unloading facilities that make it possible to receive crude with lower API gravity, the parties signed an addendum to the agreement whereby crude of 18 API can be unloaded by Ecopetrol at Ocensa's facilities. By virtue of these agreements, Ecopetrol S.A. paid fees of US\$3.45 million to Ocensa in 2015.

- On January 17, 2013, Ocesa and its shareholders – Cenit, Ecopetrol Pipelines International Limited, Santiago Pipelines Company, New Santiago Pipelines Company, Total Colombia Pipeline, Inversiones Sol del Sur S.A.S. and Cepsa Colombia S.A. – entered into a shareholders agreement that establishes the basis for a new business model, pursuant to which Ocesa has become a profit center instead of a cost center. This agreement became effective as of the date of execution and will be in effect until Ocesa is registered on an exchange. Additionally, this agreement might be renegotiated if the control structure of Ocesa is modified.

The Ocesa shareholders' agreement establishes the basis for Ocesa's corporate governance model. It provides for a board of directors composed of five members, two of which must be independent. Cenit may nominate three members of the board of directors, including the two independent members, while minority shareholders may together nominate the remaining two members.

The Ocesa shareholders' agreement provides the minority shareholders with certain rights, including the right to nominate two members of the five-member board of directors. Significant decisions must be approved by a qualified majority of at least four Ocesa shareholders, and by supermajorities of the outstanding Ocesa shares. These actions include, among others (i) issuing additional shares or publicly listing shares, declarations of dividends in amounts other than all distributable income and certain amendments to Ocesa's bylaws and (ii) asset sales in excess of US\$50 million;

- On October 28, 2013, Ecopetrol entered into a natural gas supply contract in force until November 30, 2018, pursuant to which Ecopetrol S.A. supplies gas to Ocesa and receives a fixed price per MBTU (million British Thermal Units). This agreement replaced the contract for natural gas supply entered into on December of 2004, under which Ocesa paid a variable rate to Ecopetrol. In 2015, Ecopetrol S.A. received an aggregate sum of US\$2 million under the contract.

Ocesa has entered into the following agreements, among others, with some of our other subsidiaries:

- In March 1995, Equion and Santiago Oil Company entered into agreements for the transportation of crude oil through the Oleoducto Central S.A. (Ocesa) pipeline. In November 2012, Equion and Santiago Oil Company transferred, by means of various transactions, its shares (24.8%) and transportation rights (19.8%) holdings in the Ocesa pipeline to wholly owned subsidiaries of Ecopetrol S.A. (51%) and Talisman (49%). Equion and Santiago Oil Company kept 5% of transportation rights in Ocesa. In 2014, the transportation fees billed by Ocesa were: Equion (US\$44.4 million), Santiago Oil Company (US\$3.8 million) and Hocol (US\$30.8 million). On January 17, 2013, this agreement was amended as a result of Ocesa's new business model. Among other changes, the amendment to the transportation agreement establishes that tariff payments are to be calculated according to resolutions issued by the Ministry of Mines and Energy. On May 23, 2013, another amendment was executed that modified the terms by which the payments of invoices should be made. In 2015, Ocesa billed Equion US\$42.88 million and Santiago Oil Company US\$3.69 million, in each case for transportation fees. Ocesa billed Hocol, as assignee of transportation rights from original shippers, US\$15.58 million in 2015.
- On July 9, 2012, Ocesa and ODL entered into a strategic alliance for the dilution of crude oil in the Cusiana station. The term of this contract is of five years. One the initial term of the agreement ends, Ocesa has a purchase option over the assets that perform the dilution process. In 2015, the parties signed two addenda to the agreement in order to include additional construction work to be conducted by ODL and supervised by Ocesa for an agreed fee. ODL paid Ocesa US\$4.03 million under this contract in 2015.

Oleoducto de Colombia S.A. (ODC)

Ecopetrol S.A. entered into the following agreements with its 73%-owned subsidiary ODC:

- In July 1992, a take-and-pay agreement was signed for the transportation of hydrocarbons. Pursuant to this agreement, Ecopetrol S.A. must pay a previously agreed tariff for the volume of hydrocarbons transported. The duration of this agreement is indefinite; however the contract will remain in force as long as Ecopetrol S.A. holds shares in Oleoducto de Colombia S.A., whether directly, or through an affiliate. As of January 2013, the parties agreed that the applicable tariff would be the one set by the Ministry of Mines and Energy (the "MME Tariff"). The MME Tariff had been set in 2011 for a four-year term, with a yearly adjustment based on the consumer price index. In 2015, payments made by Ecopetrol S.A. under this agreement amounted to US\$103.78 million.

- In August 1992, an operation and maintenance agreement was signed for the Vasconia and Coveñas terminals both property of ODC. The duration of this agreement is indefinite, but can be terminated by any party upon six-months' notice. The initial contract included services rendered by Ecopetrol directly or by third-party contractors hired by Ecopetrol through mandate; with a variable surcharge over expenses and third-party contracts between 5% and 12% plus any applicable taxes. In 2014, an amendment to the agreement was signed, adjusting the monthly fixed rate to include expenses of services rendered directly by Ecopetrol, plus an additional 10% fee, and to eliminate the administrative surcharge. The contract also includes a variable sum related to contracts and purchases made by Ecopetrol through mandate. In March 2015, the monthly rate was adjusted for both Vasconia and Coveñas Stations. Pursuant to the terms of this agreement, ODC paid approximately US\$22 million in 2015.
- In March 1998, a joint operation agreement was signed for the TLU-1 Coveñas buoy. The duration of this agreement is indefinite and can be terminated by mutual agreement. In December 2013, Ecopetrol S.A. assigned its rights under this agreement to Cenit, though Ecopetrol S.A. kept its role as operator under the agreement. Pursuant to the terms of this agreement, ODC paid Ecopetrol S.A. approximately US\$10 million in 2015.
- In September 1999, a joint operation agreement was signed for the TLU-3 Coveñas buoy between Ocesa, ODC and Ecopetrol. Pursuant to the terms of this agreement, ODC paid approximately US\$6 million in 2015. The duration of this agreement is indefinite. In December 2013, Ecopetrol S.A. assigned its rights under this agreement to Cenit, though Ecopetrol S.A. kept its role as operator under the agreement.
- In July 2006, an operation and maintenance agreement was signed for the Caucasia station and the Vasconia-Coveñas pipeline system. The duration of this agreement is indefinite. Since 2010, this agreement only covers the operation of the Caucasia station and the Vasconia-Coveñas pipeline system, both property of ODC. The initial contract included services rendered by Ecopetrol directly or by third party contractors hired by Ecopetrol through mandate; with a variable surcharge over expenses and third party contracts between 5% and 12% plus any applicable taxes. In 2014, an amendment to the agreement was signed, adjusting the monthly fixed rate to include expenses of services rendered directly by Ecopetrol, plus an additional 10% fee, and to eliminate the administrative surcharge. The contract also includes a variable sum related to contracts and purchases hired by Ecopetrol through mandate. In 2015 an addendum was signed which adjusted the fixed rate. In 2015, ODC paid Ecopetrol US\$9 million under this agreement.

ODC has entered into the following agreements with some of our other subsidiaries:

- Between March 1992 and January 1993, Hocol, Equion and Santiago Oil Company each entered into agreements with ODC for the transportation of crude oil through the Vasconia-Coveñas pipeline. The term of each of these agreements is indefinite. As of January 2013, the applicable tariff is the one set by the Ministry of Mines and Energy. In 2015, the transportation fees billed by ODC were: Equion (US\$21.63 million), Santiago Oil Company (US\$0.56 million) and Hocol (US\$46.92 million).

Oleoducto de los Llanos Orientales (ODL)

Ecopetrol S.A. has entered into the following agreements, among others, with its 65%-owned subsidiary ODL:

- In March 2009, Ecopetrol S.A. entered into a ship-or-pay agreement with ODL that establishes a financing tariff used to pay ODL's indebtedness to Grupo Aval for five years. This agreement was superseded by a new contract executed in May 2010, with a seven-year term, to reflect new conditions agreed with Grupo Aval. In August 2013, this contract was amended, providing a new term of seven years, including two two-year grace periods, and an interest rate of DTF + 2.5%. This financing tariff is collected through a trust fund, which in turn is responsible for making the debt service payments to Grupo Aval. Under this agreement, ODL has committed to transport 75,000 bpd during the initial two-year grace period of the facility and 90,000 bpd during the remaining years including the new term. Ecopetrol S.A. is responsible for 65% of this capacity. Payments by Ecopetrol S.A. under this contract were COP\$50 billion in 2015.

- In September 2009, Ecopetrol S.A. entered into a second ship-or-pay agreement with ODL that establishes a financing tariff collected through a trust fund that in turn is responsible for making debt service payments to security holders. Under this agreement, ODL committed to transport 19,500 bpd during the first phase of the ODL project (which began in September 2009 and ended in the first quarter of 2010) and 39,000 bpd upon commencement of the second phase of the ODL project which occurred in the first quarter of 2010 and finishes in the third quarter of 2016. Payments by Ecopetrol S.A. under this contract were COP\$116 billion in 2015.
- In December 2009, Ecopetrol S.A. entered into a service agreement with ODL to transport crude oil. This agreement was replaced in January 2014 by a new agreement that expires in December 2020. This is a "ship or pay" agreement covering 167,000 bpd for 2014, 149,000 bpd for 2015 and 139,000 bpd until 2020. Payments by Ecopetrol S.A. under this contract were COP\$409 billion in 2015.
- In March 2010, Ecopetrol S.A. entered into a pipeline operating and maintenance agreement with ODL. This agreement had an original five-year term and was amended in 2015 to extend the term another five years, adjusting certain conditions. Pursuant to the terms of this agreement, ODL paid to Ecopetrol S.A. COP\$9 billion in 2015.
- In July 2013, Ecopetrol S.A. entered into a service agreement with ODL to dilute, in the facilities of the Cusiana field, crude oil transported in the Rubiales – Monterrey/Cusiana pipeline, with a committed capacity of 182,000 bpd. For 2015, 111 thousand bpd of the committed capacity corresponds to the "take or pay" volume. Payments by Ecopetrol S.A. under this contract were COP\$23.8 billion in 2014. In 2014, this contract was amended to include an oil transfer service that has a "take or pay" volume of 15,000 bpd. Payments by Ecopetrol S.A. under this contract were COP\$28 billion in 2015.

Oleoducto Bicentenario de Colombia S.A.S.

Ecopetrol S.A. has entered into the following agreements, among others, with its 55.97% owned subsidiary Oleoducto Bicentenario:

- In November 2011, Ecopetrol S.A. signed a five-year technical assistance services contract for the construction of the Araguaney-Coveñas pipeline. This contract finished its first phase on June 30, 2014. Future phases are under evaluation.
- In June 2012, Ecopetrol S.A. entered into ship-or-pay and ship-and-pay crude oil transportation agreements with Oleoducto Bicentenario that establish a price, which requires the payment of Oleoducto Bicentenario's indebtedness to local banks for 12 years. This tariff is collected through a trust; the trust is also responsible for making the debt service payments to the banks. The duration of the ship-or-pay agreement is the earlier of 12 years or when the credit has been entirely paid, and the duration of the ship-and-pay agreement is 20 years after the ship-or-pay terminates. Under these agreements, Oleoducto Bicentenario has committed to transport at least 110,000 bpd, of which the 55% of the agreement volume is provided directly by Ecopetrol S.A. and 0.97% indirectly by Hocol. Pursuant to the terms of this agreement, in 2015 Ecopetrol paid to Bicentenario S.A. COP\$548 billion plus applicable taxes. In March 2014, the parties signed an amendment to this contract under which Oleoducto Bicentenario acknowledges having received an advance tariff payment which can be amortized through volumes of crude transported in excess of 110,000 bpd. In April 2015, this contract was amended to modify certain definitions to reflect new terms from the negotiation of the debt, which included a modification of participant banks and a reduction of the interest rate.
- In June 2012, Ecopetrol S.A. entered into storage or pay and storage and pay agreements with Oleoducto Bicentenario. Under these agreements, Oleoducto Bicentenario is committed to receive, store, preserve and deliver our crude oil. The storage or pay agreement will terminate when Oleoducto Bicentenario's indebtedness to local banks has been entirely paid, and the duration of the storage and pay agreement is 20 years after the storage or pay agreement terminates. In April 2015, this contract was amended to modify certain definitions to reflect new terms from the negotiation of the debt, which included a modification of participant banks and a reduction of the interest rate. Pursuant to the terms of this agreement, in 2015 Ecopetrol paid to Bicentenario COP\$26.5 billion plus applicable taxes.

- In August 2012, Ecopetrol S.A. entered into an Operation and Maintenance agreement for the Araguaney – Banadia pipeline system. The duration of this agreement is 15 years. Pursuant to the terms of this agreement, Ecopetrol S.A. received COP\$9 billion plus reimbursable expenses in 2015.

Ecodiesel

- Ecopetrol S.A. entered into a supply agreement with Ecodiesel Colombia S.A. (“Ecodiesel”), a company in which Ecopetrol S.A. has a 50% equity interest. This agreement has been operative since August 1, 2010. Pursuant to the terms of this agreement, Ecodiesel must deliver to Ecopetrol S.A. and Ecopetrol S.A. must in turn purchase 48,100 barrels of Ecodiesel’s biodiesel production each month. Payments vary depending on the purchased volumes and the prices of biodiesel. This agreement expires on December 31, 2017. In 2015, a total of COP\$273 billion was paid under this contract.

Savia Peru S.A.

- On February 19, 2016, Ecopetrol S.A., as lender and shareholder of 50%, and Savia Perú, as borrower, entered into a five-year loan agreement for an aggregate principal amount not to exceed US\$70 million. The proceeds of the facility will be used to i) repay short term loans, ii) payment of shortfalls related to final judgments (in case they materialize). The loan agreement accrues interest at an annual rate of 4.99%, which can be adjusted on an annual basis, with semi-annual interest payments and principal payments beginning on the 21st month following the disbursement date. As of April 2016, Ecopetrol disbursed US\$13.5 million under the loan agreement. Korea National Oil Corporation (KNOC), as shareholder of the other 50% of Savia Perú, signed a facility under the same terms and conditions as described above.

Transactions with Other State-Controlled Entities

Other than the agreements that we have entered into with the ANH and described in the section *Business Overview—Exploration and Production—Joint Venture and Other Contractual Arrangements*, in the ordinary course of business we enter into transactions with other state-owned entities that include but are not limited to the following:

- Selling and purchasing goods, including crude oil purchases of ANH royalties (see below);
- Properties and other assets;
- Rendering and receiving services;
- Leasing assets;
- Depositing and borrowing money; and
- Using public utilities.

For the years ended December 31, 2015 and 2014, we purchased the following volumes of crude oil from the ANH (National Hydrocarbon Agency) corresponding to royalties paid in kind by oil producers in Colombia: 45.6 million barrels and 45.4 million barrels, respectively. See the section *Business Overview—Applicable Laws and Regulations—Regulation of Exploration and Production Activities—Business Regulation—Royalties* for a description of the current royalty scheme.

3.11 Insurance

We have a clear and defined corporate policy based on risk financing guidelines that summarizes the Company’s risk transference and retention alternatives and provides support and guidance for all the insurance-related issues of all of our affiliated and subsidiary companies.

There are two corporate insurance programs covering Ecopetrol S.A. and its subsidiaries. In the text and tables below, we set forth our insurance programs and the companies covered, along with limits and coverage details.

World-Wide Umbrella Program: This insurance program provides coverage for downstream (assets and operations) of Ecopetrol S.A. and all of its subsidiaries in excess of their local insurance programs, and also in excess of the “Global Energy Package” program, when applicable. Coverage includes all physical damage, sabotage and terrorism, general liability, directors and officers, crime and marine cargo. Physical damage, sabotage and terrorism coverages were designed to cover downstream operations, while general liability, directors and officers, crime and marine cargo coverages were designed to cover down-, mid- and upstream operations.

Table 44 – World-Wide Umbrella Program

| Policies | Limit (eel/agg ⁽¹⁾) | | Deductible | | Ecopetrol | | | | | Ecopetrol | | ODL | Cenit | |
|------------------------|---------------------------------|----------|-------------|----------|------------|---------|----------|----------|--------|-----------|---------|-----|-------|-----------------------|
| | Onshore | Offshore | Onshore | Offshore | Downstream | Reficar | Propilco | Upstream | Equion | Hocol | America | | | Brazil ⁽²⁾ |
| | (US\$ in million) | | | | | | | | | | | | | |
| Property – all risk | 2,000 | NA | 5 | N/A | X | X | X | NA | NA | NA | NA | NA | NA | NA |
| Sabotage and terrorism | 600 | NA | 0.5 | N/A | X | X | X | NA | NA | NA | NA | NA | NA | NA |
| Third-party Liability | 500 | NA | 1 | NA | X | X | X | X | X | X | NA | NA | X | X |
| Crime | 75/150 | NA | Various | NA | X | X | X | X | X | X | NA | NA | NA | X |
| Directors and Officers | 250 | NA | Various | NA | X | X | X | X | X | X | X | X | NA | X |
| Cargo | 250 | NA | 3% Dispatch | NA | X | X | NA | X | NA | X | NA | NA | NA | NA |

(1) Eel: each and every loss. Agg: Aggregate.
 (2) There are no insurable assets in Brazil.

Global Energy Package. This program provides coverage for upstream and midstream (assets and operations) of Ecopetrol’s interests and all of its upstream subsidiaries, including all physical damage, sabotage and terrorism, general liability and control of wells.

Table 45 – Global Energy Package

| Policies | Limit (eel/agg ⁽¹⁾) | | Deductible | | Ecopetrol Upstream | Equion | Hocol | Ecopetrol America | Ecopetrol Brazil | ODL | Cenit |
|------------------------|---------------------------------|----------|------------|----------|-----------------------|--------|-------|----------------------|---------------------|-----|-------|
| | Onshore | Offshore | Onshore | Offshore | | | | | | | |
| | (US\$ in million) | | | | | | | | | | |
| Property – all risk | 400 | 400 | 0.25 | 0.25 | X | X | X | X | NA | X | X |
| Sabotage and terrorism | 55 | 55 | 0.5 | N/A | X | X | X | NA | NA | X | X |
| Third-party Liability | NA | 500 | N/A | 0.15 | X | NA | NA | X | X | NA | NA |
| Control of wells | 250/50 ⁽²⁾ | 400 | 0.25-0.5 | 5 | X | X | X | X | X | NA | NA |

(1) Eel: each and every loss. Agg: Aggregate.

(2) Drilling US\$250M / Production US\$50M

Our third-party liability insurance policies cover Ecopetrol S.A., our subsidiaries and affiliates in excess of local underlying policy limits for claims made against them by third parties. Our commercial general liability, umbrella liability, and excess liability coverage will pay on behalf of or indemnify amounts for which an insured becomes legally obligated to pay, including damages in respect of bodily injury, property, pollution and product liability. Coverage of bodily injury and property damage is subject to coverage territory during the policy period.

With respect to offshore operations in the U.S. Gulf Coast, Ecopetrol America Inc. is party to Operating Agreements, or OAS, that include customary conditions and which contain similar terms and provisions to those in the Model Form of Offshore Deepwater Operating Agreement of the American Association of Professional Landmen. In general, pursuant to these OAs, the obligations, duties, and liabilities of the contract parties are several, and not joint or collective, for all operations covered by the OAs.

Ecopetrol Óleo e Gás do Brasil Ltda. and Ecopetrol del Perú are parties to Joint Operating Agreements (JOA) based on the Association of International Petroleum Negotiators model. Liability is generally the same as described for the OAS above, with the following variations: if claims arise from third parties as part of a claim not involving an operator’s gross negligence or willful misconduct, and the operator pays such claims, all parties must concur and reimburse such claim amounts. In certain contracts, all environmental damages are distributed according to the parties’ participation interest, regardless of whether the damages were caused by an operator’s gross negligence or willful misconduct. In certain cases, non-operators may intervene and directly verify compliance of the operator’s HSE programs. Ecopetrol uses the same liability clauses in JOAs for offshore operations in Colombia, when Colombian laws do not govern such agreements.

3.12 Human Resources/Labor Relations

3.12.1 Employees

As of December 31, 2015, Ecopetrol S.A. had 8,731 employees, a decrease of 4.8% from 2014. Most of our employees are located in Colombia. The table below presents the breakdown of Ecopetrol employees according to the business segments where they work, and the personnel of our subsidiaries for the years ended December 31, 2015, 2014 and 2013.

Table 46 – Corporate Group’s Employees

| | As of December 31, | | |
|--|-----------------------|---------------------|---------------------|
| | 2015 ⁽³⁾ | 2014 ⁽²⁾ | 2013 ⁽¹⁾ |
| | (number of employees) | | |
| Ecopetrol S.A. | | | |
| Exploration and Production | | | |
| Exploration | 218 | 187 | 188 |
| Production | 1,880 | 2,022 | 1,867 |
| Others | 457 | 429 | 437 |
| Total Exploration and Production | 2,555 | 2,638 | 2,492 |
| Downstream | | | |
| Refining | 2,700 | 2,771 | 2,716 |
| Marketing | 136 | 199 | 187 |
| Others | 6 | 19 | 18 |
| Total Downstream | 2,842 | 2,989 | 2,921 |
| Transport | 1,158 | 1,251 | 1,184 |
| Others | 61 | 3 | 0 |
| Total Operations | 6,616 | 6,881 | 6,597 |
| Corporate | 2,115 | 2,269 | 2,203 |
| TOTAL ECOPETROL S.A. | 8,731 | 9,150 | 8,800 |
| Ecopetrol America Inc. | 75 | 57 | 47 |
| Bioenergy S.A. | 122 | 96 | 106 |
| Bioenergy Zona Franca S.A.S. | 126 | 94 | 92 |
| Hocol S.A. | 172 | 185 | 197 |
| Equion Energía Limited | 458 | 462 | 486 |
| Oleoducto Central S.A. | 271 | 249 | 245 |
| Oleoducto de Colombia S.A. | 2 | 1 | 1 |
| Oleoducto de los Llanos S.A. | 56 | 33 | 16 |
| Oleoducto Bicentenario de Colombia S.A.S. | 0 | 39 | 28 |
| Ecopetrol del Perú S.A. | 0 | 0 | 2 |
| Refinería de Cartagena S.A. | 270 | 247 | 234 |
| Ecopetrol Óleo e Gás do Brasil Ltda. | 17 | 14 | 14 |
| Polipropileno del Caribe S.A. (Esentia S.A.) | 388 | 374 | 353 |
| Cenit Transporte y Logística de Hidrocarburos S.A.S. | 76 | 75 | 65 |
| TOTAL | 10,765 | 11,076 | 10,686 |

- (1) 193 persons employed by us during 2013 were not included in our 2013 employee statistics as they were independent contractors involved in non-regular activities and cannot be classified as temporary employees.
- (2) 79 persons employed by us during 2014 were not included in our 2014 employee statistics as they were independent contractors involved in non-regular activities and cannot be classified as temporary employees.
- (3) 31 persons employed by us during 2015 were not included in our 2015 employee statistics as they were independent contractors involved in non-regular activities and cannot be classified as temporary employees.

Loans and investment on training and development for our employees

To improve the quality of life of our employees, Ecopetrol S.A. extends various types of loans to its employees, including housing loans and general-purpose loans. The principal amount of the loan depends on the applicant’s tenure and cannot exceed 59 times the applicant’s monthly salary. Ecopetrol S.A. does not guarantee any loans made by third parties. In 2015, Ecopetrol S.A. extended 1,099 housing loans for a total of COP\$ 170 billion and 1,633 general-purpose loans for a total of COP\$12 billion. Ecopetrol S.A. also provided on-site and external training and development, which total to COP\$10.02 billion, and it extended a total of COP\$99 billion in subsidies for education.

We have not provided loans (including housing loans), extended or maintained credit lines, arranged for the extension of credit by third parties, materially modified or renewed an extension of credit lines, in the form of a personal loan to or for any of our executive officers since our ADSs were registered under the Exchange Act.

Due to the replacement of several Senior Managers that took place in 2015, there are no more executive officers with housing loans in Ecopetrol.

Labor Regulation

In accordance with article 123 of the Colombian Constitution and the article 7th of the Law 1118 of 2006, our employees are considered “public servants”; even though they are subject to the common labor law. As such, their behavior is subject to the rules to those who handle public interests and goods and could be held liable for their illegal actions and omissions pursuant to the following regimes (1) disciplinary (Law 734 of 2002), (2) criminal or (3) civil.

3.12.2 Collective Bargaining Arrangements

Ecopetrol S.A.

A collective bargaining agreement between us and our main labor unions governs labor relations with our unionized employees, which amounted to 3,815 employees as of March 4, 2016. The agreement also governs our labor relations with the 803 non-unionized employees that agreed to abide by it after requesting a waiver of Agreement 01 of 1977 or that belong to the technical operations career structure.

We currently have three industry-wide labor unions and six company labor unions:

- Unión Sindical Obrera de la Industria del Petróleo — USO (industry labor union);
- Asociación de Directivos Profesionales, Técnicos y Trabajadores de las Empresas de la Rama de Actividad Económica del Recurso Natural del Petróleo y sus Derivados de Colombia — ADECO (industry labor union);
- Sindicato Nacional de Trabajadores de Empresas Operadoras, Contratistas, Subcontratistas de Servicios y Actividades de la Industria del Petróleo y Similares — SINDISPETROL (industry labor union); and
- Asociación de Profesionales de Ecopetrol — ASPEC (company labor union).
- Sindicato Nacional de Trabajadores de Ecopetrol — SINCOPEPETROL (company labor union).

Notified to Ecopetrol in 2016:

- Asociación Sindical de Empleados de Ecopetrol – ASOPETROL (company labor union)
- Asociación Sindical de Trabajadores de Ecopetrol – TRASINE (company labor union)
- Asociación Sindical de Trabajadores de Ecopetrol – ASTECO (company labor union)
- Sindicato de Trabajadores Petroleros de Ecopetrol – SINPECO (company labor union)

Currently Ecopetrol S.A. does not have any workers in the SINCOPEPETROL union. This union does not participate in the negotiation process.

Any employee working for any company in the oil and gas industry may join the USO, ADECO or SINDISPETROL. Only our employees may join the company labor Unions.

Ecopetrol S.A. relations with unions are based on a permanent dialogue and communication sessions where different matters are discussed in order to solve and prevent any labor conflict.

The following are the relevant terms of the five-year collective bargaining agreement in effect since 2014 and expiring on June 30, 2018. In 2016 the agreement could be reviewed on application matters, except for monetary expenses (including wages and benefits) and the scope of the agreement cannot be changed.

This agreement currently covers all workers benefiting from the Collective Labor Convention, regardless of whether they are part of any labor union:

- *Education Subsidy.* This subsidy covers 90% of tuition and board expenses and fixed amounts of transportation and textbooks for our employees and their children.
- *Health Care Benefits.* We pay 100% of medical expenses for workers and their families. According to internal regulations, families includes spouses, permanent companions, children under 18, children between 18 and 25 if they are studying, and economically dependent parents. The health benefits include comprehensive health care service, and programs in the prevention of diseases, the supply of medicines and others.
- *Six-Months' Bonus.* Ecopetrol S.A. pays an additional 48 days of regular wage to all its workers each year: 24 days of additional regular wage in June and 24 in December.
- *Stability Clause.* Employees affiliated with the Unión Sindical Obrera de la Industria del Petróleo – USO (labor union) or Asociación de Directivos Profesionales, Técnicos y Trabajadores de las Empresas de la Rama de Actividad Económica del Recurso Natural del Petróleo y sus Derivados de Colombia – ADECO (industry labor union) who, as of December 1, 2004, had worked over 16 months continuously, cannot be terminated without good cause. 1,488 employees, approximately 17% of employees, are covered by this clause and additionally 679 could potentially also be benefited.
- *Pension Plan for Employees.* 26 employees that were hired before January 29, 2003 and fulfilled the company pension plan requirements before July 31, 2010 are covered by a company run pension plan. The other 8,705 employees are covered by the national social security system (99.7% of employees).
- *Five-Year Bonus.* A cash bonus accrues on a yearly basis and is paid out at the end of each five-year period that an employee works for Ecopetrol S.A. These bonuses increase incrementally over the length of an employee's employment with the Ecopetrol S.A., and range from a payment equivalent to five days' minimum wage for an employee who has worked for the Ecopetrol S.A. for a total of five years to 45 days' minimum wage for an employee who has worked for the Ecopetrol S.A. for 45 years.

4. Financial Review

Our consolidated financial statements for the years ended December 31, 2014 and 2015 were prepared in accordance with IFRS. Our date of transition to IFRS was January 1, 2014. These consolidated financial statements are our first financial statements prepared in accordance with IFRS.

Until December 31, 2014, we prepared our audited consolidated financial statements in accordance with Colombian Government Entity GAAP issued by the *Contaduría General de la Nación* with reconciliations to U.S. GAAP. As required by IFRS 1—First Time Adoption of International Financial Reporting Standards— our financial position and results of operations for the year ended December 31, 2014 have been restated in accordance with IFRS. Note 35 to our consolidated financial statements contains an analysis of the presentation and disclosure effects of adopting IFRS and the effects on equity and net income for the fiscal year ended December 31, 2014 as of January 1 and December 31, 2014. The selected financial information for 2014 included in this annual report differs from the information we previously published for 2014, because it is presented in accordance with IFRS for comparative purposes, as required by IFRS 1. Following our adoption of IFRS, we are no longer required to reconcile our financial statements to U.S. GAAP.

In addition, IFRS differs in certain significant respects from the current Colombian IFRS (which is the accounting standard we use for local reporting purposes). As a result, our financial information presented under IFRS is not directly comparable to any of our financial information presented under Colombian IFRS. A description of the differences between Colombian IFRS and IFRS is presented under—Summary of Differences between Internal Reporting (Colombian IFRS and IFRS) below.

Our consolidated financial statements were consolidated line by line and all transactions and significant balances between affiliates have been eliminated. These financial statements include the financial results of all subsidiary companies controlled, directly or indirectly, by Ecopetrol S.A. See Exhibit 1 – Consolidated companies, associates and joint ventures, to our consolidated financial statements included in this annual report.

4.1 Factors Affecting Our Operating Results

Our operating results were affected mainly by international prices of crude oil and, to a somewhat lesser extent, international prices for refined products and local prices for natural gas, as well as sales volumes, product mix, and our operational performance. Crude oil prices and volumes are particularly important to the results of our exploration and production segment. This is because as export volumes or export prices of crude oil decrease or increase, so do revenues. Results from our refining activities are also affected by conversion ratios, utilization rates and refining capacity, all of which affect our refining margins. Changes in the value of foreign currencies, particularly the U.S. dollar against the Colombian Peso, can also have a significant effect on our financial statements. Finally, terrorist attacks by guerillas against our pipelines and other facilities can lead to loss of revenues by restricting the availability of transport systems for exports or sales of crude oil and products in addition to the direct costs of repair and cleaning.

Sales volumes and prices

Our results from the exploration and production segment depend on our sales volumes and average local and international prices for crude oil and natural gas. Additionally, sales volumes are affected by the purchase of crude oil and natural gas that we make from third parties and the ANH.

We sell crude oil mainly in the international market as exports. We also process crude oil at the Barrancabermeja and Reficar refineries and sell refined and other petrochemical products in local and international markets.

Local sales and prices

We have a number of crude oil short-term commercial agreements with local customers, including producers of IFOS (Intermediate Fuel Oil) for the bunker industry in Colombia, and natural gas long-term supply contracts with gas-fired power plants and local natural gas distribution companies. Local sale prices are determined in accordance with existing regulations, contractual arrangements and the spot market linked to international benchmarks or export prices. Local sales have accounted for 46% of our total revenues, on average, for the past two years.

International Sales and Prices

Our foreign sales have accounted for 54% of our total revenues, on average, for the past two years.

International sale prices are determined in accordance with contractual arrangements and the spot market linked to international benchmarks primarily ICE Brent and Maya benchmarks.

Our commercial strategy focuses on market diversification. We sell our products in various regions, such as Asia, the U.S. Gulf Coast, U.S. Atlantic Coast, Europe, Central America and the Caribbean. In our negotiations with potential customers, we seek to use the most liquid benchmark reference prices in each region.

Exploration costs

We account for exploratory drilling costs using the successful efforts method, whereby all costs associated with the exploration and drilling of productive wells are initially capitalized. Costs incurred in exploring and drilling of dry or unsuccessful wells are expensed in the period in which the well is determined to be a dry or unsuccessful well and are accounted for under “Exploration and Project expenses.” Consequently, an increase in the number of exploratory wells we declare as dry or unsuccessful will negatively affect our results and may cause volatility in our operating expenses.

Royalties

Each of our production contracts has its own royalty arrangement in accordance with applicable law. Historically, Law 141 of 1994 established a royalty fixed rate equivalent to 20% of total production. In 1999, a modification to the royalty system established a sliding scale for royalty percentage linked to the production level of crude oil and natural gas to fields discovered after July 29, 1999, depending on whether the production is crude oil or natural gas, and on the quality of the crude oil produced. Since 2002, the royalty percentage has ranged from 8% for fields producing up to five thousand bpd to 25% for fields producing an excess of 600 thousand bpd. Producing fields pay royalties in accordance with the applicable royalty rate at the time of the discovery.

Since January 2014, the ANH has collected natural gas production royalties from producers settled in cash based on a formula, regardless of whether a producer has sold the gas. As a result, we no longer commercialize this gas on behalf of the ANH. In addition, because the royalties are now payable to the ANH in cash, all of the gas we produce is counted as part of our production, without any deduction for royalties. The cost of natural gas royalties totaled COP\$481,029 million in 2015.

Purchases of hydrocarbons

We continue purchasing all crude oil delivered to the ANH as royalties by us and by third parties. The purchase price is calculated according to a formula set forth in a contract between us and the ANH that reflects our export sales prices (crudes and products), a quality adjustment for API gravity and sulfur content, transportation rates from the wellhead to the Coveñas and Tumaco ports and a marketing fee. We sell the physical product purchased from the ANH as part of our ordinary business. In June 2015, the contract between the ANH and us was extended until June 30, 2016.

Our purchases of hydrocarbons from the ANH are made in the ordinary course of business, and on terms comparable to those offered to private parties. We have established procurement policies and approval processes for purchases of products and services, which do not depend on whether the counterparties are state-owned entities.

4.2 Effect of Taxes, Exchange Rate Variation, Inflation and the Price of Oil on our Results

4.2.1 Taxes

In December 2014, the Colombian Congress adopted Law 1739 of 2014, a new tax reform which introduced significant changes to the Colombian tax system, including the following:

- **Wealth Tax** – a new tax that will be levied from 2015 to 2017 on domestic and foreign companies that, as of January 1, 2015, hold net wealth for tax purposes (assets less allowable liabilities) in Colombia in excess of COP\$1 billion. The applicable rates for this wealth tax are: 1.15% for 2015, 1% for 2016, and 0.4% for 2017, subject to certain exceptions.
- **CREE tax rate** (“*Impuesto sobre la renta para la Equidad*” or income tax for equality). The tax reform makes the CREE tax rate of 9% permanent.
- **CREE surtax**– a new surcharge for corporations and entities whose net income for fiscal years 2015 to 2018 is equal to or greater than COP\$800 million. The applicable rates for the CREE surtax are: 5% for 2015, 6% for 2016, 8% for 2017 and 9% for 2018.

As a result of these tax changes, the overall statutory corporate income tax rate from 2015 to 2018 is expected to be as follows: 39% in 2015, 40% in 2016, 42% in 2017 and 43% in 2018.

Effect on other taxes

The tax reform of 2014 discussed above has also included other provisions that are relevant to and may impact our results of operations:

- An extension of a 0.4% charge on financial transactions (“GMF” for its acronym in Spanish), which will be fully in effect until 2019 and will be progressively reduced from 2020 to 2022.
- A provision under which companies will be eligible for a credit against their income tax liability of up to 2% of the VAT paid on the acquisition or importation of capital assets (i.e., tangible and amortizable assets that are not sold or transferred in the ordinary course of business and that are used for the production of goods and/or services).
- Limitations on the benefit related to the discounting of VAT accrued and paid on the acquisition or importation of heavy machinery for certain basic industries.
- Extension of the current deduction applicable for investments in certain research and development projects as determined by the criteria and conditions established by the Colombian government.
- Exchange rate differences on foreign investments in fixed assets are not considered items of income or tax expense until the time of disposal of such investments.
- Clarification that the National Gasoline Tax will apply upon the sale, write-off or importation of gasoline, regardless of whether such gasoline is imported for consumption or for sale. Before the tax reform was enacted in 2014, it was not clear whether the importation for sales purposes triggered a taxable event.

During 2015, there were no relevant changes in the Colombian tax system.

In 2015, we paid income tax and wealth tax of COP\$3,148,028 million and COP\$649,800 million, respectively. See Note 9 – Taxes to our consolidated financial statements.

4.2.2 Exchange Rate Variation

Our results are reported in Colombian Pesos, and we maintain our financial books and records in Colombian Pesos. However, a substantial part of our revenues from local sales and exports of crude oil, natural gas and refined products are sold at prices referenced to benchmarks quoted in U.S. dollars. Therefore, we are exposed to foreign currency exchange risk on revenues, capital expenditures and financial instruments that are denominated in a currency other than our functional currency (Colombian Pesos).

An appreciation of the Colombian Peso has a negative impact on our results of operations because our revenues from exports of crude oil, natural gas and refined products are primarily expressed in Colombian Pesos. Costs of imported goods and contracted services expressed in U.S. dollars will also be lower when expressed in Colombian Pesos, but on balance, our operating income in Colombian Pesos tends to decline when the Colombian Peso appreciates, other factors being equal. Conversely, when the Colombian Peso depreciates against the U.S. dollar, our reported revenues, costs related to imported goods and services, interest costs, and operating income, all tend to increase. As crude oil is priced in U.S. dollars, fluctuations in the exchange rate of the Colombian Peso against the U.S. dollar may have a significant impact on revenues, cost, assets and liabilities held in foreign currency.

During 2015 and 2014, the Colombian Peso depreciated on average 37.28% and 7.05%, respectively, against the U.S. dollar. Additionally, as of December 31, 2015 and December 31, 2014, the Colombian Peso depreciated 31.64% and 24.17%, respectively, from the rate a year earlier.

In 2015, our consolidated debt in foreign currency increased by a total of US\$3,425 million as Ecopetrol S.A. raised US\$1,925 million through an international loan and US\$1,500 million through an international bond issuance. In 2014, our consolidated debt in foreign currency increased through international bond issuances by Ecopetrol S.A. and Ocesa for a total of US\$3,700 million.

As of December 31, 2015 our U.S. dollar-denominated total debt was US\$14.6 billion, which we recognize in our financial statements at its amortized cost, which corresponds to the present value of cash flows, discounted at the effective interest rate. Out of this total, US\$11.1 billion relates to Ecopetrol S.A., whose functional currency is the Colombian Peso. Therefore, when the Colombian Peso depreciates against the U.S. dollar, the Company is exposed to an exchange rate loss. In contrast, when the Colombian Peso appreciates against the U.S. dollar, the Company has an exchange rate gain. Some of Ecopetrol Group affiliates have the U.S. dollar as functional currency, and are not exposed to an exchange rate risk. When we consolidate our financial statements, the exchange rate differential of our affiliates whose functional currency is the U.S. dollar is recognized directly as equity, as part of the other comprehensive income.

As of October 1, 2015, we adopted hedge accounting as part of our risk management strategy, using the natural hedge between exports of crude oil and U.S. dollar-denominated debt. As such, 49% of Ecopetrol S.A.'s debt in dollars was designated as a hedge instrument of our future export sales for the period of 2015- 2023, see Note 4.1.4 to our consolidated financial statements for further explanation of the accounting policy and note 31.2.1 for details of the hedge accounting adopted. With the adoption of hedge accounting, the effect of the volatility of the foreign exchange rate on the hedged portion of the debt is recognized directly in equity, as part of the other comprehensive income. The remaining portion of Ecopetrol S.A.'s U.S. dollar-denominated debt continues to be exposed to the fluctuation in the exchange rate.

4.2.3 Effects of Inflation

Inflation in Colombia has remained relatively stable for the past ten years; however, it did increase significantly in 2015 as compared to 2014. As measured by the general consumer price index, average annual inflation in Colombia for the years ended December 31, 2015 and 2014, inflation was 6.77% and 3.66%, respectively. The increase in inflation in 2015 is mainly explained by the partial pass-through of nominal depreciation to consumer prices and costs of raw materials, as well as by a strong increase in food prices due to "El Niño" weather phenomenon. Cost inflation in the prices of goods, raw materials, interest cost of debt in local currency indexed to inflation and services that are necessary for the development and operation of oil and gas producing assets can vary over time and between each market segment.

4.2.4 Effects of the Price of Oil

The average price of ICE Brent crude was US\$53.6 per barrel in 2015 as compared to US\$99.3 per barrel in 2014. As a consequence, our average price crude oil basket was US\$43.9 per barrel in 2015 and US\$87.3 per barrel in 2014, which represents a decrease of US\$43.4 per barrel in 2015 compared to 2014. This decline is mainly explained by a continuing imbalance between supply and demand in the global crude market due to higher production in North America as well as the scheduled and unscheduled maintenance at refineries in the United States, Europe and Japan and diminished growth projections for the leading global economies.

In the Operating Results section below, we present the impact of the price decline in our revenue and cost of sales.

Additionally, the drop in the price of oil has had an impact on the value of our oil and gas reserves. The valuation of these reserves was made using a price in accordance with SEC regulations. In 2015, in connection with the current adverse economic context faced by the hydrocarbons sector, which resulted in a reduction in forecasted oil prices, lower expected refining margins in the coming years and an increase in market and country risk that is reflected in the discount rate, as well as a reduction in the recoverable reserves amount and refining margin, among other factors, Ecopetrol recognized an impairment of non-current assets of COP\$7,864,875 million before taxes. For additional information see Risk Review—Risks Related to Our Business—Our crude oil and natural gas reserve estimates involve some degree of uncertainty and may prove to be incorrect over time, which could adversely affect our ability to generate revenue and Notes 14, 18, 19 and 29 to our consolidated financial statements.

4.3 Accounting Policies

4.3.1 Adoption of IFRS

Our consolidated financial statements for the years ended December 31, 2014 and 2015 were prepared in accordance with IFRS. Our date of transition to IFRS was January 1, 2014. These consolidated financial statements are our first financial statements prepared in accordance with IFRS. As required by IFRS 1—First Time Adoption of International Financial Reporting Standards—our financial position and results of operations for the year ended December 31, 2014 have been restated in accordance with IFRS. Note 35 to our consolidated financial statements contains an analysis of the presentation and disclosure effects of adopting IFRS and the effects on equity and net income for the fiscal year ended December 31, 2014 as of January 1 and December 31, 2014. The selected financial information for 2014 included in this annual report differs from the information we previously published for 2014, because it is presented in accordance with IFRS for comparative purposes, as required by IFRS 1.

4.4 Critical Accounting Judgments and Estimates

Critical accounting policies are those policies that require us to exercise judgment or involve a higher degree of complexity in the application of the accounting policies that currently affect our financial condition and results of operations. The accounting judgments and estimates we make in these contexts require us to calculate variables and make assumptions about matters that are highly uncertain. In each case, if we had made other estimates, or if changes in the estimates occur from period to period, our financial condition and results of operations could be materially affected.

See Notes 3 and 4 to our consolidated financial statements for a summary of the critical accounting judgments and estimates as well as principal accounting policies and practices applicable to us. There are many other areas in which we use estimates about uncertain matters, but we believe the reasonably likely effect of changed or different estimates would not be material to our financial presentation.

4.5 Operating Results

The following discussion is based on information contained in our audited consolidated financial statements and should be read in conjunction therewith.

4.5.1 Consolidated Results of Operations

The following table sets forth components of our income statement for the years ended December 31, 2015 and 2014.

Table 47 – Consolidated Income Statement

| <i>Income Statement</i> <i>(Colombian Pesos in millions)</i> | For the Year ended December 31, | | % Change |
|---|--|-------------------|------------------|
| | 2015 | 2014 | 2015/2014 |
| Revenue | 52,347,271 | 65,971,888 | (20.7) |
| Cost of Sales | 36,994,516 | 42,975,128 | (13.9) |
| Gross Profit | 15,352,755 | 22,996,760 | (33.2) |
| Operating Expenses | 13,221,590 | 8,547,733 | 54.7 |
| Operating Income | 2,131,165 | 14,449,027 | (85.3) |
| Finance results, net | (7,663,104) | (3,510,669) | 118.3 |
| Share of profit of companies | (46,687) | 166,070 | (128.1) |
| Income before income tax | (5,578,626) | 11,104,428 | (150.2) |
| Income tax | (710,353) | (5,434,855) | (86.9) |
| Net Income (loss) | (6,288,979) | 5,669,573 | (210.9) |
| Net Income (loss) attributable to: | | | |
| Owners of Ecopetrol | (7,193,859) | 5,046,517 | (242.6) |
| Non-controlling interest | 904,880 | 623,056 | 45.2 |
| Net Income (loss) | (6,288,979) | 5,669,573 | (210.9) |

4.5.1.1 Total Revenues

The following table sets forth our principal sources of third-party revenues by business segment for the years ended December 31, 2015 and 2014. An explanation of how we classify our operations into business segments is included in Section 4.5.2 below.

Table 48 – Third-party Revenues by Business Segment

| Revenue by segment | 2015 | | | 2014 | | | % change sales revenues 2015 - 2014 |
|---|-----------------------------|-------------------------------------|--|-----------------------------|-------------------------------------|--|--|
| | Volume (barrels equivalent) | Average price U.S. dollars/ barrels | Sales revenues (Colombian Pesos in millions) | Volume (barrels equivalent) | Average price U.S. dollars/ barrels | Sales revenues (Colombian Pesos in millions) | |
| Local crude oil | 4,904,765 | 38.5 | 491,279 | 8,202,886 | 74.7 | 1,213,718 | (59.5) |
| Foreign crude oil | 178,581,520 | 44.0 | 21,181,265 | 176,233,111 | 87.9 | 30,835,510 | (31.3) |
| Trading of crude oil | 17,526,239 | – | 1,309,196 | 17,977,861 | – | 1,486,060 | (11.9) |
| Natural gas local | 30,831,442 | 21.8 | 1,845,345 | 30,218,758 | 22.3 | 1,346,625 | 37.0 |
| Foreign natural gas | 2,906,034 | 23.6 | 182,950 | 6,726,072 | 31.0 | 423,461 | (56.8) |
| Other income ⁽¹⁾ | 3,558,621 | – | 659,178 | 2,925,769 | – | 597,671 | 10.3 |
| Exploration and production sales | 238,308,621 | | 25,669,213 | 242,284,457 | | 35,903,045 | (28.5) |
| Local refined products | 102,475,029 | 67.1 | 18,806,063 | 94,736,264 | 111.2 | 20,952,495 | (10.2) |
| Foreign refined products | 26,357,160 | 48.8 | 3,535,666 | 29,762,138 | 92.5 | 5,431,828 | (34.9) |
| Other income ⁽¹⁾ | – | – | 115,137 | – | – | 227,881 | (49.5) |
| Refining and petrochemicals | 128,832,189 | | 22,456,866 | 124,498,402 | | 26,612,204 | (15.6) |
| Transportation services | – | – | 4,221,192 | – | – | 3,456,639 | 22.1 |
| Transportation and logistics | – | | 4,221,192 | – | | 3,456,639 | 22.1 |
| Total sales | 367,140,810 | | 52,347,271 | 366,782,859 | | 65,971,888 | (20.7) |
| Crude oil | 201,012,524 | 43.9 | 22,981,740 | 202,413,858 | 87.3 | 33,535,288 | (31.5) |
| Natural gas | 33,737,476 | 22.0 | 2,028,295 | 36,944,830 | 23.9 | 1,770,086 | 14.6 |
| Refined products | 132,390,810 | 63.4 | 22,341,729 | 127,424,171 | 106.8 | 26,384,323 | (15.3) |
| Other | – | – | 4,995,507 | – | – | 4,282,191 | 16.7 |
| Total sales | 367,140,810 | | 52,347,271 | 366,782,859 | | 65,971,888 | (20.7) |

Note: All intercompany sales transactions have been eliminated in full in order to show our sales to third parties.

As a result of the evaluation of control over companies under IFRS, Ecopetrol does not consolidate Equion. As a consequence, the volume information for 2014 included in this annual report (which has been prepared under IFRS) differs from the information we previously published for 2014 under Colombian Government Entity GAAP (where we did consolidate Equion).

(1) In the case of the exploration and production segment, corresponds to services and sales of refined products (mainly LPG and asphalt) allocated to our exploration and production segment. In the case of the refining and petrochemicals segment, corresponds to industrial services.

In 2015, total revenues decreased by 20.7% as compared to 2014, primarily as a result of: (i) a COP\$27,847,772 million, decrease in revenues mainly due to the 49.7%, or US\$43.4 per barrel reduction of our average crude oil basket price. This decrease was offset by (i) the 37.28% devaluation of the Colombian Peso against the U.S. dollar, from an average exchange rate of COP\$2,000.68/US\$1 in 2014 to an average exchange rate of COP\$2,746.47/US\$1 in 2015, resulting in an increase in sales revenue from exports as well as in services provided by our transportation and logistics segment, which combined represented an upturn of COP\$13,312,094 million and (ii) COP\$882,873 million increase in revenues which was attributable to increase our sales volume.

The increase of our sales volume was mainly the result of the 3.9%, or 4.97 mbe, increase in our refined products sales volume, which in turn was primarily the result of the 8.2% increase in local sales of refined products given higher demand caused mainly by the increase in the number of vehicles in Colombia, the higher consumption of diesel for energy generation at thermal power plants due to warmer weather caused by the El Niño climate phenomenon and supplying the border area with Venezuela due to that country's decision to temporarily close its border with Colombia; partially offset by lower exports of fuel oil, as a result of the difficulties in transporting these products to port by means of the Rio Magdalena due to the reduced flow from this river. This increase in sales volume was partially offset by the 56.8%, or 3.8 mbe, decrease in natural gas exports due to the termination of our Venezuela sales contract on June 30, 2015 and the natural decline in production at the Guajira field.

4.5.1.2 Cost of Sales

Our cost of sales was principally affected by the factors described below. See Note 27 Cost of sales to our consolidated financial statements for more detail.

Cost of sales in 2015 was COP\$36,994,516 million, representing a COP\$5,980,612 million (13.9%) decrease as compared to 2014, primarily as a result of the following factors:

- COP\$4,900,941 million decrease in the purchase costs of crude oil, natural gas and refined products (primarily diluents, diesel and gasoline), which were purchased for sales and in the case of raw materials for refining, which was primarily the result of lower average purchase prices due to the COP\$12,068,310 million decrease in international benchmark prices for crude oil, natural gas and refined products. This decrease was partially offset by (i) a COP\$5,156,625 increase in the average exchange rate of the Colombian Peso against the U.S. dollar (which led to increased costs in Colombian Peso terms) and (ii) a COP\$2,010,744 million increase in volumes purchased from third parties, primarily consisting of increased purchases of gasoline volumes due to the closing of the Cartagena refinery for most of the year and increased local demand in Colombia caused by an increased number of automobiles and the closure of Colombia's border with Venezuela.
- A COP\$898,407 million decrease in maintenance and contracted services cost, which was primarily the result of (i) a COP\$585,705 million decrease in contracted services, mainly due to cost savings achieved through the implementation of our business transformation plan, operating cost optimizations contained in our partnership contracts for the Rubiales, Nare and Quifa fields, and lower costs related to the Cravo Norte field, in which our participation in 2015 was lower than in 2014; and (ii) a COP\$312,702 million decrease in maintenance costs, mainly due to savings achieved from our 2015 maintenance plan, which included the restructuring of maintenance services and quantities and the renegotiation of fees for field maintenance contracts.
- A COP\$357,835 million decrease in cost of sales, which was primarily the result from the accumulation of inventories due to the start-up of Reficar's operations.
- A COP\$94,625 million decrease in transportation costs, which was primarily the result of decreased use of tanker trucks as a result of the increased availability of pipelines due to greater operating stability and improved security conditions during 2015, which led to a decrease in attacks on our infrastructure.
- A COP\$70,032 million decrease in other minor items.

The factors mentioned above were partially offset by a COP\$341,228 million increase in the amortization, depletion and depreciation of property, plant and equipment, primarily as a result of higher investments in the Castilla, Chichimene, and Rubiales fields.

4.5.1.3 Operating Expenses

Operating expenses and selling, general and administrative expenses amounted to COP\$13,221,590 million in 2015, a COP\$4,673,857 million (54.7%) increase as compared to 2014, mainly as a result of the following factors (see Notes 28 and 29 to our consolidated financial statements for more detail).

- A COP\$5,560,308 million increase in the impairment of our non-current assets, of which COP\$4,819,998 million related to property, plant and equipment and natural resources and COP\$740,310 million related to investments in companies and good will. The impairment of property, plant and equipment and natural resources was mainly due to the existing low oil price environment, which has resulted in a reduction in forecasted crude oil prices and an increase in market and country risk, which has been reflected in the discount rate, as well as a reduction in the amount of recoverable reserves. These impairments are an accounting effect that does not involve any disbursement of resources. For more information see Notes 14, 18, 19 and 29 to our consolidated financial statements as well as our result of operations by segment below.
- A COP\$628,813 million increase in taxes mainly due to the wealth tax applicable for the year 2015 whereas no accrual was made for wealth tax expenses in 2014.

This increase was partially offset by:

- A COP\$992,045 million decrease in exploratory expenses as a result of decreased seismic activity and fewer dry wells reported in the period;
- A COP\$365,786 million decrease in general expenses due to optimization in commissions fees, services and agreements achieved through the implementation of the transformation program; and
- A COP\$157,433 million decrease in other minor items.

Each of our operating segments bears the costs and expenses incurred for product use and marketing and each segment assumes administrative expenses and all non-operational transactions related to its activity. Discussion of operating expenses by business segment is included in the section Financial Review—Operating Results—Consolidated Results of Operations—Segment Performance and Analysis.

4.5.1.4 Finance Results, Net

Financial results, net, mainly includes the exchange rate gains or losses and interest expense, yields and interest from our investments, non-current liabilities financial costs (asset retirement obligation and post-benefits plan) and results from our hedging operations. Finance results, net, amounted to a loss of COP\$7,663,104 million in 2015 as compared to a loss of COP\$3,510,669 million in 2014. This increase in loss was mainly due to:

- The negative impact (COP\$3,296,421 million) resulting from the depreciation of the Colombian Peso against the U.S. dollar on our U.S. dollar net liability position. Our 2015 exchange rate loss was COP\$5,566,614 million, as compared to a loss of COP\$2,270,193 million in 2014.
- A COP\$1,007,362 million increase in financial expenses due to higher interest expenses as a result of the US\$1,925 million international loan we entered into in February 2015 and the US\$1,500 million international bond we issued in June 2015 as well as the negative effect the Colombian Peso had on our exchange rate on interest due on our foreign debt.

This increase in our financial loss was partially offset by (i) a COP\$110,600 million increase in revenues resulting from the sale of shares in Empresa de Energía de Bogotá and dividends received from equity instruments and (ii) a COP\$40,748 million decrease in other minor financial expenditures.

For more details on our financial income and expenses see Note 30 – Finance results, net to our consolidated financial statements.

4.5.1.5 Income Tax

Income taxes amounted to COP\$710,353 million in 2015, which is equivalent to an effective tax rate of (12.7%). In 2014, income taxes amounted to COP\$5,434,855 million in 2014, which is equivalent to an effective tax rate of 48.9%.

The decrease in the effective tax rate from 2014 to 2015 was mainly due to: (i) foreign exchange losses and a related adjustment for foreign currency translation, (ii) an adjustment to the tax rate of entities whose tax rate differed from that of Ecopetrol S.A. and (iii) the implementation of a nondeductible wealth tax in 2015.

See Note 9 – Taxes to our consolidated financial statements.

4.5.1.6 Net Income (Loss) Attributable to Owners of Ecopetrol

As a result of the foregoing, in 2015, net loss attributable to owners of Ecopetrol was COP\$7,193,859 million whereas, in 2014, net income attributable to owners of Ecopetrol was COP\$5,046,517 million.

4.5.1.7 Segment Performance and Analysis

In this section, including the tables below, we present our financial information by segment: Exploration and Production, Refining and Petrochemicals and Transportation and Logistics. See the section Business Overview for a description of each segment.

The following tables present our revenues and net income by business segment for the years ended December 31, 2015 and 2014:

Table 49 – Revenues by Business Segment

| Revenues by segment | Year ended December 31, | | % change |
|---|-------------------------------|---------------------|---------------|
| | 2015 | 2014 | 2015 - 2014 |
| | (Colombian Pesos in millions) | | |
| Exploration and Production | 31,732,611 | 45,155,191 | (29.7) |
| Third parties | 25,669,213 | 35,903,045 | (28.5) |
| Local crude oil | 491,279 | 1,213,718 | (59.5) |
| Foreign crude oil | 21,181,265 | 30,835,510 | (31.3) |
| Trading of crude oil | 1,309,196 | 1,486,060 | (11.9) |
| Natural gas local | 1,845,345 | 1,346,625 | 37.0 |
| Foreign natural gas | 182,950 | 423,461 | (56.8) |
| Other income | 659,178 | 597,671 | 10.3 |
| Inter-segment net operating revenues | 6,063,398 | 9,252,146 | (34.5) |
| Refining and Petrochemicals | 23,245,676 | 27,172,300 | (14.5) |
| Third parties | 22,456,866 | 26,612,204 | (15.6) |
| Local refined products | 18,806,063 | 20,952,495 | (10.2) |
| Foreign refined products | 3,535,666 | 5,431,828 | (34.9) |
| Other income | 115,137 | 227,881 | (49.5) |
| Inter-segment net operating revenues | 788,810 | 560,096 | 40.8 |
| Transportation and Logistics | 10,844,550 | 8,343,934 | 30.0 |
| Third parties | 4,221,192 | 3,456,639 | 22.1 |
| Inter-segment net operating revenues | 6,623,358 | 4,887,295 | 35.5 |
| Eliminations of consolidations | (13,475,566) | (14,699,537) | (8.3) |
| Total revenues | 52,347,271 | 65,971,888 | (20.7) |

Total revenues by segment include exports and local sales to third-parties and inter-segment sales. See the section Financial Review—Operating Results—Consolidated Results of Operations—Total Revenues for prices and volumes to third parties.

Table 50 – Net Income by Business Segment

| Net income by segment | Year ended December 31, | | % change |
|--|-------------------------------|------------------|--------------|
| | 2015 | 2014 | 2015-2014 |
| | (Colombian Pesos in millions) | | |
| Exploration and Production | (5,851,619) | 5,089,841 | (215) |
| Refining and Petrochemicals | (4,016,050) | (1,627,705) | 147 |
| Transportation and Logistics | 2,819,759 | 1,758,777 | 60 |
| Eliminations of consolidations | (145,949) | (174,396) | (16) |
| Net Income attributable to owners of Ecopetrol S.A. | (7,193,859) | 5,046,517 | (243) |

4.5.1.8 Exploration and Production Segment Results

In 2015, exploration and production segment sales were COP\$31,732,611 million, compared to COP\$45,155,191 million in 2014. In 2015, our segment sales decreased by 29.7 % as compared with 2014 mainly as a result of:

- Lower sales of crude oil to third parties, which decreased by 28.5% in 2015 as compared to 2014 primarily due to: (i) a decline in crude oil exports mainly due to a decrease in the price of our crude oil basket of US\$43.9 per barrel, (ii) decreased local sales of crude oil mainly due to lower prices of crude oil and (iii) increased availability of our transport systems for foreign crude oil. The decrease in sales of crude oil to third parties was offset by an increase in our sales volume, particularly in respect of natural gas sales mainly due to increased demand from domestic thermal power plants as a result of the El Niño climate phenomenon, which resulted in lack of water in for the hydroelectric generating plants; and
- Lower inter-segment sales, which decreased by 34.5% mainly due to: (i) lower prices of oil and gas sold to our refining and petrochemical segment and (ii) a greater percentage of oil purchased from third parties in the mix used in the Barrancabermeja refinery.

Cost of sales affecting our exploration and production segment is mainly related to: (i) the amortization and depletion of our production assets, (ii) contracted services in partnership contracts and (iii) the costs related to maintenance, operational services, projects and labor in the exploration and production segment. In addition, this segment's costs are impacted by imported naphtha for dilution and by transportation services.

In 2015, the cost of sales for this segment decreased by 8% as compared with 2014, due to the net effect of:

- Fixed costs increasing by 6.2%, or COP\$420,083 million, in 2015 as compared to 2014, mainly due to a COP\$860,539 million increase in the costs of hydrocarbon transportation services as a result of a ship or pay contract, indexed to the U.S. dollar, between the exploration and production and transportation and logistics segments of the Bicentenario pipeline, offset by COP\$440,456 decrease in maintenance and contracted services cost as a result of the implementation of our business transformation plan.
- Variable costs decreasing by 12.5%, or COP\$2,638,994 million, in 2015 as compared to 2014, as a result of (i) lower costs related to our purchases crude oil from the ANH and third parties as well as our purchases of refined products, in each case due to a decrease in international prices, and (ii) cost savings from our renegotiation of rates in some of our contracts.

In 2015, operating expenses increased by 47.2% in 2015 as compared to 2014, primarily as a result of increased impairment charges for non-current assets, which totaled COP\$4,504,496 million as compared to COP\$965,607 million in 2014 due to the existing low oil price environment, which has resulted in a reduction in forecasted crude oil prices and an increase in market and country risk, which has been reflected in the discount rate, as well as a reduction in the amount of recoverable reserves. The most significant cash generation units impacted by the impairments were the following fields: in Colombia, Chichimene, Tibú, CP09, Apiay, Llanito and La Hocha and in the Gulf of Mexico, K2 and Dalmatian (see Notes 14, 18, 19 and 29 to our consolidated financial statements). Our operating expenses in this segment also increased due to the Colombian wealth tax. This increase was partially offset by (i) lower expenses related to our exploratory activity as we engaged in less seismic activity and exploratory drilling, (ii) a decrease in commissions, fees, freight and services as a result of cost savings related to our transformation program, and (iii) the recovery of provisions for litigation related to the payment of an electric-power-generation contribution by Ecopetrol S.A. and compensation to third parties for infringement of the free competition clause in the Garcero association contract (see Note 23 to our consolidated financial statements for more detail).

The segment recorded net loss attributable to owners of Ecopetrol of COP\$5,851,620 million in 2015 as compared to a net income attributable to owners of Ecopetrol of COP\$5,089,841 million in 2014.

Lifting and Production Costs

The aggregate average production cost, on a Colombian Peso basis, has decreased to COP\$21,732 per boe during 2015 from COP\$24,872 per boe during 2014, primarily due to:

- The execution of our program for reducing operating costs as well as the implementation of our transformation program. The key optimization strategies contributing to decreased production costs are:
 - i) Renegotiation of contracts, representing an approximate 30% optimization in our fields' operations and services.
 - ii) Fewer and shorter well interventions.
 - iii) Less frequent operational maintenance, due to improved maintenance routines and equipment reliability.
 - iv) Lower consumption of chemicals, as a result of greater processing efficiency and a decrease in chemical treatment fees through renegotiated contracts.
 - v) Optimization of our fields' energy fees, due to replacement of our power generation systems with more cost-effective systems and connecting them to the national power grid.
- An increase in production volumes in direct and associated contracts (excluding production tests and discovery of undeveloped fields), mainly explained by better production primarily in the Castilla and Chichimene fields and partially offset by a decrease in production volumes from fields in held as part of a partnership, primarily the Rubiales and Quifa fields due to lower development investments on account of lower international prices in 2015 as compared to 2014.

As a result of the above-mentioned factors, our aggregate average lifting cost, on a Colombian Peso basis, decreased in 2015 as compared to 2014. On a dollar basis, it decreased to US\$7.92 per boe in 2015 from US\$12.43 per boe in 2014 also due to a 37.1% depreciation of the average exchange rate of the Colombian Peso against the U.S. dollar in 2015.

The difference between the aggregate average lifting cost and aggregate average production cost is that lifting costs do not include the costs related to consumption of hydrocarbons by us in our production process or that Ecopetrol sold to our refineries and natural gas liquid plants.

The following table sets forth crude oil and natural gas average sales prices, the aggregate average lifting costs and aggregate average unit production cost for the years ended December 31, 2015 and 2014.

Table 51 – Crude Oil and Natural Gas Average Prices and Costs

| | 2015 | 2014 |
|---|---------|---------|
| Crude Oil Average Sales Price (U.S. dollars per barrel) ⁽¹⁾ | 43.9 | 87.3 |
| Crude Oil Average Sales Price (COP\$ per barrel) ⁽¹⁾ | 118,115 | 173,769 |
| Natural Gas Average Sales Price (U.S. dollars per barrel equivalent) | 22.0 | 23.9 |
| Natural Gas Average Sales Price (COP\$ per barrel equivalent) | 60,120 | 47,912 |
| Aggregate Average Unit Production Costs (U.S. dollars per boe) ⁽²⁾ | 7.92 | 12.43 |
| Aggregate Average Unit Production Cost (COP\$ per boe) ⁽²⁾ | 21,732 | 24,872 |
| Aggregate Average Lifting Costs (U.S. dollars per boe) ⁽³⁾⁽⁴⁾⁽⁵⁾ | 7.40 | 11.29 |
| Aggregate Average Lifting Costs (COP\$ per boe) ⁽³⁾⁽⁴⁾⁽⁵⁾ | 20,308 | 22,581 |

(1) Corresponds to our average sales price on a consolidated basis.

(2) Unit production costs correspond to consolidated average costs on total production volumes net of royalties. Production costs do not include costs related to transport, commercialization and administrative expenses.

(3) Lifting costs per barrel are calculated based on total production (excluding production tests and discovered undeveloped fields), which are net of royalties, and correspond to our lifting costs on a consolidated basis.

(4) The cost indicator is calculated by using the cost of production (does not include costs related to hydrocarbons consumption by Ecopetrol in the production process, such as by our refineries and natural gas liquid plants) and dividing by the net produced volume (excluding royalties) as the denominator.

(5) As a result of the evaluation of control over companies under IFRS, Ecopetrol does not consolidate Savia Perú and Equion. As a consequence, the information in the table above for this annual report (which has been prepared under IFRS) differs from the information we previously published for 2014 under Colombian Government Entity GAAP (where we did consolidate Savia Perú and Equion).

4.5.1.9 Transportation and Logistics Segment Results

In 2015, our transportation and logistics segment sales were COP\$10,844,550 million compared to COP\$8,343,934 million in 2014. This 30% increase in 2015 as compared with 2014 was mainly due to higher volume of crude oil transported by the Ocesa, Caño Limón Coveñas and Oleoducto Transandino pipelines due to the decline in the number of attacks on our infrastructure and the positive effect on our U.S. dollar-indexed transportation fees resulting from the devaluation of the Colombian Peso against the U.S. dollar.

The cost of sales for our transportation and logistics segment is mainly related to: (i) project costs associated with the maintenance of transportation networks and (ii) operating costs related to these systems, including the costs of labor, energy, fuels and lubricants and others.

The cost of sales amounted to COP\$3,744,422 million in 2015 and COP\$3,941,052 million in 2014. The cost of sales for this segment decreased by 5% in 2015 as compared with 2014 mainly due a decrease in costs associated with maintenance and operating supplies and materials. This decrease was partially offset by an increase in depreciation and amortization due to our increased investments in this segment.

In 2015, operating expenses decreased by 4.2% as compared to 2014 due to decreased expenses related to social investment and security agreements, and more stable operations due to a decrease in repairs of our transportation systems. This decrease was partially offset by (i) the Colombian wealth tax implemented in 2015, (ii) increased depreciation and amortization and (iii) increased impairment charges for assets primarily to Colombia's hydrocarbon production curves, based on the current crude oil price environment and pipeline transportation rates (see Notes 14, 18, 19 and 29 to our consolidated financial statements).

The segment recorded a net income attributable to owners of Ecopetrol of COP\$2,819,759 million in 2015 and COP\$1,758,777 million in 2014.

4.5.1.10 Refining and Petrochemicals Segment Results

In 2015, the refining and petrochemical segment sales were COP\$23,245,676 million compared to COP\$27,172,300 million in 2014. In 2015, sales of refined products and petrochemicals decreased by 14.5% as compared with 2014, mainly due to: (i) a decrease in the international price of fuels and (ii) a decrease in foreign sales volumes of fuel oil due to the low water level in the Rio Magdalena. This decrease was partially offset by (i) an increase in the volume of domestic sales due to increased local demand for fuel resulting from an increased number of vehicles and the closure of Colombia's border with Venezuela and (ii) an increase in intercompany sales due to higher volumes of diluent sold to our exploration and production segment.

The cost of sales for our refined products and petrochemicals segment is mainly related to the purchase of crude oil and natural gas for our refineries, imported products to substitute for the loss of production due to the shutdown of Reficar for most of 2014 and 2015, feedstock transportation services, services contracted for maintenance of the refinery and the amortization and depreciation of refining assets. Cost of sales amounted COP\$20,758,808 million in 2015 compared to COP\$25,537,228 million in 2014.

In 2015, the cost of sales for this segment decreased 18.7% as compared with 2014, principally due to lower raw material costs, which corresponded to the decrease in international oil prices and lower operating costs as a result of cost optimization at the Barrancabermeja Refinery. This decrease was partially offset by higher imports of gasoline due to increased local demand for fuel resulting from an increased number of vehicles and the closure of Colombia's border with Venezuela.

In 2015, operating expenses increased by 85% as compared to 2014 due to:

- Increased impairment charges for non-current assets recorded by the Cartagena Refinery due to the current low oil price environment, which resulted in a reduction in expected refining margins in the coming years, and an increase in market and country risk, which has been reflected in the discount rate, (see Notes 14, 18, 19 and 29 to our consolidated financial statements). The variables that impact the impairment of long-term assets are mainly the refining margin, the discount rate, the cost structure and the level of capital expenditures, of these variables, the refining margin and the discount rate are the most sensitive variables for determining any possible impairment.
- Higher levels of investment for the Reficar modernization project.
- The Colombian wealth tax implemented in 2015.
- An increase in other expenses related to the start-up of operations at Reficar.

The gross margin in 2015 was 10.7%, compared to 6% in 2014. The increase in the gross margin was explained principally by decrease in the oil price (feedstock) compared to the decrease in fuel prices (output).

The refining and petrochemicals segment recorded a net loss attributable to owners of Ecopetrol of COP\$4,016,050 million in 2015 and COP\$1,627,705 million in 2014.

4.6 Liquidity and Capital Resources

Our principal sources of liquidity in 2015 were cash flows from our operations amounting to COP\$10,411,475 million, and cash flows from financing activities, mainly from the proceeds of our additional indebtedness, which totaled COP\$6,082,341 million.

Our principal uses of liquidity in 2015 were COP\$14,251,509 million in capital expenditures, which included (i) investment in property, plant and equipment and natural and environmental resources and (ii) dividend payments for the fiscal year 2014 amounting to COP\$5,493,400 million.

On January 29, 2016, we entered into an international credit agreement in an aggregate amount of US\$175 million with The Bank of Tokyo-Mitsubishi UFJ, Ltd. The credit agreement has a term of 5 years, repayable with a 2.5 year grace period on principal and interest, payable semi-annually at a rate of Libor plus 145 basis points.

On February 23, 2016, we entered into a bilateral commercial loan agreement with Bancolombia S.A. for COP\$990 billion (approximately US\$314 million at the representative exchange rate of COP\$3,149.47 per dollar as of December 31, 2015). This loan agreement has a term of 8 years and a 2-year grace period on principal, with interest payable semiannually at a rate of DTF TA plus 560 basis points.

4.6.1 Review of Cash Flows

Cash from operating activities

Net cash provided by operating activities decreased by 37.2% in 2015 as compared to 2014, mainly as a result of: (i) a 33.2% decrease in our gross income resulting from the decrease in international prices of crude oil during 2015 and (ii) higher operating expenses due to the Colombian wealth tax implemented and paid in 2015. This decrease was partially offset by a decrease in income tax paid due to the decrease in our income before tax for the year and lower working capital needs due to a decrease in inventories, trade receivables and accounts payable.

Cash used in investing activities

In 2015, net cash used in investing activities decreased by 0.2% as compared to 2014, mainly as a result of: (i) a decrease in the amount of dividends we received from associates and joint ventures companies (ii) slightly larger investments in capital expenditures, mainly relating to the Reficar modernization project and our drilling campaigns, primarily in the Castilla, Chichimene and Rubiales fields, and (iii) a lower net cash contribution from purchase and sale of fixed income investments. This decrease was partially offset by cash proceeds from the sale of our investment in Empresa de Energia de Bogotá, which totaled COP\$613,998 million.

Cash used in financing activities

Net cash used in financing activities decreased by 81% in 2015, as compared to 2014, due to a COP\$7,023,166 million decrease in dividend payments, which was partially offset by an increase in borrowing and interest payments of COP\$1,069,146 million in 2015 as compared to 2014, which in turn was due to the US\$1,925 million international loan we entered into in February 2015 and the US\$1,500 million international bond we issued in June 2015.

4.6.2 Capital Expenditures

The following table sets forth our consolidated capital expenditures for each of our business segments for 2015 and 2014.

Table 52 – Capital Expenditures

| | For the year ended December 31, | |
|------------------------------|--|-------------------|
| | 2015 | 2014 |
| | (Colombian Pesos in millions) | |
| Exploration and Production | 8,548,933 | 8,923,568 |
| Refining and Petrochemicals | 5,590,321 | 5,038,296 |
| Transportation and Logistics | 112,255 | 112,018 |
| Total | 14,251,509 | 14,073,882 |

Our investment plan approved for 2016 totals US\$4,800 million. The investments will be distributed as follows: 62% for exploration and production, 22% for refining and petrochemicals, 10% for transportation and logistics, and 6% for other investments.

The resources required for the investment plan will be funded through internal cash generation, divestment of non-strategic assets and financing. The Company has borrowing capacity, investment grade rating and access to capital markets in Colombia and abroad.

The use of these resources for our investment plan will depend on the performance of crude oil prices during the year.

4.6.3 Dividends

In 2015, we paid dividends of COP\$5,493,400 million to our shareholders, including the Nation.

On March 31, 2016, our shareholders at the ordinary general shareholders' meeting did not approve a distribution of dividends for 2015 due to the net loss recorded by the Company in 2015.

4.7 Summary of Differences between Internal Reporting (Colombian IFRS and IFRS)

We prepare our interim and annual financial information in accordance with our internal reporting policies, which follow Colombian IFRS and differ in certain significant aspects from IFRS. The following table sets forth our consolidated net income and equity for years ended December 31, 2015 and 2014, in accordance with Colombian IFRS and IFRS:

Table 53 – Consolidated Net Income and Equity

| | For the year ended December 31, | | |
|--|--|-------------------|-----------------|
| | (Colombian Pesos in millions) | | |
| | 2015 | 2014 | % Change |
| Net income attributable to owners of Ecopetrol (IFRS) | (7,193,859) | 5,046,517 | (242.6) |
| Cash flow hedge for future company exports | 2,140,553 | – | N/A |
| Exchange rate effects on tax bases – Deferred tax | 1,065,580 | 678,983 | 56.9 |
| Net income Attributable to owners of Ecopetrol (Colombian IFRS) | (3,987,726) | 5,725,500 | (169.6) |
| | At December 31, | | |
| | (Colombian Pesos in millions) | | |
| | 2015 | 2014 | % Change |
| Net Equity (IFRS) | 43,100,963 | 48,534,228 | (11.2) |
| Cash flow hedge for future company exports | (74,259) | – | N/A |
| Exchange rate effects on tax bases – Deferred tax | 2,205,064 | 998,440 | 120.9 |
| Net Equity (Colombian IFRS) | 45,231,768 | 49,532,668 | (8.7) |

As noted above, certain differences exist between our net income and equity as determined in accordance with our internal reporting policies, which follow Colombian IFRS, which are used for management reporting purposes, as presented in the business segment information, and our net income and equity as determined under IFRS, as presented in our consolidated financial statements.

The primary differences between Colombian IFRS and IFRS as they apply to our results of operations are summarized below:

- **Cash flow hedge for future company exports.** In September 2015, in order to hedge the effect of exchange rate volatility on Ecopetrol’s foreign currency debt, Ecopetrol’s Board of Directors approved a cash flow hedge for future crude oil exports. According to IAS 39 – Financial Instruments, Ecopetrol implemented this hedge beginning on October 1, 2015, the date on which it formally completed the related hedging documentation.

Under Colombian IFRS, the *Contaduría General de la Nación* (CGN for its acronym in Spanish) issued Resolution 509, which allows companies to apply hedge accounting for non-derivative financial instruments from any date within the transition period or the first period of application of International Accounting Standards in Colombia, even if such company has not yet formally documented the hedging relationship, the objective or the risk management strategy. Under these rules, Ecopetrol applied cash flow hedge accounting from January 1, 2015 in its financial statements under Colombian IFRS.

- **Exchange rate effects on tax bases – Deferred tax.** As a result of these accounting policy differences, for the year ended December 31, 2015, our net loss as reported under IFRS was COP\$2,140,553 million higher than our net loss as reported under Colombian IFRS. According to IAS 12.41, companies with a U.S. dollar functional currency and profit or tax loss in Colombian Pesos are required to recognize deferred taxes attributable to the difference between the carrying amounts of non-monetary assets in their financial statements and their respective tax bases converted from Colombian Pesos to U.S. dollars using the exchange rate on the closing date. The effect of the temporary difference is charged to profit and losses without a cash outflow expected in the future. Under local accounting principles, the result attributable to the aforementioned difference in accounting policies does not generate deferred taxes at December 31, 2015.

Ecopetrol's functional currency is the Colombian Peso and it consolidates some subsidiaries whose functional currency is the U.S. dollar but who settled their taxes in Colombian Pesos. As a result of the application of paragraph 41 – IAS 12, such subsidiaries are required to calculate deferred taxes under IFRS.

As a result of these accounting policy differences, for the year ended December 31, 2015, our net loss as reported under IFRS was COP\$1,065,580 million higher than our net loss as reported under Colombian IFRS.

The application of IAS12.41 also generated adjustments to our goodwill impairments of COP\$418,872 million taken in connection with our purchase of subsidiaries whose functional currency is the U.S. dollar as well as adjustments to our revenue from the equity method of COP\$81,808 million in connection with our associates and joint ventures whose functional currency is the U.S. dollar.

As a result of these accounting policy differences described above, for the year ended December 31, 2015, we reported net loss under IFRS of COP\$7,193,859 billion as opposed to a net loss of a COP\$3,987,726 million reported under Colombian IFRS for the same period.

4.8 Financial Indebtedness and Other Contractual Obligations

As of December 31, 2015, we had outstanding consolidated indebtedness of COP\$52,252 billion, which corresponded primarily to the following long-term transactions:

Table 54 – Consolidated Financial Indebtedness

| Company | Type | Initial Date | Original Amount | Maturity | Interest Rate | Amortization |
|------------------------|-----------------|--------------------|----------------------|--------------------|------------------|--------------|
| Ecopetrol S.A. | Bonds | July 23, 2009 | US\$1,500 million | July 23, 2019 | 7.625% | Bullet |
| | | September 18, 2013 | US\$350 million | September 18, 2018 | 4.250% | Bullet |
| | | September 18, 2013 | US\$1,300 million | September 18, 2023 | 5.875% | Bullet |
| | | September 18, 2013 | US\$850 million | September 18, 2043 | 7.375% | Bullet |
| | | May 28, 2014 | US\$2,000 million | May 28, 2045 | 5.875% | Bullet |
| | | September 16, 2014 | US\$1,200 million | January 16, 2025 | 4.125% | Bullet |
| | | December 1, 2010 | COP\$138,700 million | December 1, 2017 | Floating | Bullet |
| | | December 1, 2010 | COP\$479,900 million | December 1, 2020 | Floating | Bullet |
| | | December 1, 2010 | COP\$284,300 million | December 1, 2040 | Floating | Bullet |
| | | August 27, 2013 | COP\$120,950 million | August 27, 2018 | Floating | Bullet |
| | | August 27, 2013 | COP\$168,600 million | August 27, 2023 | Floating | Bullet |
| | | August 27, 2013 | COP\$347,500 million | August 27, 2028 | Floating | Bullet |
| | | August 27, 2013 | COP\$262,950 million | August 27, 2043 | Floating | Bullet |
| | | June 26, 2015 | US\$1,500 million | June 26, 2026 | 5.375% | Bullet |
| | | Bank Loan* | May 27, 2013 | COP\$1,839 billion | May 27, 2025 | Floating |
| March 22, 2013 | US\$245 million | | July 25, 2023 | Floating | Semi-annual | |
| March 22, 2013 | US\$151 million | | July 6, 2019 | Floating | Semi-annual | |
| Reficar | Project Finance | December 30, 2011 | US\$3,497 million | December 20, 2027 | Floating / Fixed | Semi-annual |
| Ocensa | Bond | May 7, 2014 | US\$500 million | May 7, 2021 | 4.000% | Bullet |
| Oleoducto Bicentenario | Bank Loan | July 5, 2012 | COP\$2,100 billion | July 5, 2024 | Floating | Quarterly |
| ODL | Bank Loan* | August 1, 2013 | COP\$647,029 million | August 1, 2020 | Floating | Quarterly |

* Bank loans were refinanced from their original conditions.

The long term debt transactions executed in 2015 were as follows:

- On February 12, 2015, Ecopetrol S.A. obtained a US\$1.925 billion credit facility. The transaction was accomplished with the participation of eight international banks. The credit facility has a five-year tenor, with a bullet repayment and semiannual interest payments at a rate of LIBOR plus 140 basis points.
- The issuance by Ecopetrol S.A. of US\$1,500 million (COP\$4,723 billion according to the COP\$/US\$ exchange rate as of December 31, 2015) aggregate principal amount of SEC-registered 5.375% Notes due 2026, issued in June 2015. The notes were listed on the NYSE.

Contractual Obligations

We enter into various commitments and contractual obligations that may require future cash payments. The following table summarizes our contractual obligations as of December 31, 2015.

Table 55 – Our Contractual Obligations

| COP\$ in millions | Payments due by period | | | | |
|--|------------------------|----------------------|----------------------|----------------------|----------------------|
| | Total | Less than 1 year | 1 to 3 years | 3 to 5 years | More than 5 years |
| Contractual obligations | | | | | |
| Employee Benefit Plan | 25,565,984.16 | 1,070,781.40 | 2,243,236.41 | 2,323,207.73 | 19,928,758.63 |
| Contract Service Obligations | 7,346,763.69 | 3,701,104.57 | 2,714,700.90 | 635,434.90 | 295,523.31 |
| Operating Lease Obligations | 753,609.87 | 366,820.45 | 172,196.30 | 120,109.01 | 94,484.10 |
| Natural Gas Supply Agreements | 2,345,919.82 | 269,039.40 | 495,679.30 | 396,470.20 | 1,184,730.92 |
| Purchase Obligations | 3,532,384.45 | 2,845,906.32 | 666,633.13 | 19,845.00 | - |
| Energy Supply Agreements | 969,027.07 | 143,709.38 | 335,913.19 | 96,225.13 | 393,179.36 |
| Capital Expenditures | 1,406,392.44 | 1,234,708.88 | 162,575.78 | 9,107.79 | - |
| Build, Operate, Maintain and Transfer Contracts (BOMT) | 604,653.79 | 97,996.19 | 155,088.58 | 105,715.32 | 245,853.69 |
| Capital (Finance) Lease Obligations | 380,989.44 | 382.00 | 5,836.76 | 37,158.62 | 337,612.05 |
| Financial Sector Debt | 21,113,931.74 | 1,601,118.39 | 2,863,708.87 | 9,105,237.54 | 7,543,866.95 |
| Bonds | 30,778,024.00 | - | 1,361,964.50 | 5,204,105.00 | 24,211,954.50 |
| Total | 94,797,680.48 | 11,331,566.98 | 11,177,533.73 | 18,052,616.26 | 54,235,963.51 |

4.9 Off Balance Sheet Arrangements

As of December 31, 2015, we did not have off-balance sheet arrangements of the type that is required to be disclosed under Item 5.E of Form 20-F.

4.10 Trend Analysis and Sensitivity Analysis

Trend Analysis

On April 22, 2016, the Board of Directors of Ecopetrol approved an adjustment of the investment plan for 2016 from U.S.\$4,800 million to a range between U.S.\$3,000 – U.S.\$3,400 million. See the section Strategy and Market Overview—Our Corporate Strategy.

2016 is a year of transition for the Ecopetrol Group, during which investments will be made to finish transportation projects and complete the start up the new Cartagena Refinery. Starting in 2017, the Company will dedicate a larger portion of its investments to the exploration and production segments.

The detail of the investments approved per business segment of Ecopetrol S.A. and its subsidiary companies is as follows:

Table 56 – 2016 Investment Plan

| Business Segment | (Millions of US\$) | % Percentage |
|--|--------------------|--------------|
| Exploration | \$ 282 | 9.4% |
| Production | 1,116 | 37.3% |
| Transportation and Logistics | 433 | 14.4% |
| Refining, Petrochemicals, and Biofuels | 1,135 | 37.8% |
| Others | 34 | 1.1% |
| TOTAL | \$ 3,000 | 100% |

Exploration

In the exploration segment, U.S.\$282 million has been allocated mainly to the evaluation and appraisal of discoveries and ongoing exploration efforts of Ecopetrol S.A. (approximately U.S.\$146 million), Hocol (approximately U.S.\$68.7 million), Ecopetrol America Inc. (approximately U.S.\$47.3 million), and Ecopetrol Brazil (approximately U.S.\$18.3 million).

Production

In the production segment, U.S.\$1,116 million has been allocated mainly to the execution of development and incremental production projects in the Castilla, Chichimene, Caño Sur, Orinoquia, Yarigui, Piedemonte, Nare CIRA-Infantas, CPI Neiva and Casabe fields (approximately U.S.\$605 million). We have also allocated funds for our affiliates and subsidiaries as follows: U.S.\$76 million for the operation and maintenance of fields of Ecopetrol America Inc. in the U.S. Gulf of Mexico, U.S.\$48.8 million to Hocol and U.S.\$27.4 million to Equion.

Transportation and logistics

In the transportation and logistics segment, US\$433 million has been allocated to investments focused on the completion of projects such as P135 Ocesa, San Fernando Monterrey and transportation of heavy crude oils as well as crude oil dilution projects. The segment is seeking a higher efficiency in operations and maintenance practices.

Refining, petrochemicals, and biofuels

In the refining, petrochemicals, and biofuels segment, US\$1,135 million has been allocated to the start-up and stabilization of all of the units of Reficar and programs to improve operations at the Barrancabermeja Refinery through initiatives to increase revenues, improve efficiency and reduce operational costs. It is important to highlight that Ecopetrol S.A. has suspended the Barrancabermeja Refinery Modernization Plan until the oil price environment allows investments to be made in such a major project.

Ongoing Trends

Based on these investments in the refining and transport segments in 2016, the Company expects to have sufficient capacity in those segments to support its mid-term growth. Therefore, it is expected that close to 90% of total investments from 2017 onwards will be allocated to exploration and production.

Our exports, which represented 50% of our total sales in 2015, will continue to be our primary source of revenues. With the operation of all units of Reficar in 2016, Ecopetrol's trade balance is expected to improve because of reduced imports of gasoline and increased exports of fuels. Reficar's fuels production is expected to be allocated primarily in the domestic market, with some surplus to be exported.

We believe that our strategy of diversifying our export destinations and sales under term contracts with fixed discounts to reference prices will help mitigate the negative impact of the current crude oversupply over the discounts of our export basket. We forecast an average discount of US\$10 per barrel compared to ICE Brent crude in 2016.

Furthering our focus on efficiency, in 2016, we aim to maintain the savings of US\$800 million accomplished in 2015, plus additional savings of around US\$492 million as a result of the introduction of new efficiencies.

The Company expects to continue the 2016 – 2017 divestment program and raise between US\$400 and US\$900 million. As of the date of this annual report, the Company is in the process of carrying out the sale of non-strategic assets and shareholdings, such as our stake in ISA, Empresa de Energía de Bogota and Propilco.

In order to preserve its investment grade ratings, the Company seeks to maintain financial sustainability and adequate levels of indebtedness. In 2015, Ecopetrol obtained US\$3,425 million in financing, while in 2016 the Company has adjusted its financing needs to a range between US\$1,500 million and US\$1,900 million, of which we have already obtained COP\$990 billion (approximately US\$314 million at the representative exchange rate of COP\$3,149.47/US\$1 as of December 31, 2015) from the local bank Bancolombia S.A. plus US\$175 million from a line of credit with The Bank of Tokyo-Mitsubishi UFJ, Ltd. The Company will continue monitoring oil price scenarios to make the proper decisions and take preventive actions to ensure financial sustainability in 2016 such as: prioritization of investments associated with regulatory commitments and project completion, temporary closing of producing assets with negative margins, reduction in exploratory activity, redefining and prioritizing maintenance activities and additional austerity measures related to administrative expenses, sponsorships and labor recruitment.

Sensitivity Analysis

Sensitivity Analysis of Reserves

The following table provides information about the sensitivity analysis conducted on our reserves as of December 31, 2015, taking into account ICE Brent crude oil prices that reasonably reflect management's view of crude oil prices given prevailing market conditions

Table 57 – Sensitivity Analysis of Reserves

| | Oil (million barrels) | NGL (million barrels) | Natural Gas (bcf) | Total Oil and Gas (Mmboe) |
|-------------------------------------|-----------------------|-----------------------|-------------------|---------------------------|
| Reserves as of December 31, 2015 | 1,166 | 73 | 3,479 | 1,849 |
| Sensitivity Scenario | 1,211 | 74 | 3,491 | 1,897 |
| Difference (million barrels) | 45 | 1 | 11 | 47 |
| Difference (%) | 4 | 1 | 0 | 3 |

The conversion rate used is 5,700 cf = 1 boe.

Assumptions for the Sensitivity Analysis of Reserves

- The sensitivity of the ICE Brent price index is forecasted to average US\$40 per barrel in 2016, US\$50 per barrel in 2017, US\$55 per barrel in 2018, and US\$60 per barrel onwards.
- The base scenario on which our sensitivity analysis is made corresponds to our reserves, as of December 31, 2015, as presented elsewhere in this annual report.
- Values of our net reserves were estimated using a 10% discount rate.
- Other variables such as the operating and capital costs were not varied for purposes of the analysis.
- Gas prices were defined by current contractual agreements.

Sensitivity Analysis of our Results

The following table provides information about the sensitivity of our results as of December 31, 2015, due to variations of US\$1 in the price of ICE Brent crude and of 1% in the COP\$/US\$ exchange rate.

Table 58 – Results of Reserves' Sensitivity Analysis

| | Income Statement 2015 | Income Statement Case ICE Brent ⁽¹⁾ + US\$1 | Difference Between Real 2015 and Case ICE Brent (COP\$ in billions) | Income Statement Case TRM ⁽²⁾ - 1% | Difference Between Real 2015 and Case TRM |
|--|-----------------------|--|---|---|---|
| Revenue | 52,347.27 | 53,217.49 | 870.22 | 52,843.65 | 496.37 |
| Cost of sales | 36,994.52 | 37,356.46 | 361.94 | 37,266.98 | 272.47 |
| Gross Income | 15,352.76 | 15,861.03 | 508.28 | 15,576.66 | 223.91 |
| Administration expenses | 1,700.99 | 1,700.99 | - | 1,700.99 | - |
| Operation and project expenses | 4,034.27 | 4,034.27 | - | 4,034.27 | - |
| Impairment of non-current assets | 7,864.88 | 7,864.88 | - | 7,864.88 | - |
| Other operating income and expenses, net | (378.54) | (378.54) | - | (378.54) | - |
| Operating income | 2,131.17 | 2,639.44 | 508.28 | 2,355.07 | 223.91 |
| Finance results, net | (7,663.10) | (7,663.10) | - | (7,663.10) | - |
| Share of profit of associates and joint ventures | (46.69) | (46.69) | - | (46.69) | - |
| Income before income tax | (5,578.63) | (5,070.35) | 508.28 | (5,354.72) | 223.91 |
| Income Tax | (710.35) | (908.58) | (198.23) | (797.68) | (87.32) |
| Net Income | (6,288.98) | (5,978.93) | 310.05 | (6,152.39) | 136.58 |

(1) ICE Brent = US\$54 per barrel

(2) Exchange rate (TRM) = COP\$2,743/US\$1

Assumptions for the Sensitivity Analysis of our Results

- Our sensitivity analysis is based on the Consolidated Statement of Profit or Loss for 2015, as presented elsewhere in this annual report.
- The sensitivity of the ICE Brent price index is in reference to an increase of US\$1 per barrel of crude oil in the average ICE Brent reference price based on a 365-day year for 2015. Prices assumed correspond to realized prices for crude oil, natural gas and refined products for 2015, adjusted to account for the differences between such realized prices and the ICE Brent reference price.
- The sensitivity of our results to changes in the exchange rate is in reference to a 1% average depreciation of the Colombian Peso against the U.S. dollar during 2015. Prices assumed correspond to realized prices of crude oil, natural gas and refined products in 2015 and are expressed for the sensitivity using the adjusted exchange rate (i.e. a 1% average depreciation of the Colombian Peso against the U.S. dollar during 2015).
- The income tax for each of our sensitivity analyses (price of ICE Brent and COP\$/US\$ exchange rate) is estimated using the nominal corporate tax rate of 39% for 2015.

The table below sets forth the line items that are being affected by the variation on the reference prices or the average exchange rate.

Table 59

VARIATION ON ICE BRENT REFERENCE PRICE

VARIATION ON AVERAGE EXCHANGE RATE

REVENUE

Sales of crude oil
Sales of refined products
Sales of natural gas

Sales of crude oil
Sales of refined products
Sales of natural gas

COST OF SALES

Local purchases from business partners
Local purchases of hydrocarbons from the ANH
Local purchases of natural gas
Imports of products

Local purchases from business partners
Local purchases of hydrocarbons from the ANH
Local purchases of natural gas
Imports of products

5. Risk Review

5.1 Risk Factors

The risks discussed below could have a material adverse effect, separately or in combination, on our business's operating results, cash flows, liquidity and financial condition. Investors should carefully consider these risks.

5.1.1 Risks Related to Our Business

This section describes the most significant potential risks to our business.

Our crude oil and natural gas reserve estimates involve some degree of uncertainty and may prove to be incorrect over time, which could adversely affect our ability to generate revenue.

Reserves estimates are prepared using generally accepted geological and engineering evaluation methods and procedures. Estimates are based on geological, topographical and engineering facts but also depend on many factors and assumptions, including various assumptions that are based on conditions in existence as of the dates of the estimates. Any material changes in those conditions or other factors affecting those assumptions could impair the quantity and value of our reserves, and actual reserves and production may vary materially from estimates presented in this annual report.

Hydrocarbon reserves presented in this annual report were calculated in accordance with SEC regulations. As required by those regulations, reserves were valued based on the unweighted average of closing prices for the first day of each month in the 12-month periods ended December 31, 2015, 2014 and 2013, as well as other conditions in existence at those dates. The average of closing prices of ICE Brent crude oil for the first day of each month in the 12-month period was US\$108.32 per barrel in 2013, US\$101.80 per barrel in 2014 and US\$55.57 per barrel in 2015. Mainly as a result of the pronounced fall in hydrocarbon prices between 2014 and 2015, the Company recognizes in 2015 a reduction in oil and gas proven reserves of 11% as compared to 2014, to 1,849 mmboe in 2015 from 2,084 mmboe in 2014. For more information, see the section Business Overview—Exploration and Production—Reserves.

Furthermore, at least once a year, or more frequently if the circumstances require, the Company ascertains whether there are signs of impairment to its assets or cash-generating units (CGUs) due to the difference between the carrying amount of such assets or CGUs as opposed to their recoverable amounts, using reasonable assumptions, based on internal and external factors, which reflect market conditions. The recoverable amount is calculated based on the free cash flow method, discounted at the weighted average capital cost (WACC). Whenever the recoverable amount of an asset or CGU is lower than its net carrying amount, such amount is reduced to its recovery amount, recognizing a loss for impairment as an expense in the consolidated statement of profit or loss.

In 2015, in connection with the current adverse economic context faced by the hydrocarbons sector, which resulted in a reduction in forecasted oil prices, lower expected refining margins in the coming years and an increase in market and country risk that is reflected in the discount rate, as well as a reduction in the recoverable reserves amount, among other factors, Ecopetrol recognized an impairment of non-current assets of COP\$7,864,875 million before taxes. For additional information about this impairment loss, see Notes 14, 18, 19 and 29 to our consolidated financial statements.

Any significant change in estimates and judgments could have a material effect on the quantity and present value of our proved reserves and subsequently on the recognition or recovery of impairment charges. Changes to estimations of reserves are applied prospectively to the amounts of depreciation, depletion and amortization charged and, consequently, the carrying amounts of exploration and production assets.

The average benchmark closing prices of ICE Brent crude oil for the first day of the first four months of 2016 was US\$35.30 per barrel. In order to assess the possible impact of current expected oil price scenarios and market conditions, as well as of further developments driven by the economic environment for the oil and gas industry, the Company has performed a sensitivity analysis over its proved reserve balance as of December 31, 2015. Based on these calculations, assuming an average price per barrel of ICE Brent crude oil of US\$40 per barrel in 2016, US\$50 per barrel in 2017, US\$55 per barrel in 2018, and US\$60 per barrel for later years, Ecopetrol could recognize an increase in oil and gas proved reserves of approximately 3%. This analysis takes into account Ecopetrol's estimates and expectations regarding the main assumptions used in its proven reserve calculation, which final actual result may fluctuate and differ substantially from those provided herein due to several factors outside of the control of the Company. For additional information see the section Financial Review—Trend Analysis and Sensitivity Analysis.

Moreover, any downward revision in our estimated quantities of proved reserves would indicate lower future production volumes, which could result in higher expenses for depreciation, depletion and amortization for properties to which we apply the units of production method for calculating these expenses. These higher expenses, and any lower revenues as a result of actual production volumes and realized prices, could adversely impact our results of operations and financial condition.

Achieving our long-term growth prospects depends on our ability to execute our strategic plan — specifically, the discovery and successful development of additional reserves.

Our long-term growth objectives depend largely on our ability to discover and/or acquire new reserves, and in turn successfully develop them and to improve the recovery factor in our mature oil fields. Our exploration activities expose us to the inherent risks of drilling including the risk that we will not discover commercially productive crude oil or natural gas reserves; and the risk that some exploratory wells initially budgeted for may be drilled at a later stage or not be drilled at all. The costs associated with drilling wells are often uncertain, and numerous factors beyond our control may cause drilling operations to be curtailed, delayed or cancelled.

Our ability to add and develop reserves also depends on our capacity to structurally reduce costs to maintain the profitability of oil fields already being exploited.

If we are unable to successfully discover and develop additional reserves, or if we do not acquire properties having proved reserves, our level of proved reserves will decline. Failure to secure additional reserves may impede us from achieving or maintaining production targets, and may have a negative impact on our results of operation and financial condition.

See the section *Strategy and Market Overview—Our Corporate Strategy* for a discussion of our strategic plan.

Our business depends substantially on international prices for crude oil and refined products. The prices for these products are volatile; a sharp decrease could adversely affect our business prospects and results of operations.

In 2015, in Ecopetrol, nearly 91.5% of the revenues came from sales of crude oil, natural gas and refined products and 90.7% of the total volume sold of these products is indexed to international reference prices or benchmarks such as ICE Brent. Consequently, fluctuations in those international indexes have a direct effect on our financial condition and results of operations.

Prices of crude oil, natural gas and refined products have traditionally fluctuated as a result of a variety of factors including, among others, competition within the international oil and natural gas industry; long-term changes in the demand for crude oil, natural gas and refined products; the economic policies in the United States, China and the European Union; regulatory changes; changes in global supply, such as the current oversupply of crude oil; inventory levels; changes in the cost of capital; adverse economic conditions; global financial crises, such as the financial crisis of 2008; development of substitute sources of energy, development of new technologies; global and regional economic and political developments in the Organization of the Petroleum Exporting Countries, (OPEC); the willingness and ability of the OPEC and its members to set production levels; local and global demand and supply for crude oil, refined products and natural gas; trading activity in oil and natural gas, which thereby affects their respective margins; transactions in derivative financial instruments related to oil and gas; development or availability of alternative fuels; weather conditions; natural events or disasters; and terrorism and global conflict.

When crude oil, refined products and natural gas prices are low, we earn less revenue and we generate lower cash flow and less income. Conversely, when crude oil, refined product and natural gas prices are high, we earn more and generate a larger amount of cash and net income. During 2014, our crude oil basket price was US\$87.3 per barrel versus US\$43.9 per barrel in 2015; the refined product basket price was US\$106.8 per barrel in 2014 versus US\$63.4 per barrel in 2015; and the natural gas price was US\$23.9 per barrel equivalent in 2014 versus US\$22.1 per barrel equivalent in 2015.

In 2015, in connection with the current adverse economic context faced by the hydrocarbons sector, which resulted in a reduction in forecasted oil prices, lower expected refining margins in the coming years and an increase in market and country risk reflected in the discount rate, as well as a reduction in the recoverable reserves amount, among other factors, Ecopetrol recognized an impairment of non-current assets of COP\$7,864,875 million before taxes. For additional information about this impairment loss, see Notes 14, 18, 19 and 29 to our consolidated financial statements.

A reduction of international crude oil prices could also result in a delay or a change in our capital expenditure plan, in particular delaying exploration and development activities, thereby delaying the development of reserves and affecting future cash flows. In order to maintain a profitable operation and preserve the cash flow of the Company under current oil price levels, some of our producing fields may have to be closed or their operations temporarily suspended which would affect our production levels and expected revenues

Changes in the Colombian Peso/U.S. dollar exchange rate could have an adverse effect on our financial condition and results of operations given the amount of U.S. dollar denominated debt obtained by the company and the fact that most of our revenues is derived from sales of products quoted in or with reference to U.S. dollars.

Most of our revenues are derived from sales of products quoted in or with reference to U.S. dollars. Therefore when the Colombian Peso depreciates against the U.S. dollar, our revenues converted into Colombian Pesos, increase. Conversely, when the Colombian Peso appreciates against the U.S. dollar, our revenues decrease.

On the other hand, imported goods, oil services and the debt, which is mainly denominated in U.S. dollars, become less expensive when the Colombian Peso appreciates against the U.S. dollar and more expensive when the Colombian Peso depreciates against the U.S. dollar.

Thus, from a cash flow perspective, the impact on our operations of fluctuations in exchange rates, especially the Colombian Peso/U.S. dollar, has been and may continue to be material.

As of December 31, 2015 our U.S. dollar-denominated total debt was US\$14.6 billion, which we recognize in our consolidated financial statements at its amortized cost, which corresponds to the present value of cash flows, discounted at the effective interest rate. Out of this total, US\$11.1 billion relate to Ecopetrol S.A., whose functional currency is the Colombian Peso. Therefore, when the Colombian Peso depreciates against the U.S. dollar, the Company is exposed to an exchange rate loss. In contrast, when the Colombian Peso appreciates against the U.S. dollar, the Company has an exchange rate gain. Some of the group's affiliates have the U.S. dollar as functional currency and are not exposed to exchange rate risk. On the asset side, when the financial statements of the Group are consolidated, the exchange rate differential of the affiliates whose functional currency is the U.S. dollar is recognized directly in the equity, as part of the other comprehensive income.

As of October 1, 2015, Ecopetrol S.A. adopted hedge accounting as part of its risk management strategy, using the natural hedge between exports and dollar-denominated debt. As such, 49% of Ecopetrol S.A.'s debt in dollars was designated as hedge instrument of its future export sales for the period of 2015- 2023, see Note 4.1.4 to our consolidated financial statements for further explanation of the accounting policy and Note 31.2.1 for details of the hedge accounting adopted. With the adoption of hedge accounting, the effect of the volatility of the foreign exchange rate on the hedged portion of the debt is recognized directly in equity, as part of other comprehensive income. The remaining portion of Ecopetrol S.A.'s dollar-denominated debt continues exposed to the fluctuation of the exchange rate.

The U.S. dollar/Colombian Peso exchange rate has fluctuated during the last several years. On average, the Colombian Peso depreciated 3.9% against the U.S. dollar in 2013, 7.1% in 2014 and 37.3% in 2015. Additionally, as of December 31, 2015 and December 31, 2014, the Colombian Peso depreciated 31.6% and 24.2%, respectively, from year-end exchange in the previous year.

A future depreciation in the exchange rate of the Colombian Peso against the U.S. dollar may affect our financial results when converted into Colombian Pesos, given the portion of our U.S. dollar debt that is not designated as hedge instrument and the future debt we may acquire. Please see our sensitivity analysis on our results of operation to exchange rate fluctuations in the section *Financial Review—Effect of Taxes, Exchange Rate Variation, Inflation and the Price of Oil on our Results—Exchange Rate Variation* and in Note 31.2.2 to our consolidated financial statements.

Increased competition from local and foreign crude oil companies may have a negative impact on our ability to gain access to additional crude oil and natural gas reserves in Colombia and abroad .

We must bid for exploration blocks offered by the ANH (see a description of ANH in *Section 3.8.1. Principal Regulatory Bodies*) in Colombia and by similar authorities in other countries, which means we compete under the same conditions as other domestic and foreign oil and gas companies, and receive no special treatment. Our ability to obtain access to potential production fields also depends on our ability to evaluate and select potential hydrocarbon-producing fields and to adequately bid for these exploration fields.

We are also exposed to international competition as a result of our international exploratory activities. Currently, we are developing exploratory activities in Brazil, Peru and the Gulf of Mexico, where we face competition from other oil and gas companies operating in those locations.

If we are unable to adequately compete with local and foreign oil companies, or if we cannot enter into joint ventures with market players with exploration projects where we could potentially find additional reserves, our exploration activities may be limited. This could reduce our share of the market and, in turn, adversely affect our financial condition.

If operational risks to which we are exposed in Colombia or overseas materialize, the health and safety of our workforce, the local community and the environment may be affected. In addition, we may suffer a disruption or shutdown of our operational activities.

Our exploration, production, refining and transportation activities in Colombia and in the foreign countries in which we operate are subject to industry-specific operating risks, some of which, despite our internal procedures and adherence to industry best practices, are beyond our control. Our operations may be curtailed, delayed or cancelled due to adverse or abnormal weather conditions, natural disasters, blockages in the communities in which we operate, equipment failures or accidents, oil or natural gas spills or leaks, shortages or delays in the availability or in the delivery of equipment, delays or cancellation of environmental licenses or other government authorizations or judicial decisions, fires, explosions, blow-outs, surface cratering, pipeline failures, theft and damage to our transportation infrastructure, sabotage, terrorist attacks and criminal activities.

Some of our operations in Colombia and abroad could be conducted in remote and uninhabited locations which involve health and safety risks that could affect our workforce. By our own Company policy and practices, as well as under Colombian law and international industrial safety regulations, we are required to have health and safety practices that minimize risks and health issues faced by our workforce. Failure to comply with health and safety regulations in the jurisdictions where we operate may lead to investigations by health officials that could result in lawsuits or fines.

We may be required to incur additional costs and expenses to allocate funds to industrial safety and health compliance under Colombian law and international industrial safety regulations. Additionally, if any operational incident occurs that affects local communities and ethnic communities in nearby areas, we will need to incur additional costs and expenses in order to return affected areas to normality and to compensate for any damages we may cause. These additional costs may have a negative impact on the profitability of the projects we may decide to undertake.

The occurrence of any of these operating risks could result in substantial losses or slowdowns to our operations, including injury to our employees, malfunction or destruction of property, equipment and infrastructure, clean-up responsibilities, third-party liability claims, government investigations and imposition of fines, withdrawal of environmental licenses and other government permits, suspension or shutdown of our activities and loss of revenue. The occurrence of any of these events may have a material adverse effect on our financial condition and results of operations.

Our involvement in deep water drilling either as direct operators or in conjunction with our business partners involves risks and costs, which may be outside of our control.

Our deepwater drilling activities present severe risks, such as the risk of spills, explosions in platforms and drilling operations, and natural disasters. The occurrence of any of these events or other incidents could result in personal injuries, loss of life, severe environmental damage with the resulting containment, clean-up and repair expenses, equipment damage and liability in civil and administrative proceedings. Heightened risks and costs associated with deep water drilling may have a negative effect on our results of operations, financial condition and reputation. See the section *Business Overview—Exploration and Production—Exploration Activities—Exploration Activities Outside of Colombia* for a summary of our current deepwater drilling activities.

As a result of the oil spill in the Macondo field operated by British Petroleum in the U.S. Gulf Coast in April 2010, significant concerns regarding the safety of deep water drilling have been raised and, as a result, applicable regulations in various countries have changed. More stringent government regulation may result in increased costs and longer exploration and development timeframes for our deep water drilling operations and consequently could adversely affect our results of operations and financial condition.

The takeover of fields following the termination of association contracts may impact our production and performance.

The takeover of fields following the expiration of an association contract involves risks that may hinder the continuity of the development of those fields. The main risks in executing a takeover are: not accomplishing our production targets, managing the expectations of the communities in surrounding areas, preserving ownership of the required land rights following the takeover, discovering previously unidentified environmental liabilities and securing any remaining payments subsequent to the date of termination, among others. Failure to achieve a precise transition between operators may therefore have a negative impact on our results of operation and financial condition.

The Rubiales risk participation and Piriri joint venture contracts, in which we currently have a 60% and 50% interest, respectively, will expire on June 30, 2016. Given that these two contracts represented 12% of the total production of Ecopetrol in 2015, if we are unable to successfully secure the takeover of these contracts our overall results of operations may be negatively affected.

We are exposed to the credit, political and regulatory risks of our customers and any material nonpayment or nonperformance by our key customers could adversely affect our cash flow and results of operations.

Some of our customers may experience financial problems that could have a significant negative effect on their creditworthiness. Severe financial problems encountered by our customers could limit our ability to collect amounts owed to us, or to enforce the performance of obligations owed to us under contractual arrangements. In addition, many of our customers finance their activities through their cash flows from operations, short and long term debt or equity.

The combination of decreasing cash flows as a result of declines in commodity prices, a reduction in borrowing bases under reserve-based credit facilities and the lack of availability of debt or equity may result in a significant reduction of our customers' liquidity and limit their ability to make payments or perform their obligations to us.

Furthermore, some of our customers may be highly leveraged and subject to their own operating expenses. Therefore, the risk we face in doing business with these customers may increase. Other customers may also be subject to regulatory changes, which could increase the risk of defaulting on their obligations to us. Financial problems experienced by our customers could result in the impairment of our assets, a decrease in our operating cash flows and may also reduce or curtail our customers' future use of our products and services, which may have an adverse effect on our revenues and our ability to make payments under our existing debt obligations.

Our ability to access the credit and capital markets on favorable terms to obtain funding for our capital projects may be limited due to the deterioration of these markets, any change to our credit ratings and the authorizations we need before incurring any financial indebtedness.

We expect to make significant capital and operations expenditures to reach our corporate goals. Our ability to fund these expenditures is dependent on our ability to generate revenue, or access the capital necessary to finance them on terms acceptable to us. In recent years, particularly during the last quarter of 2015 and then first quarter of 2016, due to significant decrease in oil prices, domestic and global financial markets and economic conditions have been weak and volatile and have contributed significantly to a substantial deterioration in the credit and capital markets. A new financial crisis, further decline in prices in the oil and gas sector, continued slowdown of China's economy, which in turn could worsen the risk perception with respect to the emerging markets, or the occurrence of any of the risks described in the section *Risk Review—Risk Factors—Risks Related to Colombia's Political and Regional Environment* could also make it more difficult for us and our subsidiaries to access international and local capital markets and finance our operations and capital expenditures in the future on terms acceptable to us. These conditions, along with significant write-offs in the financial services sector and the re-pricing of credit risk, can make it difficult for us to obtain funding for our capital needs on favorable terms. Access to credit and capital markets is also dependent on our credit ratings, which are mainly determined by our financial and operational strength, oil and gas market conditions and the support that could be provided by the Colombian government. On January 18, 2016, our senior unsecured debt ratings were downgraded to Baa3 from Baa2 by Moody's Investors Service. We cannot assure that our credit ratings will continue for any given period of time or that the ratings will not be further lowered or withdrawn. An assigned rating may be raised or lowered depending, among other things, on the respective rating agency's assessment of our financial strength. In addition, a downgrade in the rating of the Republic of Colombia could also trigger a downgrade on our ratings as our rating is capped by the rating of the Republic of Colombia and the implicit support that can potentially be provided to the Company. On February 16, 2016, S&P revised the outlook of the Republic of Colombia to negative.

As a result of these factors, we may be forced to revise the timing and scope of our capital projects as necessary to adapt to existing market and economic conditions, downgrades to our credit ratings or to access the financial markets on terms less favorable, therefore negatively affecting our results of operations and financial condition.

In addition, under applicable regulation, the Government, through the Ministry of Finance and Public Credit and the favorable opinion of the National Planning Department, must authorize all indebtedness of state-owned entities and government-controlled companies through a majority equity stake. Consequently, all of our indebtedness, except for our foreign subsidiaries or those subsidiaries in which we hold minority interest, must be previously authorized by the Colombian Ministry of Finance and Public Credit and the National Planning Department. As such, our indebtedness is subject to the Government's time frames and policies, and we cannot guarantee that such authorizations would be granted in a timely fashion or granted at all.

We may be exposed to increases in interest rates, thereby increasing our financial costs.

We may incur debt locally and in the international capital markets and, consequently, may be affected by changes in prevailing interest rates. If market interest rates increase, our financing expenses may increase, which could have an adverse effect on our results of operations and financial condition.

As of December 31, 2015, approximately 30.1%, or US\$4.9 billion, of our total long term indebtedness consisted of floating rate debt. If market interest rates rise, our financing expenses will increase, which could have an adverse effect on our results of operations and financial condition. In addition, as we refinance our existing debt in the coming years, the mix of our indebtedness may change, specifically as it relates to the ratio of fixed to floating interest rates, the ratio of short-term to long-term debt, and the currencies in which our debt is denominated in or indexed to. We cannot assure you that such changes will not result in increased financing expenses borne by us. Finally, as we incur new debt in the future to fund our capital projects, the prevailing interest rates and spreads at any specific time could be less favorable in terms of cost when compared to our previous financing transactions, which could adversely affect our financial condition and results of operations.

Our current and planned investments and exploration activities outside Colombia are exposed to political and economic risks.

As part of our Strategic Plan, we operate through business partners, subsidiaries or affiliates outside of Colombia. We currently have investments and subsidiaries incorporated in Peru, Brazil, Bermuda, Panama, the Cayman Islands, Switzerland, Germany, Spain, the United Kingdom and the United States, and we are analyzing investments in other countries. In connection with making investments, we are and will be subject to risks related to economic and political conditions and governmental economic actions. We cannot predict the positions of foreign governments relating to the oil and gas industry, land tenure, protection of private property, environmental standards, regulation or taxation; nor can we assure you that future governments will maintain policies favorable to foreign investment or repatriation of capital.

We began exploration activities outside Colombia in 2006 through our Brazilian subsidiary, Ecopetrol Óleo e Gás do Brasil Ltda. Our foreign subsidiaries have subsequently entered into a number of joint venture exploration agreements with regional and international oil companies to explore blocks in Peru, Angola, Brazil and the U.S. Gulf Coast. We have limited experience exploring outside Colombia. We may face new and unexpected risks involving environmental and other legal requirements beyond those we currently face.

The results of operations and financial condition of our subsidiaries in these countries also may be adversely affected not only by risks associated with hydrocarbon exploration and production, but also by fluctuations in their local economies, political instability and government actions, including: the imposition of price controls, the imposition of restrictions on hydrocarbon exports, fluctuation of local currencies against the Colombian Peso, the nationalization of oil and gas reserves, increases in export tax and income tax rates for crude oil and oil products, and unilateral (governmental) institutional and contractual changes, including controls on investments and limitations on new projects.

Any of these conditions occurring could disrupt or terminate our operations, causing our development activities to be curtailed or terminated in these areas, or our production to decline; limit our ability to pursue new opportunities; affect the recoverability of our assets; or cause us to incur additional costs or delay the timeline of our projects.

Our future performance depends on the successful development and deployment of new technologies and the knowledge to apply and improve them.

Technology, knowledge and innovation are essential to our business, especially for improvements in the production and transportation of heavy crude oil, the exploitation of mature fields, and reductions in our operating cost. If we do not develop the right technology or do not obtain the expertise to operate new technology or to improve our processes, do not have access to, or do not deploy the knowledge necessary to apply and improve such technology effectively, the execution of our corporate goals, our profitability and our earnings may be adversely affected.

Our performance could be negatively affected by a deficiency in leadership capacity and lack of key skilled employees.

As the oil and gas industry faces an increasing number of challenges, the ability to react quickly to these challenges has become a key factor in achieving efficiency, profitability and sustainability. Our ability to achieve these goals can be negatively affected by a deficiency in leadership capacity and a lack of key skilled employees that can execute our business strategy with creativity and determination.

Our operations may not be able to keep pace with the increasing domestic demand for natural gas.

According to the Colombian Energy and Gas Regulatory Commission (CREG) Resolution 089 of 2013, a supplier of natural gas must possess sufficient economically viable natural gas reserves before executing a natural gas delivery contract with a customer. In the long term, we may not be able to keep up with increasing local demand for natural gas if demand outpaces the rate of growth of our natural gas supply, especially because of the decline of our main fields. As a result, we may lose market share, which may negatively impact our financial condition and results of operations.

Additionally, we are currently party to a number of natural gas supply contracts that have firm gas commitments. If we are unable to deliver natural gas to these clients as a result of cuts in operations, delays in the completion of projects relating to our production facilities or the acceleration of the decline in our gas production, among other reasons, we may be required to compensate our customers for our failure to supply natural gas.

Delays in the start of new projects could result in penalties imposed on us by our clients. Although we did not pay any such penalties in 2015, we cannot assure you that in the future we will not be subject to additional monetary fines which can in turn affect our financial condition and results of operations.

We depend on others for the construction and availability of natural gas transportation infrastructure for the transport of our gas, which may limit our ability to develop new or existing fields or lead to the deterioration of related assets and may not allow us to recover the cost of capital invested in natural gas discoveries.

We are prohibited by law from holding more than 25% of the equity of any natural gas transportation company. Therefore, there can be no assurance that the transportation infrastructure necessary to transport natural gas from the fields to distribution points and our customers will be built by third parties or that if built there will be sufficient capacity available to us for the exploitation of new natural gas discoveries or the development of existing fields. The failure to commercially exploit new or existing discoveries may result in impairment of the related assets and our inability to recover the capital expenditures invested to make these natural gas discoveries. As a result, we may be required to enter into agreements with natural gas transportation companies on terms that are not favorable to us.

For example, we have developed natural gas reserves in the Cusiana and Cupiagua fields, but transportation capacity to deliver gas from these fields is currently limited.

Our operations have and may continue to be affected by reactions of labor unions, social organizations and contractors to organizational changes and other management decisions.

Due to the volatility of the markets and the existing low oil price environment, we have and will continue to undertake measures to enhance operating cost efficiency. Such measures involve changes in cost structure, downsizing our staff (including direct and indirect employees), budget cuts, among others. Unions, contractors and social organizations in the communities where we have operations have in the past and may continue to oppose such measures causing work stoppages or decreasing productivity, which could have an adverse effect on our operations and financial condition.

In addition, our current collective bargaining agreement has been in effect since 2014 and has a term of five years, expiring June 30, 2018. There will be no changes to these terms until 2018; therefore, we do not expect any adverse reactions from our labor unions relating to this matter. However, we cannot assure you we will not experience strikes or labor unrest in the future.

Our activities may be interrupted or affected by external factors, such as abnormal weather conditions and natural disasters.

We are exposed to several risks that may partially interrupt our activities. They include fires or explosions, natural disasters, criminal acts and acts of terror, malfunction of pipelines and emission of toxic substances.

Also, the effects of climate change could create impacts and losses in any part of our business operations, for instance, as the result of increase in the intensity of the “La Niña” and “El Niño” climate phenomena, causing floods and drought periods, increased temperature and rising sea levels.

The “El Niño” climate phenomenon is characterized by (i) a lack of rainfall, which limits the amount of water necessary for the development of various activities of the company, and (ii) increased temperatures, which could have a direct impact on our workers’ health given an increased occurrence of heat waves and the increased occurrence of epidemics and diseases. The “La Niña” climate phenomenon is characterized by increased rainfall, which can generate (i) landslides that threaten pipeline infrastructure and limit road transportation and (ii) flooding, which could limit operations in our production fields and facilities.

As a result, our activities could be significantly affected or even paralyzed. These risks could result in property damage, loss of revenue, loss of life, pollution and harm to the environment, among others. If any of these occur, we may be exposed to economic sanctions, damages, fines or penalties in addition to the costs required to repair or remediate the related damage. These costs, fines and penalties may adversely affect our financial condition and results of operations.

Our operations, including our activities in areas classified as indigenous reserves and Afro-Colombian lands, are subject to opposition from members of various communities.

We currently carry out and plan to carry out activities in areas classified by the Government as indigenous reserves (*resguardos*) and Afro-Colombian lands (*territorios colectivos*). In order to undertake these activities, we must first comply with the previous consultancy process, set forth by Colombian law. These consultation processes are part of the administrative procedures for obtaining environmental licenses to start our projects, works or activities in areas belonging to ethnic communities. Generally, these consultation processes last between four to six months, but may be significantly delayed if we cannot reach an agreement with the communities. We strive to be respectful of the Constitution and laws and the autonomy of indigenous and Afro-descendant communities, and we therefore do not enter their territories until we have reached an agreement with them.

Our activities are subject to opposition, including protests by various communities, and even in areas in which the previous consultancy process does not apply.

No assurance can be given that we will be able to reach an agreement with the different communities opposed to our operations or that such communities will participate in consultancy processes if available. We may be exposed to similar delays due to opposition from local communities in other countries where we carry out our activities.

We have made significant investments in acquisitions and we may not realize the expected value.

We have acquired interests in several companies in Colombia and abroad. See the section *Business Overview—Our Corporate Structure*. Obtaining the expected benefits of the acquisitions will depend, in part, on our ability to (i) obtain the expected operational and financial results from these acquisitions, (ii) manage disparate operations and integrate distinct corporate cultures, (iii) manage our objectives as a corporate group, and (iv) institute our corporate governance rules as well as other factors beyond our control such as (v) the economic and regulatory environment in countries in which we have made acquisitions and (vi) crude oil prices. These efforts may not succeed. Our failure to successfully obtain the expected results from our acquisitions could adversely affect our financial condition and results of operations.

Our construction of large projects, such as those being undertaken by our subsidiaries Reficar, Bioenergy S.A. and Bioenergy Zona Franca S.A.S., may be delayed or cost more than projected, which could affect our operating results and financial condition.

Our current and future investment projects could face planning and implementation problems, which could impact the cost and profitability of our programs and projects, adversely affecting our results of operation and financial condition.

For example, Reficar raised US\$3.5 billion through a limited-recourse project financing in which we provided both a construction support and a debt service guarantee. If the construction of the project to upgrade the Cartagena Refinery is delayed because of operational problems, Ecopetrol S.A. must provide the sufficient financial resources, either by means of capital contributions or by granting a subordinated loan, until Reficar reaches project completion. Operational problems may include, but are not limited to, labor productivity or unavailability of construction material in the development of the project, or failure of the upgraded refinery to reach the expected performance level in terms of the quality of products and/or volumes produced. If Ecopetrol S.A. is required to provide additional capital or guarantees, other strategic projects may be delayed or cancelled, thereby affecting our operating results and financial condition.

In 2013, 2014 and 2015, we were called upon to provide Reficar with financial support beyond the US\$3.5 billion Reficar raised through limited-recourse project financing. Reficar has requested the following amounts under the Construction Support Agreement, approximately US\$1.0 billion, US\$1.4 billion and US\$722 million in 2013, 2014 and 2015, respectively, for the construction of the project. Any increase in the project's capital expenditures is expected to be funded under the Construction Support Agreement between Reficar and Ecopetrol S.A. See the section [Business Overview—Refining and Petrochemicals—Refining—Reficar](#).

Ecopetrol S.A. also provided Reficar with a liquidity mechanism by means of the Debt Service Guarantee Agreement, in order to allow Reficar to pay its debt service in situations in which there are liquidity shortfalls, as well as establishing a mechanism pursuant to which Reficar can exit the project finance by transferring its debt to Ecopetrol S.A. During 2015 and 2014, the requested amounts by Reficar under the Debt Service Guarantee Agreement were US\$378 million and US\$241 million, respectively.

Any further delays in the implementation of the project may result in larger capital expenditures, which could increase the overall cost of the project and impact our financial results.

Bioenergy S.A and Bioenergy Zona Franca S.A.S. are executing the construction of an ethanol plant with an installed capacity of 480,000 liters per day. The project is currently expected to begin commercial operations by the end of 2016. Any performance defaults, social unrest, strikes or other labor actions strikes could negatively impact this estimated date, costs of the project and our financial results.

Our results may be affected by the performance of our business partners or their third-party service providers, as many of our operations are executed under joint venture agreements with business partners.

Many of our operations are performed through joint ventures with our business partners. Consequently, we depend on the performance of our business partners. The poor performance of any of our business partners, especially in those projects in which we do not act as operator, could negatively impact oil and natural gas production, which in turn could have a negative impact on our results of operations and financial condition. We are exposed to the risk of not finding business partners with the appropriate skills and performance we require for our projects. We are also indirectly exposed to supply agreements and other third-party services contracted by our business partners acting as operators under joint venture agreements.

Our insurance policies do not cover all liabilities and may not be available for all risks.

Our insurance policies do not cover all liabilities, and insurance may not be available for all risks. There can be no assurance that incidents will not occur in the future, that insurance will adequately cover the entire scope or extent of our losses or that we will not be found liable in connection with claims arising from these and other events, which could adversely affect our financial condition and results of operations.

A failure in our information technology systems or cyber security attacks may adversely affect our financial results.

We depend on the reliability and security of our information technology systems to conduct certain exploration, development and production activities, process financial records and operating data, communication with our employees and business partners, and for many other activities related to our business. Our information technology systems may fail or have other significant shortcomings due to operational system flaws or employee misuse, tampering or manipulation. In addition, we may become the target of cyber-attacks or information security breaches that could result in the unauthorized release, gathering, monitoring, misuse, loss or destruction of proprietary and other information. Any of these occurrences could disrupt our business, result in potential liability or reputational damage or otherwise have an adverse effect on our financial results.

During 2015, our internal cyber security systems identified 92,503 Command & Control attacks designed to extract information from Ecopetrol S.A. Our platforms also identified and controlled certain Advanced Persistent Threats aimed at company personnel through emails, including through (i) phishing, spam, spyware/greyware and malware events; (ii) Botnets, Malnets and dangerous websites connections; and (iii) a DDoS attack.

Although we have not experienced any material losses relating to failure of our information technology systems or cyber incidents, there can be no assurance that we will not suffer such losses in the future.

We are exposed to behaviors incompatible with our ethics and compliance standards.

Given the large number of contracts that we are a party to in Colombia and abroad with local and foreign suppliers, the geographic distribution of our operations and the great variety of actors that we interact within the course of business, we are subject to the risk that our employees, contractors, or any person having relations with us may misappropriate our assets, manipulate our assets or information or engage in money laundering or the financing of terrorism, for such person's personal or business advantage. Our systems for identifying and monitoring these risks may not be effective to fully mitigate them in all situations. Such acts may result in material financial losses or reputational harm to the Company.

Unavailability of electric power may affect or limit the continuity of our operations or growth.

Ecopetrol S.A.'s average energy consumption in 2015 was 6,740,512 MWh/year equivalent, of which 91% was supplied through self-generation, and the remaining 9% through unregulated purchases of electrical energy in the open market. Given our expected production levels and the start of a new transport and refining system, it is possible that during the next few years there will be insufficient electrical energy for our operations or the operations of fields in which we are a non-operating partner. This is because of the unavailability of market power given the delay of several energy transmission and generation infrastructure projects, the increase in the share of consumption by non-regulated users, and because of high dependency on the execution of self-generation and transmission projects and contracts managed by us or by our business partners that are exposed to a number of risks, including high volatility in national energy conditions (such as hydrology, availability of natural gas), licensing restrictions and attacks on infrastructure, among others.

Rising water production levels may affect or constrain our crude oil production.

During 2015, Ecopetrol S.A. produced approximately 10.8 million barrels of water per day. Taking into account the nature of our reservoirs, the water production levels to be managed by the Company may increase in the future. In order to achieve our oil and gas production goals and to avoid any production restrictions going forward, we will need to secure the required capacity to manage water levels. Factors that may trigger a possible constraint in our crude oil production due to the rising water production levels are: (i) ineffective project management of the required facilities, (ii) the Company's and its partners' ability to timely obtain the environmental permits related to water management, (iii) social and community interactions that could affect the development and operation of these projects, and (iv) the availability of capital to execute the required projects.

5.1.2 Risks Related to Colombia's Political and Regional Environment

This section discusses potential risks related to our extensive operations in Colombia.

The Colombian government could seize or expropriate Ecopetrol's assets under certain circumstances.

Pursuant to Article 58 and 59 of the Colombian constitution, the Government can exercise its eminent domain powers in respect of Ecopetrol's assets in the event such action is deemed by the Government to be required in order to protect public interests. According to Law 388 of 1997, eminent domain powers may be exercised through: (i) an ordinary expropriation proceeding (*expropiación ordinaria o judicial*), or (ii) an administrative expropriation (*expropiación administrativa*). In all cases we would be entitled to a fair compensation for the expropriated assets. Also, as a general rule, compensation must be paid before the asset is effectively expropriated. However, the compensation may be lower than the price for which the expropriated asset could be sold in a free-market sale or the value of the asset as part of an ongoing business. Additionally, Article 59 of the Colombian constitution establishes an expropriation for war reasons (*expropiación en caso de guerra*), which does not that compensation be paid before expropriation but can only be executed on a temporary basis.

Colombia has experienced internal security issues that have had or could have a negative effect on the Colombian economy and on us.

Colombia has experienced internal security issues, primarily due to the activities of guerrillas, paramilitary groups, drug cartels and criminal bands known as *Bacrim*. From time to time, guerrillas target crude oil and multi-purpose pipelines, including the Oleoducto Transandino, Caño Limón-Coveñas and Oleoducto Bicentenario pipelines, and other related infrastructure disrupting our activities and those of our business partners. During 2015, the attacks against our pipeline infrastructure decreased by 38% in relation to 2014 (130 attacks in 2014 compared with 80 attacks in 2015), however they were strategically targeted and more severe. This situation especially affected the infrastructure located in Putumayo, Nariño, Arauca and Norte de Santander and the following pipelines: Caño Limón Coveñas, Transandino and San Miguel Orito. On several occasions, guerilla attacks have resulted in unscheduled shutdowns of transportation systems in order to repair or replace sections of pipelines or production facilities that have been damaged and deferral of production in certain fields, as well as caused us to undertake environmental remediation. For the pipeline infrastructure managed by Ecopetrol S.A., the direct cost of repair pipeline infrastructure due to terrorist attacks in 2015 was approximately COP\$56.5 billion (US\$18 million, with a 3,149.47 Colombian Peso/U.S. dollar exchange rate as of December 31, 2015). Also, our production was impacted by approximately 6,800 bpd due to events related to attacks on our infrastructure that limited our production. Guerrilla groups and other illegal armed groups also attacked natural gas transportation infrastructure that have affected our natural gas production in the past. These activities, their possible escalation and the effects associated with them have had, and may have in the future, a negative impact on the Colombian economy or on us, which may affect our customers, employees, assets or the environment, with resulting containment, clean-up and repair expenses.

Likewise, theft of refined products and crude oil, resulting from security issues, may impact our results in the future. Theft of refined products, which reached a peak of approximately 7,270 bpd in 2002, was reduced to around 44 bpd in 2014 and to approximately 30 bpd in 2015. The theft of crude oil decreased from approximately 835 bpd in 2014 to approximately 646 bpd in 2015.

Peace negotiations between the Colombian government and the guerrilla groups may not be fruitful

Since 2012, the Colombian government has been in negotiations with the Revolutionary Armed Forces of Colombia, or FARC, the largest guerrilla group in Colombia, with a view to end the armed conflict. This is the latest attempt in a series of unsuccessful negotiations between the Colombian government and the FARC. While the process is ongoing, military operations and hostilities continue. If the negotiations fail, the intensity of the internal armed conflict could increase, resulting in a deterioration of Colombia's national security and, consequently, negatively impacting our operating results. However, even if the negotiations turn out to be successful, some of the guerrilla groups may continue their illegal and terrorist activities, which could affect our operations.

The Colombian government and the country's largest guerrilla group have made a joint request to the United Nations Security Council and are nearing the final stages of an armistice negotiation. The two sides have asked the United Nations Security Council to set up a mission of international experts to oversee a critical part of the proposed agreement: disarming the FARC.

The Colombian government envisions that the FARC will assemble its fighters in a handful of regions once a final peace agreement is signed and that fighters will start to gradually transition into civilian life. However, FARC rebels explicitly backed out of the agreement, claiming that the Colombian government has stalled the process.

On the other hand, the National Liberation Army, or ELN, an insurgency guerrilla group, has increased its actions against the Colombian security forces and the critical infrastructure of the Nation in recent months, which we believe is an attempt to show its presence and influence in some regions and put pressure on the peace negotiations process that the ELN and the Colombian government started on March 30, 2016. In addition, the possibility of a peace agreement with the ELN is uncertain due to internal division among its leaders.

There have been certain events in Colombia and abroad, which have resulted in political tensions between Colombia and some of its neighboring countries.

Diplomatic relations between Colombia and some of its neighboring countries, in particular Ecuador and Venezuela, have been tense in the past. These political tensions were heightened by the Colombian government's allegations that neighboring countries were supporting the guerilla groups, as well as by claims made by Venezuela stating that the Colombian army has entered its territory while in pursuit of FARC members. Although relations with these countries have stabilized, there can be no assurance that similar allegations that may result in new and heightened tensions with Colombia's neighbors would not be made again as was done in the past, and would not have a negative impact on Colombia's economy and general security situation.

Companies operating in Colombia, including us, are subject to the prevailing economic conditions and the investment climate in Colombia, which may be less stable than the prevailing economic conditions and investment climate in developed countries.

Market prices of securities issued by Colombian companies, including us, are subject to the prevailing economic conditions in Colombia. A large portion of our assets and operations are located in Colombia and most of our sales are currently derived from our crude oil and natural gas production and the production of our refineries located in Colombia. Accordingly, our financial condition and results of operations depend to a significant extent on macroeconomic and political conditions prevailing from time to time in Colombia and on the exchange rates between the Colombian Peso and the U.S. dollar.

If the perception of improved overall security in Colombia deteriorates or if the investment climate worsens, the Colombian economy may face lower growth rates than the ones posted recently, which could negatively affect our financial condition and results of operations. Furthermore, the market price of our shares and American Depositary Shares, or ADSs, may be adversely affected by changes in governmental policies, particularly those affecting economic growth, exchange rates, interest rates, inflation and taxes. The Government has changed monetary, fiscal, taxation, labor and other policies over time and has thus influenced the performance of the Colombian economy. We have no control over the extent and timing of government intervention and policies.

Colombian political and economic conditions have a direct impact on our business and may have a material adverse effect on us.

Colombia's economic policies may have direct impact on our company as well as market conditions, the prices of securities and our ability to access national and international capital markets. Our financial condition and results of operations may be adversely affected by the following factors, among others, and the Government's response to such factors: exchange rate movements; inflation; exchange control policies; price instability; interest rates; liquidity of domestic capital and lending markets; tax policy; regulatory policy for the oil and gas industry, including pricing policy; and other political, diplomatic, social and economic developments in or affecting Colombia.

Uncertainty over whether the Government will implement changes in policy or regulations that may affect any of the factors mentioned above or other factors in the future may lead to economic uncertainty in Colombia and increase the volatility of the Colombian securities market and securities issued abroad by Colombian companies.

Developments and the perception of risk in other countries, especially emerging market countries, may adversely affect the market price of Colombian securities, including our ADSs.

Securities issued by Colombian companies may be affected by economic and market conditions in other countries, including other Latin American and emerging market countries. Although economic conditions in Latin American countries and in other emerging market countries may differ significantly from economic conditions in Colombia, investors' reactions to developments in these other countries may have an adverse effect on the market value of securities of Colombian issuers and our ability to access capital markets.

Due to past financial crises in several emerging market countries (such as the Asian financial crisis of 1997, the Russian financial crisis of 1998 and the Argentine financial crisis of 2001), the world financial crisis of 2008 and the recent sovereign debt crises in certain European countries, investors may view investments in emerging markets with heightened caution. In the past, as a result of crises in other countries, flows of investments into Colombia have been reduced. Crises in other countries, especially in emerging market countries, may hamper investor enthusiasm for securities of Colombian issuers. If Latin America experiences a new slow-down or if the price for securities of Latin American issuers falls, the price for our ADSs could follow this trend and could be adversely affected as could our ability to access domestic or international capital markets.

The Ministry of Mines and Energy has not calculated or liquidated the Net Position for each refiner and/or importer and for each fuel (gasoline and motor fuel oil) to be recognized by the FEPC to Ecopetrol

Under current Colombian regulations, the Ministry of Mines and Energy is required to calculate and liquidate each refiner and/or importer of fuel's Participation Differential (i.e. this arise when the international parity price is lower than the reference price established by the Ministry of Mines and Energy, leading to a "Net Position" every six months to be paid by the FEPC). However, the Ministry of Mines and Energy has not calculated or liquidated the Net Position for each refiner and/or importer and for each fuel (gasoline and diesel) to be paid by the FEPC to Ecopetrol since the third quarter of 2014. We do not know and we cannot anticipate the terms and conditions that will be established by the Ministry of Mines and Energy for future liquidations after the Court's decision included in the sentence C-726 of November 25, 2015. For more information regarding the FEPC, see the section *Business Overview—Applicable Laws and Regulations—Regulation of Refining and Petrochemical Activities—Regulation Concerning Production and Prices.*

New or higher taxes resulting from changes in tax regulations or the interpretation thereof in Colombia could adversely affect our results of operations and financial condition.

New tax laws and regulations, and uncertainties in the interpretation with respect to existing and future tax policies pose risks to us. In recent years, the Colombian Congress and tax authorities have imposed additional taxes such as the *Impuesto sobre la Renta para la Equidad* ("CREE surtax"), and enacted modifications to taxes related to financial transactions, income, value added tax ("VAT"), and taxes on net worth. For a description of taxes affecting our results of operations and financial condition in 2015, see the section *Financial Review—Effect of Taxes, Exchange Rate Variation, Inflation and the Price of Oil on Our Results—Taxes.* Changes in tax-related laws and regulations, and interpretations thereof, can affect tax burdens by increasing tax rates and fees, creating new taxes, limiting tax deductions, and eliminating tax-based incentives and non-taxed income. In addition, tax authorities and tax courts may interpret tax regulations differently than we do, which could result in tax litigation and associated costs and penalties. For Colombian income tax purposes and, as a general rule, dividends that are distributed from profits taxed at the corporate level are not taxed or subject to withholding tax at the shareholder level. Tax treaty rules might also apply on dividend distributions when a shareholder is a resident in a country that has executed a tax treaty with Colombia. However, the tax treatment currently applicable to dividends that are distributed from profits may change in the future, and any change could have an adverse effect on our financial condition and the taxable burden applicable to us as shareholders.

Currently, there is not a bill pending in Congress relating to tax matters. However, the Colombian government convened a committee of experts (the "Committee of Experts") to analyze the current Colombian tax system and to propose changes to such system. Although the final report drafted by the Committee of Experts is neither mandatory nor binding, the Colombian government has announced that it plans to submit to Congress a structural tax reform in 2016 based on the final report.

The key proposed reforms in the final report are the following:

- To replace the current structure of taxation on profits (including income tax, CREE tax and CREE surtax) with a single Corporate Profit Tax (IUE, for its acronym in Spanish). The IUE rate is proposed to be between 30% and 35% and the taxable base of the IUE will be based on total profit calculated in accordance with IFRS.

- To eliminate the wealth tax (net worth tax), special tax deductions and tax discounts, and certain tax benefits.
- To tax dividends at the shareholder level, in cases where the shareholder is a person or a foreign entity.
- To increase the presumptive income tax rate from 3% to 4% of the taxpayer's net equity for the prior year.
- To increase the VAT tax rate from 16% to 19%.

The Colombian government has stated that no tax bill will be submitted to Congress during the first half of 2016. However, it is expected that a tax bill will be submitted by the Colombian government and enacted by Congress during the second half of 2016. Therefore, the tax reform is expected to be effective in 2017 for taxes and withholdings accrued on annual basis. However, as of the date of this annual report, we cannot offer any assurance as to when and if the tax reform would be submitted and whether it would be passed as drafted by the Committee of Experts.

5.1.3 Legal and Regulatory Risks

This section discusses potential legal and regulatory risks to Ecopetrol, including the risk of having to comply with new laws and regulations.

Our operations are subject to extensive regulation.

The Colombian hydrocarbons industry is subject to extensive regulation and supervision by the Government and regulatory agencies in matters including the award of exploration and production blocks by the ANH, the imposition of specific drilling and exploration obligations, restrictions on production, price controls, capital expenditures and required divestments. Existing regulation applies to virtually all aspects of our operations in Colombia and abroad. The commercialization activities of some of our products also face extensive regulation. Such regulation is subject to change by the applicable regulator affecting our ability to commercialize our products. See the section Business Overview—Applicable Laws and Regulations.

The terms and conditions of the agreements with the ANH under which we explore and produce crude oil and natural gas generally reflect negotiations with the ANH and other governmental authorities and may vary by fields, basins and hydrocarbons discovered.

We are required, as are all oil companies undertaking exploratory and production activities in Colombia, to pay a percentage of our production to the Government as royalties. The Colombian Congress has modified the royalty program for crude oil and natural gas production several times in the last 20 years, as it has modified the regime regulating new contracts entered into with the Government. In the future, the Colombian Congress may once again amend royalty payment levels for new contracts and such changes could have an adverse effect on our future exploration and production in Colombia. See the section Business Overview—Applicable Laws and Regulations—Regulation of Exploration and Production Activities—Business Regulation—Royalties for a description of the current royalty scheme.

Our operations in Colombia are subject to extensive national, state and local environmental regulations. Environmental rules and regulations are applicable to our exploration, production, refining, transportation, supply and marketing activities, as well as the biofuels we produce. These regulations establish, among other things, quality standards for hydrocarbon products, air emissions and greenhouse gases, water discharges and waste disposal, soil remediation, water pollution and the general storage, handling, transportation and treatment of hydrocarbons in Colombia. Currently, all exploratory projects drilling in areas that do not yet have a license must undergo an environmental impact assessment and must receive an environmental license from the governmental agency responsible for awarding environmental licenses, the Environmental License National Agency or ANLA. Environmental authorities with jurisdiction over our activities routinely inspect our crude oil fields, refineries and other production sites, and they may decide to open investigations or sanction proceedings, which may result in the imposition of fines, restrictions on operations or other sanctions in connection with potential non-compliance with environmental laws.

We are also subject to control and monitoring by the regional autonomous corporations, which are regional environmental authorities that grant permits for the use and exploitation of natural resources, establish compensation measures for the use of these resources, and perform monitoring, control and sanctions function.

If we fail to comply with any of these national or regional environmental regulations or authorities, we could be subject to administrative and criminal penalties, including warnings, fines or closure orders of our facilities. Any such criminal penalty would be imposed on the legal representatives of the Company, including any legal representative, director or worker who participated or failed to take action related to the activities that lead to environmental damage. See the section *Business Overview—Applicable Laws and Regulations—Regulation of Exploration and Production Activities—Business Regulation—Environmental Licensing and Prior Consultation.*

Environmental regulation has become more stringent in Colombia in recent years. As a result, our operating costs have increased in order to comply with these new technical environmental requirements as well as the need to strengthen our specialized team in charge of environmental compliance in project and operations. If environmental laws continue to impose additional costs on us, we may need to reduce our investments on strategic projects in order to allocate funds to environmental compliance. We are also exposed to delays in obtaining environmental licenses from ANLA, which can lead to cost overruns or to changes in our investment plans. These additional costs may have a negative impact on the profitability of the projects we intend to undertake or may make them economically unattractive, in turn having a negative impact on our results of operations and financial condition.

We are subject to foreign environmental regulations for the exploratory activities conducted by us outside Colombia. Failure to comply with foreign environmental regulations may result in investigations by foreign regulators, which could lead to fines, warnings or temporary suspensions of our operations, which could have a negative impact on our financial condition and results of operations.

Under certain of our credit agreements, we are under an obligation to comply with international environmental standards established by our lenders or by multilateral institutions. Failure to comply with such environmental standards could result in an event of default under the relevant credit agreements that we, or our subsidiaries, have entered into, which would affect our financial condition. For instance, the credit facility executed by Reficar for the financing of its expansion and modernization project includes an obligation to comply with the U.S.-Exim Environmental Procedures and Guidelines and the Organization for Economic Co-operation and Development (OECD) Common Approaches on Environment and Officially Supported Export Credits, and a credit agreement executed by Ecopetrol S.A. to finance purchases of U.S. goods and services requires Ecopetrol S.A. to comply with the U.S.-Exim Environmental Procedures and Guidelines.

In addition, we may be subject to foreign health and safety and environmental regulations for our exploratory activities conducted outside Colombia. Foreign health and safety regulations may be more severe than those established under Colombian law and, therefore, we may be required to make additional investments to comply with those regulations.

We may incur losses and spend time and money defending pending lawsuits and arbitrations.

We are currently a party to several legal proceedings filed against us. We are also subject to labor-related lawsuits filed by current and former employees in connection with pension plans and retirement benefits. For example, as of December 31, 2015, Ecopetrol S.A. was a party to 3,391 legal proceedings relating to civil, administrative, environmental, tax, and labor claims filed against us of which 310 met the accounting threshold for an accrual provision. We allocate substantial amounts of money and time to defend against these claims, in which the claimants often seek substantial sums of money as well as other remedies. See Note 23 – Accrued liabilities and provisions to our consolidated financial statements and see the section *Risk Review—Legal Proceedings and Related Matters.* In addition, in accordance with Colombian law, we are subject to surveillance and investigations by certain control entities in Colombia, which are intended to determine whether public funds have been misappropriated or whether they have been used in compliance with applicable law. See the section *Risk Review—Legal Proceedings and Related Matters.*

5.1.4 *Risks Related to our ADSs*

This section discusses potential risks associated with an investment in our American Depository Shares (as opposed to our common shares) by investors outside Colombia.

Holders of our ADSs may encounter difficulties in protecting their interests.

Holders of our ADSs do not have the same voting rights as holders of our shares. As set forth in the deposit agreement, dated September 16, 2008, among Ecopetrol S.A., JP Morgan Chase Bank, N.A., as depositary, and all holders from time to time of our American Depositary Receipts (the “Deposit Agreement”), ADSs may instruct our current depositary, JP Morgan Chase Bank, N.A., to vote on shareholder matters prior to a shareholders’ meeting. Colombia law does not, however, require Ecopetrol to request proxies from existing shareholders. Thus, shareholders may not become aware of some matters in time to instruct the depositary to vote their shares.

The Deposit Agreement provides ADSs with the right to instruct the depositary to vote common shares separately. The viability of this contractual provision is unclear. This is because regulatory agencies have advanced inconsistent positions regarding whether a depositary must vote common shares as a single block or may vote them separately. Going forward, the Colombian regulatory authorities may change their interpretation as to how the voting rights should be exercised by ADS holders, and such possible interpretation could adversely affect the value of the common shares and ADSs.

Our ADSs holders may be subject to restrictions on foreign investment in Colombia.

Colombia’s International Investment Statute (the set of rules and regulations which govern the foreign exchange market and the transactions thereto, which include Resolution 8 of 2000 and External Circular No. DCIN 83 issued by the Colombian Central Bank among others) regulates the manner in which non-Colombian residents can invest in Colombia and participate in the Colombian securities market. Among other requirements, Colombian law requires foreign investors to register certain foreign exchange transactions with the Colombian Central Bank and outlines the necessary procedures to authorize certain types of foreign investments. Colombian law requires that certain foreign exchange transactions, including international investment in foreign currency between Colombian residents and non-Colombian residents, must be made through authorized foreign exchange market participants. Any income or expenses under our American Depositary Receipt, or ADR, program must be made through the foreign exchange market.

Investors acquiring our ADRs are not required to register with the Colombian Central Bank, as they will benefit from the registration to be obtained by the custodian for our common shares underlying the ADRs in Colombia. If investors in ADRs choose to surrender their ADRs and withdraw common shares, they must register their investment in the common shares as a portfolio investment through their local representative, which may be a brokerage firm, trust company or investment management companies supervised by the Superintendency of Finance (*Superintendencia Financiera de Colombia*). Investors will only be allowed to transfer dividends abroad after their foreign investment registration procedure with the Colombian Central Bank has been completed. Investors withdrawing common shares could incur expenses and/or suffer delays in the application process. The failure of a non-resident investor to report or register foreign exchange transactions with the Colombian Central Bank relating to investments in Colombia on a timely basis may prevent the investor from remitting dividends, or initiate an investigation that may result in a fine. In the future, the Government, the Colombian Congress or the Colombian Central Bank may amend Colombia’s International Investment Statute or the foreign investment rules, which could result in more restrictive rules and could negatively affect trading of our ADSs.

Colombia currently has a free convertibility system. If a more restrictive convertibility system is implemented, the depositary may experience difficulties converting Colombian Peso amounts into U.S. dollars to remit dividend payments. Also, currently Colombia has a floating exchange rate system that might be subject to change in the future. See the section *Shareholder Information—Exchange Controls and Limitations*.

Holders of our ADSs may not be able to effect service of process on us, our directors or executive officers within the United States, which may limit your recovery in any foreign judgment you obtain against us.

We are a mixed economy company organized under the laws of Colombia. In addition, most of the members of our Board of Directors (“Directors”) and executive officers reside outside the United States. All or a substantial portion of our assets and the assets of these persons are located outside of the United States. As a result, it may not be possible for you to effect service of process within the United States upon us or these persons or to enforce judgments against us or them in U.S. courts obtained in such courts predicated upon the civil liability provisions of the U.S. federal securities laws. Colombian courts determine whether to enforce a U.S. judgment predicated on the U.S. securities laws through a procedural system known as *exequatur*. For a description of these limitations, see the section *Shareholder Information—Enforcement of Civil Liabilities*.

The protections afforded to minority shareholders in Colombia are different from those in the United States, and may be difficult to enforce.

Under Colombian law, the protections afforded to minority shareholders are different from those in the United States. In particular, the legal framework with respect to shareholder disputes is substantially different under Colombian law than U.S. law and there are different procedural requirements for commencing shareholder lawsuits, such as shareholder derivative suits. As a result, it may be more difficult for our minority shareholders to enforce their rights against us or our Directors or controlling shareholder than it would be for shareholders of a U.S. company.

ADRs do not have the same tax treatment as other equity investments in Colombia.

Although ADRs represent Ecopetrol's common shares, for Colombian tax purposes, ADRs are securities different from their underlying assets. Therefore, ADR holders are not entitled to the tax treatment granted to holders of the common shares. Such tax treatment includes, among others, those benefits relating to dividends and profits derived from sale of Colombian common shares. For further information see the section [Shareholder Information—Taxation—Colombian Tax Considerations](#).

Judgments of Colombian courts with respect to our ADSs will be payable only in Colombian Pesos.

If proceedings are brought in the courts of Colombia seeking to enforce the rights of ADS holders of common shares, we will be required to discharge our obligation amounts in Colombian Pesos. Colombian law provides that an obligation in Colombia to pay amounts denominated in foreign currency may only be satisfied in Colombian currency at the Representative Market Exchange Rate of the date the judgment is obtained, and such amounts are then adjusted to reflect exchange rate variations through the effective payment date.

The relative volatility and illiquidity of the Colombian securities markets may substantially limit our investors' ability to sell our ADSs at the price and time they desire.

Investing in securities that are traded in emerging markets, such as Colombia, often involves greater risk when compared with other world markets, and these investments are generally considered to be more speculative in nature.

The Colombian securities market is substantially smaller, less liquid, more concentrated and can be more volatile than other securities markets in the United States. The Colombian Stock Exchange (*Bolsa de Valores de Colombia*), or BVC, had a market capitalization of approximately COP\$278,689 billion (US\$88 billion using the closing rate for 2015) as of December 31, 2015, a 23% decrease when compared with the amount at the end of 2014, a daily average trading volume of approximately COP\$136,468 million (US\$49.74 million, using the average exchange rate for 2015), a 19% decrease when compared with the volume in 2014. By comparison, the New York Stock Exchange, or NYSE, had a market capitalization of US\$17.8 trillion as of December 31, 2015, and a daily trading volume of approximately US\$69.6 billion in 2015.

As of December 31, 2015, our shares represented the highest market capitalization of the BVC accounting for as of 16% of the total COLCAP index, which reflects the price volatility of the 20 most-liquid stocks.

Given the current ownership structure of our shares, it may be difficult for you to purchase large quantities of shares from a single shareholder. We cannot assure you that a liquid trading market for our ADSs will develop or, if developed, that it will be maintained. Without a liquid trading market, the ability of investors in our ADSs to sell them at the desired price and time could be substantially limited.

We are not required to disclose as much information to investors as a U.S. issuer is required to disclose.

We are subject to the reporting requirements of the Superintendency of Finance and the BVC. The corporate disclosure requirements that apply to us may not be equivalent to the disclosure requirements that apply to a U.S. issuer and, as a result, you may receive less interim information about us than you would receive from a U.S. issuer.

5.1.5 Risks Related to State Ownership

Our controlling shareholder's interests may be different from those of our minority shareholders.

Colombian Law 1118 of 2006 requires the Nation to maintain the majority of our outstanding capital stock. The Nation currently holds 88.49% of our outstanding capital stock, making it our controlling shareholder. The Nation as our controlling shareholder has majority voting rights at the shareholders' meeting to elect the members of our Board of Directors. The Nation may propose and approve decisions that are in its own interest and in furtherance of its own economic and political interests that do not necessarily benefit minority shareholders.

Our controlling shareholder may approve dividends at the ordinary general shareholders' meeting, notwithstanding the interest of minority shareholders, in an amount that results in us having to reduce our capital expenditures, thereby negatively affecting our prospects, results of operations and financial condition. See the section Shareholder Information—Dividend Policy.

Additionally, given our controlling shareholder's interests, it may undertake projects, approve decisions or make announcements about its intentions related to its holding of our capital stock which may not be in our best interest or in the best interest of our minority shareholders, including holders of our ADSs, and could impact the price of our shares or ADSs.

5.2 Risk Management

5.2.1 Managing Risk through our Internal Control System

With the creation of the Vice presidency of Compliance in 2015, Ecopetrol S.A. consolidated its internal control systems into an unified system that integrates the best practices called for by the Committee of Sponsoring Organizations of the Treadway Commission (COSO 2013), Sarbanes–Oxley Act (SOX), governance and management of enterprise IT (COBIT), Enterprise Risk Management (ERM) and our ethics and compliance rules, with the aim of establishing an integrated management system for all control components; thereby allowing us to strengthen all of our control system.

The main purpose of the Ecopetrol S.A.'s Internal Control System is to provide reasonable assurance regarding the achievement of all of the Company's objective relating to operations, strategy, reporting and compliance, through the appropriate risks management and ensuring the effectiveness of its controls. The system performance is systematically monitored by the Board of Directors semiannually.

Ecopetrol S.A.'s Internal Control System is aligned to the Company's strategy and business processes and gives responsibility to all employees to manage risk, to maintain the effectiveness of controls, to report of incidents and deficiencies and to ensure continuous improvement of the processes.

The risk management component of our Internal Control System is in charge of identifying events or situations that may affect our defined objectives, assessing and prioritizing them to implement the most appropriate response. This component has been designed and implemented across the organization, with a two-level focus: Enterprise Risk and Risk in Processes.

- (i) Enterprise Risks: Are those risks that are directly associated with the business strategy plan of the Company and are systematically monitored by the Enterprise Management Committee on a monthly basis. The management of those risks is led by a member of the Enterprise Management Committee; and each risk has a defined treatment plan and monitoring indicators.
- (ii) Risks in Processes: Are those risks that tend to identify potential failures in the activities related to our core and support business processes that drive us to achieve of our strategic objectives. At this level, each process has its own identified risks with respective mitigation methods, including financial and non-financial control, treatment plans and/or monitoring indicators.

Our risk management approach is based around the risk management cycle, consisting in five main stages: planning, identifying, evaluating, treatment and monitoring risks, as well as communication across stages. This cycle is supported in three pillars of risk management: culture, organizational structure and normative and management tools.

Three of our most important tools within the risk management component are:

- (i) Risk Assessment Methodology: in order to properly prioritize mitigation, treatment and monitoring efforts of risk management at the process level, a standardized methodology was established to assess inherent and residual risk levels. The risk level (Very High, High, Medium, Low or None) is obtained from the combination of the consequences (impacts) and the probability of occurrence of those consequences. According with the level of risk, action plans for management and mitigation are defined.
- (ii) Treatment Plans: Each year, in the risk management cycle, we define and implement treatment plans in order to reduce the levels of exposure to risk through mitigation or elimination of some of its causes. Metrics and goals must be defined during the development of each plan to ensure its effectiveness and to prioritize our efforts on those with the greatest impacts.
- (iii) Monitoring Indicators: As part of the monitoring stage of the risk management cycle, Ecopetrol has implemented Key Risk Indicators (KRIs) which are metrics used to provide early signals of increasing risk exposures. These signals constitute information for proactive decision making in order to avoid risk materialization.

Ecopetrol S.A. has defined guidelines and minimum requirements to implement an Internal Control System framework for its subsidiaries. These guidelines provide different classifications according to three important variables: the size of the organizational structure, the scope of SOX and the asset value of each subsidiary. The classification of each subsidiary determines the scope of implementation (Basic, Intermediate and Complete) of our Internal Control System. Under those guidelines, each subsidiary must report its performance to its enterprise management committee, audit committee, or board of directors (or whoever is acting on their behalf). In addition, they have to report it annually to Ecopetrol S.A. To ensure compliance with the above measures, the subsidiaries have methodological support from Ecopetrol S.A. when it is requested.

5.2.2 Managing Information Security and Cybersecurity

Ecopetrol S.A. has a dedicated management team focused on information security issues such as the treatment of information, safe information management practices, classification of critical business information, control systems compliance and effectiveness of available information security technologies, all of which are articulated with the ERM system at the enterprise level.

Ecopetrol S.A. has recently reviewed its cybersecurity exposure risks. During 2014, a working group was formed, led by our Vice-president of Innovation and Technology and with the participation of managers of industrial control systems (SCADA systems), informatics and information security, with the purpose of identifying our cybersecurity risks.

Although Ecopetrol S.A. is still at an early stage of managing its cybersecurity risks, our Vice-presidency of Innovation and Technology has begun a process of socialization and involvement with the higher-level of the organization, such as the audit and risk committee of the Board of Directors, to which a report was presented summarizing the most relevant aspects of our cyber security issues. As a result of this process, we are currently reviewing the feasibility of incorporating elements and strategic tools to the management of the cyber security threat; including, among others, policies, cybersecurity insurance coverage, and specialized monitoring and control mechanisms.

Currently, Ecopetrol S.A. is implementing a Security Operations Center service, which will enhance our ability to foresee and identify trends in attacks in Ecopetrol S.A.'s information technology infrastructure.

In addition, Ecopetrol S.A. shares information with the Cyber Defense Command Unit (*Comando Conjunto Cibernético*) an entity under the control of the Ministry of Defense, through which the national government is monitoring cyber security themes, in order to have a clearer view of the scope of protection required in these infrastructures.

5.2.3 Managing Financial Risk

We are exposed to certain risks associated with the nature of our operations and the financial instruments we use. Among the risks that affect our financial assets, liabilities and expected future cash flows are changes in commodity prices, currency exchange rates, interest rates and the credit quality of our counterparties.

Commodity price risk is associated with our day-to-day operations as we export and import crude oil, natural gas and refined products. We occasionally use hedges attached to cash flows to protect our financial results from price fluctuations. Part of our financial exposure under purchase contracts for crude oil and refined products with certain of our business partners and third parties depends on international oil prices. We believe that the risk of such exposure is naturally hedged since we either export crude oil at international market prices or sell refined products at prices that are correlated to international market prices. We do not use derivative financial instruments for speculative or profit-generating purposes.

Currency risk arises in our operations given the fact that most of our revenues are derived from sales of products quoted in or with reference to U.S. dollars. Therefore when the Colombian Peso depreciates against the U.S. dollar, our revenues converted into Colombian Pesos, increase. Conversely, when the Colombian Peso appreciates against the U.S. dollar, our revenues decrease. On the other hand, imported goods, oil services and the debt, which is mainly denominated in U.S. dollars, become less expensive when the Colombian Peso appreciates against the U.S. dollar and more expensive when the Colombian Peso depreciates against the U.S. dollar.

As of December 31, 2015 our dollar-denominated total debt was US\$14.6 billion, which we recognize in our consolidated financial statements at its amortized cost, which corresponds to the present value of cash flows, discounted at the effective interest rate. Out of this total, US\$11.1 billion relate to Ecopetrol S.A., whose functional currency is the Colombian Peso. Some of the group's affiliates have the U.S. dollar as functional currency and are not exposed to exchange rate risk. On the asset side, when the financial statements of the Group are consolidated, the exchange rate differential of the affiliates whose functional currency is the U.S. dollar is recognized directly in equity, as part of other comprehensive income.

Taking previous considerations into account, Ecopetrol seeks to identify and manage currency risk in a comprehensive manner, using an integrated analysis of natural hedges in order to benefit from the correlation between income, expenses and debt denominated in foreign currency. In addition, the risk management strategy of the Company may involve the use of financial derivative instruments, and non-derivative financial instruments. As of October 1, 2015, Ecopetrol S.A. adopted hedge accounting as part of its risk management strategy, using the natural hedge between exports and dollar-denominated debt. 49% of Ecopetrol S.A.'s debt in U.S. dollars is designated as hedge instrument of its future export sales for the period 2015- 2023 (see Note 4.1.4 to our financial statements for further explanation of the accounting policy and Note 31.2.1 for details of the hedge accounting adopted). With the adoption of hedge accounting, the effect of volatility of foreign exchange rate on the hedged portion of the debt is recognized directly in equity, as part of other comprehensive income. The remaining portion of Ecopetrol S.A.'s dollar-denominated debt continues exposed to the fluctuation of the exchange rate. Finally, the Company maintains enough cash in Colombian Pesos and U.S. dollars to meet its expenses in each currency.

Interest rate risk arises from our exposure to changes in interest rates mainly as a result of the issuances of floating rate debt linked to LIBOR (17.5%), DTF (9.0%) and CPI (3.6%) rates. Thus, volatility in interest rates may affect the fair value of and cash flows related to our investments and floating rate debt. In 2015, our analysis of credit risk events and global financial markets drove us to decide not to hedge interest rate risk. Nevertheless, our treasury office continuously monitors the performance of interest rates and the effect of interest rates on our financial statements.

The trust funds linked to Ecopetrol S.A.'s pension obligations (PAP) are also exposed to changes in interest rates, as they include fixed- and floating-rate instruments that are mark to market. This exposure is continuously monitored by our treasury office given the potential impact volatility may have on our financial results. The treasury office's information is gathered from reports provided by the asset managers. These reports refer to regulatory limits as well as market, credit and liquidity risks. The investment guidelines with respect to the PAPs are issued by the Colombian regulation for pension funds, as stipulated in the Decree 941 of 2002 and Decree 1861 of 2012, where it is indicated that they have to follow the same regime as the regular obligatory pension funds in their moderate (i.e., neither conservative nor aggressive) portfolio. For further information regarding the trust funds linked to the pension obligations of the company, see Note 22.2 Plan assets to our consolidated financial statements.

Finally, counterparty risk is the potential probability that a borrower or counterparty defaults on any obligation. In our case, we are exposed to this risk as we invest in different financial instruments and receive letters of credit in order to mitigate our exposure with our commercial counterparties. We manage this risk through an analysis of an issuer's creditworthiness, stock price behavior, spreads on credit default swaps and the probability of default.

Investment Guidelines

Ecopetrol S.A.

Following the promulgation of Decree 1525 of 2008, which provides general rules on investments for public entities, Ecopetrol S.A.'s management established guidelines for our investment portfolios. These guidelines determine that investments in Ecopetrol S.A.'s U.S. dollar portfolio are generally limited to investments of our excess cash in fixed-income securities issued by entities rated A or higher in the long term and A1/P1/F1 or higher in the short term (international scale) by Standard & Poor's Ratings Services, Moody's Investors Service or Fitch Ratings. In addition, Ecopetrol S.A. may also invest in securities issued or guaranteed by the U.S. government or Colombian government, without regard to the ratings assigned to such securities. In Ecopetrol S.A.'s Colombian Peso portfolio, it must invest our excess cash in fixed-income securities of issuers rated AAA in the long term, and F1+/BRC1+ in the short term (local scale) by Fitch Ratings Colombia or BRC Standard & Poor's. In addition, Ecopetrol S.A. may also invest in securities issued or guaranteed by the Colombian government without rating restrictions.

In order to diversify risk in our Colombian Peso portfolio, Ecopetrol S.A. does not invest more than 10% of the excess of cash in one specific issuer. In the case of our U.S. dollar portfolio, it does not invest more than 5% of the excess of cash in one specific issuer in the short term (up to one year), or 1% in the long term.

Ecopetrol S.A.'s investment portfolio in U.S. dollars is segmented into four tranches, each one matching our liquidity needs. The working capital tranche is calculated taking into account our cash flow needs for the next 60 days. The liquidity tranche is calculated as the contingent cash flow needs over the working capital, taking into account the development of capital expenditures related to projects. The asset liability tranche is built to match our long-term debt. The investment tranche includes the remaining amount of the total portfolio after deducting the amounts pertaining to the above mentioned tranches and after subtracting the Colombian Peso portfolio.

Ecopetrol S.A.'s investment portfolio in Colombian Pesos is segmented in two tranches, each one matching our liquidity needs. The first tranche is calculated taking into account our cash flow needs for the next 30 days, and the second tranche is built for investment purposes.

5.3 Legal Proceedings and Related Matters

We are a party to various legal proceedings in the ordinary course of business. Other than the proceedings disclosed in this annual report, we are not involved in any pending (or, to our knowledge, threatened) litigation or arbitration proceeding that we believe will have a material adverse effect on our Company. Other legal proceedings that are pending against or involve us and our subsidiaries are incidental to the conduct of our and their business. We believe that the ultimate disposition of such other proceedings individually or in an aggregate basis will not have a material adverse effect on our consolidated financial condition or results of operations.

As of December 31, 2015, Ecopetrol S.A. was a party to 3,391 legal proceedings relating to civil, administrative, environmental, tax and labor claims filed against us in the Colombian courts and arbitration tribunals, of which 310 had an accrual provision. We allocate sufficient amounts of money and time to defend these claims. Historically, we have been successful in defending lawsuits filed against us. Other than the environmental administrative proceedings described in the last paragraph of this section, based on the advice of our legal advisors, it is reasonable to assume that the litigation procedures brought against us will not materially affect our financial position or solvency regardless of the outcome. See Note 23 – Accrued liabilities and provisions to our consolidated financial statements included in this annual report for a discussion of our legal proceedings.

Caño Limón – Coveñas Crude Oil Pipeline Spill

On December 11, 2011, the Caño Limón-Coveñas oil pipeline ruptured and caused the spill of approximately 3,267 barrels of crude oil into the Iscala creek, which connects with the Pamplonita River that provides water to the city of Cúcuta. The incident did not cause any fatalities or injuries.

We launched an internal investigation and hired a highly renowned international consultant to investigate the causes of this incident. The conclusion of the investigations was that the rupture occurred as a result of an unusual movement of soil and the tensioning of the pipeline.

A class action lawsuit has been filed against Ecopetrol S.A. and against employees of the company, and the First Administrative Court of Cucuta has jurisdiction to conduct the case, which is in the probatory stage.

The Regional Environmental Authority of Norte de Santander, or Corporación Autónoma Regional de la Frontera Nororiental – CORPONOR, initiated an investigation into the causes of the incident and also initiated enforcement actions against us for the allegedly wrongful implementation of the contingency plan. These proceedings were assumed by the National Authority on Environmental Licensing – ANLA according to national jurisdiction rules. As of the date of this annual report, the Agency has ceased all efforts on the aforementioned investigation and has not opened a new investigation.

The Colombian General Comptroller's Office initiated an investigation to determine whether Ecopetrol's President, the Vice-president of Transportation, and two other employees of the company should be held financially liable for the Caño Limón-Coveñas pipeline spill and consequently for having caused a decrease in the assets of Ecopetrol. On November 26, 2015, the investigation ended in favor of the aforementioned employees.

CORPONOR has filed a lawsuit against Ecopetrol at the First Administrative Court of Cucuta claiming for (i) the environmental loss caused by the incident and (ii) for compensation costs relating to the environment damage for approximately COP\$33 billion. Ecopetrol's legal counsel filed to dismiss the lawsuit on June 2, 2014, based on three grounds: (i) there is no proof of environmental loss, (ii) CORPONOR does not have the authority to file this lawsuit and (iii) CORPONOR's petition for direct compensation is not the proper legal action according to the applicable procedural rules.

Ecopetrol and national and local authorities are developing a project for the development of an alternative to the water supply in the intake of the aqueduct in Cúcuta, which was approved by the Company's Board of Directors in December 2011 as part of the strengthening of its contingency plans and its relationship with its stakeholders. At the time of this report the project is still in the planning stage.

BT Energy Challenger

On October 22, 2014, we were served with a class action suit against us seeking monetary damages of approximately COP\$7.4 trillion related to an incident that occurred on August 21, 2014, during the loading operations of the BT Energy Challenger vessel. The claimants alleged possible damage to the port area of Ecopetrol's terminal in Coveñas, as well as of marine and submarine areas and beaches that form the geographical area of the Morrosquillo Gulf. This allegation is currently under investigation by the Harbor Master of Coveñas. Ecopetrol filed a motion requesting the judge to require the claimants to amend their claim to more precisely set forth the facts and evidence it believes establishes Ecopetrol's liability.

On March 3, 2015, Ecopetrol filed its statement of defense arguing the exclusive fault of a third party. On October 20, 2015, the Court denied a class of more than 100 informal traders in the region because there is no common identity with the initial class (hotel employees).

At the date of this report, Ecopetrol is waiting for the Court to designate a legal representative for the defendants.

PetroTiger

As highlighted in previous 20-F and 6-K filings, on January 6, 2014, the United States Department of Justice (DOJ) announced the unsealing of charges against two former co-chief executive officers (CEOs) and the former general counsel of PetroTiger Ltd. (PetroTiger), alleging, among other things, violations of the U.S. Foreign Corrupt Practices Act (FCPA) and conspiracy to commit violations of the FCPA and money laundering in connection with payments made to an Ecopetrol employee. By the time of the DOJ announcement, that employee no longer worked at the Company. The DOJ alleged the payments were made to secure Ecopetrol's approval for PetroTiger's entry into an oil services contract with Mansarovar Energy Colombia Ltd. Ecopetrol participated in the Mansarovar project as non-operating partner in a joint operating agreement. Also on January 6, 2014, the DOJ announced that the general counsel of PetroTiger had pled guilty on November 8, 2013, to one count of conspiracy to violate the FCPA and to commit wire fraud. One of the charged former co-CEOs pleaded guilty on February 18, 2014, to the same charge. On May 9, 2014, the DOJ charged the other former co-CEO with conspiracy to violate the anti-bribery provisions of the FCPA, conspiracy to commit wire fraud, conspiracy to launder money, and substantive FCPA anti-bribery and money laundering violations. On June 15, 2015, that co-CEO pleaded guilty to conspiracy to violate the FCPA.

After the DOJ unsealed its charges on January 6, 2014, Ecopetrol filed a complaint the same month, jointly with the Transparency Secretariat of the Presidency of the Republic, to Colombia's Attorney General's office requesting the investigation of individuals who may have been involved in the wrongdoing related to the Mansarovar contract. Colombian authorities initiated a proceeding related to PetroTiger, and on March 11, 2015, arrested four current Ecopetrol employees and two former Ecopetrol employees related to their investigation of the Mansarovar project and five other contracts involving PetroTiger and Ecopetrol.

Ecopetrol has responded to information requests from the DOJ and Colombian authorities in connection with their investigations of PetroTiger. Ecopetrol has been designated with the formal status of victim in the local Colombian proceedings. It has terminated the employment of the four charged individuals who were Ecopetrol employees at the time of the arrests. Ecopetrol is conducting an internal investigation focused on issues identified in the U.S. and Colombian proceedings and, upon completion of that investigation, will evaluate any further measures.

Salgar-Cartago Multipurpose Pipeline Spill

On December 23, 2011 our Salgar-Cartago pipeline ruptured. Internal and external experts believe this incident occurred as a result of creep movement of soil caused by severe weather conditions, causing the soil surrounding the pipeline to exert strong pressure on the pipeline and rupture it. Due to the rupture, approximately 59,976 U.S. gallons of gasoline spilled into the surrounding area in La Divisa and Villa Carola in the Municipality of Dosquebradas, Risaralda. The spilled gasoline from the pipeline subsequently came into contact with a heat source which ignited it, causing several explosions that tragically resulted in 33 fatalities and 35 injuries, as well as damage to the neighboring houses and buildings. In January 2012, we launched the Dosquebradas Project to address the effects of the incident, and as of the date of this annual report the project's health, legal, environmental and social components have been successfully completed.

As of the date of this annual report, nine lawsuits related to this incident for approximately COP\$19 billion worth of damages are active.

Environmental Administrative Proceedings

As of December 2015, Ecopetrol S.A. was party to 190 environmental administrative proceedings, of which 163 were initiated before 2014, and 27 during 2015. During 2015, nine proceedings were concluded, in two of them we were subject to monetary fines. It is not possible for us to determine whether the pending proceedings could have a material effect on Ecopetrol.

Reficar Investigations

Ecopetrol is a corporation majority owned by the Government that administers public resources. Since the Government is Ecopetrol's majority shareholder, Ecopetrol's employees have a statutory responsibility to ensure the proper use of public resources. Reficar, as a subsidiary of Ecopetrol, and its employees, are also responsible for the management of the public resources under Reficar's management.

The acts of Ecopetrol's and Reficar's functionaries are currently, subject to the control and supervision of the following control entities, among others:

- The Office of the General Comptroller (*Contraloría General de la Nación*) is the entity entrusted to ensure the proper use of public resources and has the authority to investigate government employees or private sector employees that use or manage public resources.
- The Office of the Attorney General (*Procuraduría General de la Nación*) is the entity in charge of supervising government employees and non-government employees that undertake public functions and that manage public funds and their compliance with the constitution, law, judicial decisions and administrative acts.
- The Prosecutor's Office (*Fiscalía General de la Nación*) is the entity in charge of investigating crimes and prosecuting those crimes before the court in judicial proceedings.

As a result of the delays and cost overruns experienced by the Cartagena refinery expansion Project ("Project"), the Office of the General Comptroller initiated a review of Reficar in 2015, which was concluded and published in 2016. While its report does not mention any judicial findings against Reficar, it did lead to the initiation of a special audit investigation into the Project. As of the date of this annual report, the investigation is underway, with the Office of the General Comptroller currently in the preliminary stage of gathering information. Ecopetrol and Reficar are fully cooperating with the Office of General Controller in providing all information requested to date. As of the date of this annual report, Ecopetrol has no knowledge of specific investigations against employees of Reficar or Ecopetrol by the Office of the General Comptroller.

The Office of the Attorney General currently has two open investigations relating to Reficar matters: (i) one initiated in 2012 against members of Reficar's board of directors at the time as well as certain current and former officers of Reficar; and (ii) a more recent investigation into delays in the completion of the Reficar modernization and expansion project and into current and former officers of Ecopetrol as well as current and former members of Ecopetrol's Board of Directors, including Juan Carlos Echeverry, Ecopetrol's current Chief Executive Officer, who served as Ministry of Finance between February of 2010 and September of 2012, and in that capacity was a member of our Board of Directors.

Additionally, in early February 2016, the Prosecutor's Office carried out an information assurance procedure at Reficar's offices and is currently in the process of gathering and reviewing information about Reficar.

All the investigations mentioned above are still in their preliminary stages. Ecopetrol and Reficar are giving high importance to these processes through their extensive and close cooperation with the control entities. Ecopetrol has appointed a manager to gather all the information related to the project in order to guarantee its integrity and organization. Likewise, Ecopetrol has designated a spokesperson to liaise with the control entities for the procurement of information. As of the date of this annual report, Ecopetrol and Reficar are undertaking an internal investigation, but none of the investigations allege yet any violations to the Code of Ethics and nor do they affect the integrity of Ecopetrol's businesses.

Finally, it is worth noting that Reficar filed a Request for Arbitration with the International Chamber of Commerce against Chicago Bridge & Iron Company N.V., CB&I (UK) Limited, and CBI Colombiana S.A. (collectively, "CB&I") with respect to the Engineering, Procurement, and Construction Contract entered into by and between Reficar and CB&I for the expansion of the Cartagena Refinery in Cartagena, Colombia. Reficar is the Claimant in the ICC arbitration proceeding and seeks no less than US\$2 billion from CB&I.

6. Shareholder Information

6.1 2016 Shareholders' General Assembly

Our Shareholders' General Assembly was held on March 31, 2016. In it, the following matters were approved:

- The declaration of the non-payment of a cash dividend for the fiscal year ended December 31, 2015.
- The designation of the firm Ernst & Young Ltda. as the Company's fiscal auditor for 2016.
- The new composition of the Board of Directors for the year 2016.

6.2 Dividend Policy

We do not have a dividend policy. Pursuant to Colombian law, dividend distribution to our shareholders must be approved by a 78% majority of the shares represented in the corresponding shareholders' meeting. In the absence of this special majority, at least 50% of the net profits must be distributed. In 2013, 2014 and 2015 the shareholders approved the distribution of 79.9%, 80.1% and 70% of 2012, 2013 and 2014 net income, respectively. Given that the fiscal year ended December 31, 2015 resulted in a net loss for Ecopetrol S.A., our shareholders at the Ordinary General Stockholder Meeting held on March 31, 2016, have approved that there will be no distribution of profits for the fiscal year ended December 31, 2015. Pursuant to Article 456 of the Code of Commerce the Company will absorb the net loss for the fiscal year ended December 31, 2015 through its legal reserve. See the section Financial Review—Liquidity and Capital Resources—Dividends.

Ecopetrol S.A. is required to have legal reserves equal to 50% of its subscribed capital. If the legal reserves are less than 50% of subscribed capital, we will contribute 10% of net income to our legal reserves every year until our legal reserves meet the required level.

6.3 Market and Market Prices

In August 2007, we conducted an initial public offering of 10.1% of our common shares in Colombia. As a result of such offering, our common shares have traded on the Colombia Stock Exchange (*Bolsa de Valores de Colombia*) or BVC since November 2007 under the symbol "ECOPETROL." Our ADSs, representing 20 common shares, have been traded on the NYSE under the symbol "EC" since September 2008. JPMorgan Chase Bank, N.A. serves as depositary for our ADSs.

Starting on August 2010, our ADSs began trading on the Toronto Stock Exchange ("TSX") under the symbol "ECP." On February 17, 2016, we announced the application for voluntary delisting from the Toronto Stock Exchange after in an ordinary meeting held on January 27, 2016, during which the Board of Directors made the decision to delist from the TSX. This decision was based on the Board of Director's assessment of, among other factors, the limited trading activity of our ADRs in Canada, a liquid market for our ADRs on the NYSE and for our ordinary shares on the local Colombian Stock Exchange (*Bolsa de Valores de Colombia*), both of which enable interested investors to acquire a participation in Ecopetrol S.A. The time and administrative efforts associated with maintaining the listing of the ADRs on the TSX were also taken into account. On March 2, 2016, Ecopetrol's ADRs were delisted from the TSX. After delisting from the TSX, the ADRs have continued to trade on the NYSE and the ordinary shares have continued to trade in the Colombian stock market. Therefore, the Company continues to be subject to United States as well as Colombian reporting and corporate governance obligations.

The second round of the equity offering program took place between July 27 and August 17, 2011. The offer was directed exclusively to investors in Colombia as permitted by Law 1118 of 2006. A total of 644,185,868 shares were allotted, equivalent to approximately COP\$2.38 trillion. Out of the 219,054 investors participating in this round, 73% were new stockholders. In addition, 87% of the offering was allocated to retail investors and the remaining 13% to institutional investors. Funds obtained by us through this offering were allocated to the Company's investment plan.

In the future, the Nation (via the Ministry of Finance and Public Credit), as our controlling shareholder, may make decisions or announcements about its intention to sell part of its holding of our capital stock. We understand that our cooperation is necessary for the successful coordination of the Nation's process.

The following table sets forth reported high and low closing prices in Colombian Pesos for our shares and the reported average daily trading volume of our shares on the BVC for the periods indicated. The table also sets forth information on the trading price of our shares in Colombian Pesos and U.S. dollars, as well as the average trading volume.

Table 60 – Shares Traded on the Bolsa de Valores de Colombia

| | Shares Traded on the BVC | | | | | Average number of shares traded Per day |
|-------------------------------------|---------------------------|-------|---------------------------------------|--------|------------|---|
| | Colombian Pesos per share | | U.S. dollars per share ⁽¹⁾ | | | |
| | High | Low | High | Low | | |
| 2011 | 4,300 | 3,575 | 2.2823 | 1.9466 | 6,750,979 | |
| 2012 | 5,850 | 4,200 | 3.3236 | 2.1619 | 8,396,801 | |
| 2013 | 5,710 | 3,695 | 3.2091 | 1.8992 | 7,018,859 | |
| 2014 | 4,030 | 1,815 | 2.0556 | 0.7546 | 8,222,596 | |
| 2015 | 2,305 | 1,090 | 0.8402 | 0.3973 | 10,109,301 | |
| Most recent quarters | | | | | | |
| First quarter 2014 | 4,030 | 3,390 | 2.0506 | 1.6755 | 7,720,085 | |
| Second quarter 2014 | 4,030 | 3,410 | 2.0556 | 1.7042 | 7,977,622 | |
| Third quarter 2014 | 3,380 | 3,110 | 1.8092 | 1.4223 | 7,405,784 | |
| Fourth quarter 2014 | 3,140 | 1,815 | 1.5529 | 0.7546 | 9,767,957 | |
| First quarter 2015 | 2,305 | 1,800 | 0.9335 | 0.7289 | 12,054,021 | |
| Second quarter 2015 | 2,085 | 1,625 | 0.8337 | 0.6497 | 10,056,874 | |
| Third quarter 2015 | 1,675 | 1,285 | 0.5706 | 0.4377 | 9,516,211 | |
| Fourth quarter 2015 | 1,515 | 1,090 | 0.4953 | 0.3563 | 8,805,595 | |
| First quarter 2016 | 1,425 | 881 | 0.4386 | 0.2712 | 17,971,092 | |
| Most recent six months | | | | | | |
| October 2015 | 1,515 | 1,320 | 0.5170 | 0.4506 | 9,508,371 | |
| November 2015 | 1,415 | 1,295 | 0.4715 | 0.4315 | 10,474,905 | |
| December 2015 | 1,285 | 1,090 | 0.3961 | 0.3360 | 6,481,834 | |
| January 2016 | 1,110 | 881 | 0.3394 | 0.2694 | 11,218,928 | |
| February 2016 | 1,165 | 993 | 0.3472 | 0.2960 | 20,524,902 | |
| March 2016 | 1,425 | 1,170 | 0.4554 | 0.3739 | 21,704,147 | |
| April 2016 (through April 22, 2016) | 1,435 | 1,220 | 0.4746 | 0.4035 | 18,286,408 | |

(1) U.S. dollars per common share translated at the Representative Market Exchange Rate as of each period.

The following table sets forth reported high and low closing prices in U.S. dollars for our ADSs and the average daily trading volume of our ADSs on the NYSE for the periods indicated. The table also sets forth information on the trading price of our ADSs in U.S. dollars, as well as the average trading volume.

Table 61 – Shares Traded on the New York Stock Exchange

| | ADSs Traded on NYSE | | |
|-------------------------------------|-------------------------------------|-------|--|
| | U.S. dollars per ADS ⁽¹⁾ | | Average number of ADSs Traded per day |
| | High | Low | |
| 2011 | 46.00 | 38.47 | 357,289 |
| 2012 | 67.48 | 44.52 | 551,410 |
| 2013 | 63.80 | 37.93 | 464,193 |
| 2014 | 41.16 | 14.77 | 603,083 |
| 2015 | 19.80 | 6.50 | 960,193 |
| Most recent quarters | | | |
| First quarter 2014 | 40.79 | 33.20 | 624,531 |
| Second quarter 2014 | 41.16 | 34.05 | 468,611 |
| Third quarter 2014 | 36.39 | 28.60 | 425,034 |
| Fourth quarter 2014 | 30.94 | 14.77 | 892,769 |
| First quarter 2015 | 19.80 | 13.89 | 1,083,162 |
| Second quarter 2015 | 17.48 | 12.85 | 809,096 |
| Third quarter 2015 | 12.72 | 8.28 | 915,918 |
| Fourth quarter 2015 | 10.63 | 6.50 | 937,078 |
| First quarter 2016 | 9.22 | 5.40 | 1,559,605 |
| Most recent six months | | | |
| October 2015 | 10.63 | 8.57 | 921,035 |
| November 2015 | 10.09 | 8.39 | 944,651 |
| December 2015 | 8.28 | 6.50 | 946,236 |
| January 2016 | 7.01 | 5.40 | 1,251,680 |
| February 2016 | 7.08 | 5.83 | 1,563,856 |
| March 2016 | 9.22 | 7.28 | 1,821,675 |
| April 2016 (through April 22, 2016) | 9.80 | 7.89 | 1,538,012 |

(1) Each ADS represents the right to receive 20 of our common shares.

TRADING ON THE COLOMBIA STOCK EXCHANGE

The BVC is the largest stock exchange in Colombia for trading securities and derivatives. The BVC is a member of the World Federation of Exchanges and the *Federación Iberoamericana de Bolsas*.

The BVC is the only exchange where our common shares trade in Colombia. The table below sets forth the reported aggregate market capitalization of the companies traded on the BVC, as of December 31, 2015.

Table 62 – Market Capitalization of the Bolsa de Valores de Colombia

| | Aggregate Market Capitalization of the BVC | |
|-------------------|--|--|
| | Market Capitalization (COP\$ in billions) | Market Capitalization (US\$ in billions) ⁽¹⁾ |
| December 31, 2015 | 278,689 | 17.78 |

(1) Representative Market Exchange Rate as of December 30, 2015.

Registration and Transfer of Shares

Under Colombian law, transfers of shares must be registered on the issuer's stock ledger. Only those holders registered on the stock ledger are considered by law as shareholders. Ecopetrol's shares are in electronic form, other than those shares held by the Nation, which are in physical form.

Transfers of shares evidenced in electronic form required to be negotiated through the Colombia Stock Exchange. In Colombia, only the relevant stockbrokers called *sociedades comisionistas de bolsa* are authorized to make the transfers of shares through the Colombia Stock Exchange. The transfers of shares are registered in the Centralized Security Deposit (*Depósito Centralizado de Valores*) or DECEVAL, through the relevant stockbrokers. DECEVAL records the share transfer on its systems, in order to make the corresponding registration in the issuer stock ledger.

Under Colombian legislation, if a transfer of shares for a value equivalent to or higher than 66,000 UVR (the UVR was 228.2684 as of December 31, 2015) must be made through the BVC if the shares are registered with the BVC. Otherwise, shareholders can freely negotiate a transfer of shares.

Nevertheless, the following transfers are not required to be executed through the BVC:

- Transfers between shareholders who are considered to be the same beneficial owner;
- Transfers of shares owned by financial institutions, under supervision of Superintendency of Finance, that are in a liquidation process;

- Repurchases of shares by the issuer;
- Property delivered in lieu of payment, or payment of money or other valuable property, different than the amount owed or demanded, in exchange for the extinguishment of the debt;
- Transfers of shares made by the Nation or the Financial Institutions Warranty Fund (*Fondo de Garantías de Instituciones Financieras*) or FOGAFIN;
- Transfers of shares issued abroad by Colombian companies, provided they take place outside Colombia;
- Transfers of shares issued by foreign companies, offered through a public offer in Colombia, provided that they take place outside Colombia; and
- Any other transaction specifically authorized by the Superintendency of Finance to take place outside the BVC.

For the purposes described above, multiple transfer transactions made within one hundred twenty (120) calendar days, between the same parties on shares of the same issuer and under similar conditions, are treated as a single transfer.

6.4 Ecopetrol ADR Program Fees

Fees and Charges That a Holder of Our ADSs May Have to Pay, Either Directly or Indirectly

JPMorgan Chase Bank, N.A., our Depositary, may charge each person to whom ADSs are issued, including, without limitation, issuances against deposits of shares, issuances in respect of share distributions, rights and other distributions, issuances pursuant to a stock dividend or stock split declared by us or issuances pursuant to a merger, exchange of securities or any other transaction or event affecting the ADSs or deposited securities, and each person surrendering ADSs for withdrawal of deposited securities in any manner permitted by the Deposit Agreement or whose ADRs are cancelled or reduced for any other reason, US\$5.00 for each 100 ADS (or any portion thereof) issued, delivered, reduced, cancelled or surrendered, as the case may be. The Depositary may sell (by public or private sale) sufficient securities and property received in respect of a share distribution, rights and/or other distribution prior to such deposit to pay such charge.

The Depositary collects its fees for issuance and cancellation 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 collect its annual fee for Depositary services by deduction from cash distributions, or by directly billing investors, or by charging the book-entry system accounts of participants acting for them. The Depositary may generally refuse to provide services to any holder until the fees and expenses owing by such holder for those services or otherwise are paid.

The following additional charges may be incurred by ADS holders, by any party depositing or withdrawing shares or by any party surrendering ADSs or to whom ADSs are issued (including, without limitation, issuance pursuant to a stock dividend or stock split declared by us or an exchange of stock regarding the ADRs or the deposited securities or a distribution of ADSs), whichever is applicable:

- A fee of US\$1.50 per ADR or ADRs for transfers of certificated or direct registration ADRs;
- A fee of up to US\$0.02 per ADS for any cash distribution made pursuant to the Deposit Agreement;
- A fee of US\$0.05 per ADS per calendar year (or portion thereof) for services performed by the Depositary in administering our ADR program (which fee may be charged on a periodic basis during each calendar year and shall be assessed against holders of ADRs as of the record date or record dates set by the Depositary during each calendar year and shall be payable in the manner described in the next succeeding provision);

- Any other charge payable by the Depositary, or any of the Depositary's agents, including, without limitation, the custodian, or the agents of the Depositary's agents in connection with the servicing of our shares or other deposited securities (which charge shall be assessed against registered holders of our ADRs as of the record date or dates set by the Depositary and shall be payable at the sole discretion of the Depositary by billing such registered holders or by deducting such charge from one or more cash dividends or other cash distributions);
- A fee for the distribution of securities (or the sale of securities in connection with a distribution), such fee being in an amount equal to the fee for the execution and delivery of ADSs which would have been charged as a result of the deposit of such securities (treating all such securities as if they were shares) but which securities or the net cash proceeds from the sale thereof are instead distributed by the Depositary to those holders entitled thereto;
- Stock transfer or other taxes and other governmental charges;
- Cable, telex and facsimile transmission and delivery charges incurred at the ADS holder's request;
- Transfer or registration fees for the registration of transfer of deposited securities on any applicable register in connection with the deposit or withdrawal of deposited securities;
- Expenses of the Depositary in connection with the conversion of foreign currency into U.S. dollars; and
- Such fees and expenses as are incurred by the Depositary (including, without limitation, expenses incurred in connection with compliance with foreign exchange control regulations or any law or regulation relating to foreign investment) in delivery of deposited securities or otherwise in connection with the Depositary's or its custodian's compliance with applicable laws, rules or regulations.

We will pay all other charges and expenses of the Depositary and any agent of the Depositary (except the custodian) pursuant to agreements from time to time between us and the Depositary. The fees described above may be amended from time to time.

Fees and Other Direct and Indirect Payments Made by the Depositary to Us

Our Depositary has agreed to reimburse us for certain expenses we incur that are related to establishment and maintenance of the ADR program, including investor relations expenses and exchange application and listing fees. In 2013, the Depositary did not make reimbursements to us. In 2014, reimbursements were made in the amount of approximately US\$3,093,346 for expenses related to investor relations activities. In 2015, reimbursements were made in the amount of approximately US\$2,069,202 for expenses related to investor relations activities.

6.5 Taxation

6.5.1 Colombian Tax Considerations

The following is a general description of the Colombian tax considerations for investments in common shares in Colombia or for the purchase of ADSs, in a foreign securities market. This description is based on applicable law in effect as of the date of this annual report is issued, which may be subject to changes.

Prospective purchasers of common shares or ADSs should consult their own tax advisors for a detailed analysis of the tax consequences in Colombia, resulting from the acquisition, ownership and disposition of common shares or ADSs.

General Rules

Colombian entities and individuals who are deemed to be residents within the Colombian national territory for Colombian tax purposes are subject to Colombian income tax on their worldwide income. Foreign entities and individuals, as well as their permanent establishments in Colombia, who are not deemed to be residents in Colombia for tax purposes are subject to income tax in Colombia only with respect to their national-source income, which is generally defined as income obtained from (i) the rendering of services inside Colombian territory, (ii) the exploitation of tangible and intangible assets in Colombia, and (iii) the sale of tangible or intangible assets that are located inside Colombian territory at the time of title passage. Double taxation treaties signed by Colombia, if applicable, may provide for special regulations regarding income tax. Dividends paid by Colombian companies are deemed Colombian income. However, they will only be subject to tax in Colombia if paid out of non-taxed earnings. In the event that dividends are paid out of non-taxed earnings, the applicable withholding tax is typically 33%. Relief or reduced tax rates may apply under an applicable treaty to avoid double taxation. An additional tax on dividends may be created by means of a tax reform that may be submitted for analysis with the Colombian Congress in 2016. The exact rate and features of this dividend tax are unknown, but if passed it will likely apply to all dividend distributions regardless of whether dividends are distributed from taxed or non-taxed earnings. Certain double taxation treaties may provide for relief or protection with respect to the dividend tax, but a specific analysis will be required once the new tax is in effect.

For Colombian tax purposes, an individual is considered to be a Colombian resident when he/she meets any of the following criteria:

- (1) He/she remains in Colombia continuously or discontinuously for more than 183 calendar days within any given 365-consecutive-day term;
- (2) He/she is related to the Colombian government's foreign service or to individuals who are in the Colombian government's foreign service and who, by virtue of the Vienna Conventions on diplomatic and consular relations, are exempted from taxes during the time of their service; or
- (3) He/she is a Colombian national and:
 - Has a spouse or permanent companion, or dependent children, who are tax residents in Colombia, or
 - 50% or more of his or her total income is Colombian source income, or
 - 50% or more of his or her assets are managed in Colombia, or
 - 50% or more of his or her assets are deemed to be located or possessed in Colombia, or
 - Has failed to provide proof of residency in another country (different from Colombia) upon previous official request by the Colombian tax office, or
 - He/she has a tax residency in a country considered by the Colombian government to be a low tax jurisdiction or a tax haven.

Law 1739 of 2014 clarifies that Colombian nationals who meet any of the following requirements, will not be deemed as tax residents:

- If more than 50% of his or her annual income, has its source in the jurisdiction where he or she is domiciled and whose country of domicile is not Colombia.
- If more than 50% of his/her assets are located in the jurisdiction where he or she is domiciled and whose country of domicile is not Colombia.

For purposes of Colombian taxation, an entity is deemed to be a "national" or a "Colombian entity" and, therefore, subject to taxation in Colombia on its worldwide income, if it meets any of the following criteria:

- (1) It has its place of effective management, in Colombia during the corresponding year or taxable period;
- (2) It has its main domicile in the Colombian territory; or
- (3) It has been incorporated in Colombia, in accordance with Colombian laws.

Pursuant to the Colombian Tax Statute, a foreign company or non-resident individual has a permanent establishment in Colombia when said company or individual performs activities in Colombia through: (1) a fixed place of business (i.e., branches, factories or offices), or (2) an individual who is not an independent agent empowered to execute agreements on behalf of the foreign company. As noted above, permanent establishments are considered Colombian taxpayers in connection with the Colombian-source income and Colombian-source taxable gains attributed to said permanent establishment. A foreign company or entity will not be deemed to have a permanent establishment by the sole fact that it acts through a broker or any other independent agent. In addition, passive-income generating activities, such as dividends, royalties and interests, typically do not qualify as entrepreneurial and are not deemed to create permanent establishments.

Tax Treatment of a Non-Colombian Entity and a Non-Resident Individual of Colombia Who Purchases an ADS in a Foreign Securities Market

Dividends

As a general rule, dividends paid to foreign companies, foreign entities or non-resident individuals who are investing in ADSs which underlying assets are Colombian shares are treated as Colombian-source income and are thus subject to Colombian income tax.

To avoid double taxation, dividends paid by Colombian entities are not subject to income tax at the shareholder level when they are paid out of corporate profits that have been previously taxed at the corporate level. However, the Colombian government is analyzing the possibility of creating a new dividend tax that may apply to all dividend distributions regardless of whether they are paid out of taxed or non-taxed earnings.

In light of the above, the applicable withholding tax rate for an entity or a non-resident individual investing through a Foreign Funds Administration Account (FFAA) is 25%, since its investment qualifies as portfolio investments and the dividends that are distributed by the Colombian entity are not taxed at the corporate level (assuming that the dividends cannot be attributed to a permanent establishment in Colombia belonging to the shareholder). These foreign shareholders subject to this withholding tax are not required to file an income tax return in Colombia.

Taxation of Capital Gains from the Sale of ADSs

Capital gains obtained from the sale of ADSs by non-Colombian entities, Colombian individuals who are non-residents in Colombia and foreign non-resident individuals, are not subject to income tax in Colombia as such sale does not generate Colombian-source income to the extent that the ADSs are not deemed to be possessed in Colombia.

If the holder of the ADSs who is a non-resident entity, a Colombian individual who is not a resident in Colombia or a foreign non-resident individual, decides to surrender the ADSs and withdraw the underlying common shares, it is arguable that such transaction does not generate a capital gain subject to income tax in Colombia. However, different interpretations may be adopted by the Colombian Tax Authorities on this matter.

Tax Treatment in Colombia of a Non-Colombian Entity and a Non-Resident Individual of Colombia Who Purchases Ecopetrol's Shares in Colombia's Securities Market

Dividends

As a general rule, dividends paid to foreign companies, foreign entities, or to non-resident individuals in Colombia, who are investing in Colombian shares directly or through a FFAA, are treated as national-source income; thus, they are subject to Colombian income tax.

To avoid double taxation, dividends are not subject to income tax at the shareholder level when they are paid out of corporate profits that have been previously taxed at the corporate level.

If the shareholder is a non-resident entity or a non-resident individual investing directly, it will be taxed upon distribution, by means of the withholding tax mechanism, provided that its investment does not qualify as portfolio investments and dividends that are distributed are not taxed at the corporate level. In this case, dividends will be subject to a 33% withholding tax.

Non-resident entities or non-resident individuals will be taxed upon distribution by means of the withholding tax mechanism, provided that their investments qualify as portfolio investments (i.e., investing through a FFAA and dividends that are distributed by the Colombian entity are not taxed at the corporate level. In this case, the applicable withholding tax rate is 25%, assuming that the dividends cannot be attributed to a permanent establishment in Colombia belonging to the shareholder). These foreign shareholders subject to this withholding tax are not required to file an income tax return in Colombia.

Taxation of Capital Gains for the Sale of Shares

Capital gains derived from the sale of shares listed on the BVC and owned by the same beneficial owner, are deemed as non-taxable income in Colombia, provided that the shares sold during the same taxable year do not represent more than 10% of the outstanding shares of the listed company. Pursuant to Article 18 of Decree 2634 of 2012, sellers of shares are not required to file an income tax return for the transfer of securities that are listed in the National Registry of Securities and Issuers (*Registro Nacional de Valores y Emisores*) as long as the foreign investment is treated as a portfolio investment according to article 3 of Decree 2080 of 2000.

If the above-mentioned requirements are not met, the capital gain obtained in the sale of shares is subject to income tax or capital gains tax, under the following rules:

- The gain or loss arising therefrom will be the difference between the sale price and the tax basis of the shares. As a general rule, the tax basis of shares is equal to the price paid for such shares (i.e., cost of acquisition).
- The applicable tax rate and the withholding tax rate have to be determined on a case-by-case basis. Generally, if the shares have been owned for at least two years, the profits from the sale will qualify as capital gains taxable at 10%, otherwise, profits will qualify as ordinary income taxable at 40% in 2016 (42% in 2017 and 43% in 2018).

Tax Treatment of Non-Residents Who Purchase Ecopetrol's Shares in the BVC Market and Exchange Them for ADSs

Dividends

Payment of dividends by Colombian entities to foreign companies, foreign entities or to non-resident individuals who are investing in ADSs which underlying assets are Colombian shares or in Colombian shares directly are subject to the tax treatment described above.

Taxation on Capital Gains for the Sale of Shares

If the holder of the Colombian shares is a non-resident entity, a Colombian individual who is not a resident in Colombia or a foreign non-resident individual, and such holder decides to exchange such common shares for ADSs, it is arguable that such transaction should not generate a capital gain subject to income tax in Colombia. However, different interpretations may be adopted by the Colombian tax authorities on this matter. For instance, assuming that the exchange of securities is treated as a sale of Ecopetrol's shares, the seller would be subject to the tax treatment described above in connection with the taxation of capital gains for the sale of shares. Absent any specific rules or regulations addressing this specific situation, a case-by-case analysis would be necessary.

6.5.2 U.S. Federal Income Tax Consequences

This summary describes the principal U.S. federal income tax consequences of the ownership and disposition of common shares or ADSs, but it does not purport to be a comprehensive description of all of the U.S. tax consequences that may be relevant to a decision to hold or dispose of common shares or ADSs. This summary applies only to purchasers of common shares or ADSs who will hold the common shares or ADSs as capital assets for U.S. federal income tax purposes and does not apply to special classes of holders such as dealers in securities or currencies, holders whose functional currency is not the U.S. dollar, holders of ten percent or more of our shares (taking into account shares held directly or through depositary arrangements), tax-exempt organizations, financial institutions, holders liable for the alternative minimum tax, securities traders who elect to account for their investment in common shares or ADSs on a mark-to-market basis, partnerships or other pass-through entities, insurance companies, U.S. expatriates, persons that purchase or sell common shares or ADSs as part of a wash sale for tax purposes, and persons holding common shares or ADSs in a hedging transaction or as part of a straddle, conversion or other integrated transaction for U.S. federal income tax purposes. The statements regarding U.S. tax law set forth in this summary is based on the Internal Revenue Code of 1986, as amended, which we call the "Code," its legislative history, existing and proposed U.S. Treasury regulations, published rulings and court decisions all as in force on the date of this annual report, and changes to such law subsequent to the date of this annual report may affect the tax consequences described herein (possibly with retroactive effect). This summary is also based in part on the representations of the Depositary and the assumption that each obligation in the Deposit Agreement and any related agreement will be performed in accordance with its terms.

Each holder is encouraged to consult such holder's tax advisor concerning the overall tax consequences to it, including the consequences under laws other than U.S. federal income tax laws, of an investment in common shares or ADSs.

In this discussion, references to a "U.S. Holder" are to a beneficial holder of a common share or an ADS that is for U.S. federal income tax purposes (1) an individual citizen or resident of the United States, (2) a corporation, or any other entity taxable as a corporation, organized under the laws of the United States, any state thereof or the District of Columbia, (3) an estate whose income is subject to U.S. federal income tax regardless of its source, or (4) a trust if (i) a United States court can exercise primary supervision over the trust's administration and one or more United States persons are authorized to control all substantial decisions of the trust or (ii) it has in effect a valid election under applicable U.S. Treasury regulations to be treated as a U.S. person.

For U.S. federal income tax purposes, holders of ADSs will generally be treated as owners of the common shares represented by such ADSs.

This discussion does not address any aspect of U.S. federal taxation other than U.S. federal income taxation (such as the estate and gift tax or the Medicare tax on net investment income). Holders of common shares or ADSs should consult their own tax advisor regarding the U.S. federal, state and local and other tax consequences of owning and disposing of common shares and ADSs in their particular circumstances.

Distributions on Common Shares or ADSs

A distribution to U.S. Holders made by us of cash or property with respect to common shares or ADSs generally will be treated as a dividend for U.S. federal income tax purposes to the extent paid out of our current or accumulated earnings and profits (as determined under U.S. federal income tax principles). Distributions in excess of our current or accumulated earnings and profits, as determined for U.S. federal income tax purposes, will be treated first as a tax-free return of capital reducing such U.S. Holder's adjusted tax basis in the common shares or ADSs. Any distribution in excess of such adjusted tax basis will be treated as capital gain and will be either long-term or short-term capital gain depending upon whether the U.S. Holder held the common shares or ADSs for more than one year. Distributions of additional common shares or ADSs to U.S. Holders that are part of a pro rata distribution to all of our shareholders generally will not be subject to U.S. federal income tax. We do not maintain calculations of our earnings and profits under U.S. federal income tax principles, and, therefore, U.S. Holders should expect that any distributions generally will be reported as dividends for U.S. federal income tax purposes. As used below, the term "dividend" means a distribution that constitutes a dividend for U.S. federal income tax purposes.

The amount of any distribution will include the amount of any Colombian tax withheld on the amount distributed, and the amount of a distribution paid in Colombian Pesos will be measured by reference to the exchange rate for converting Colombian Pesos into U.S. dollars in effect on the date the distribution is received by the Depositary (or by a U.S. Holder in the case of a holder of common shares) regardless of whether the payment is in fact converted into U.S. dollars. If the Depositary (or U.S. Holder in the case of a holder of common shares) does not convert such Colombian Pesos into U.S. dollars on the date it receives them, generally, any gain or loss resulting from currency exchange fluctuations during the period from the date the dividend payment is included in income to the date the payment is converted into U.S. dollars will be treated as ordinary income or loss and will not be eligible for the special tax rate applicable to qualified dividend income (as discussed below). The gain or loss generally will be income or loss from sources within the United States for foreign tax credit limitation purposes. Dividends paid by us will not be eligible for the dividends received deduction allowed to corporations under the Code.

If you are a non-corporate U.S. Holder, dividends that constitute qualified dividend income will be taxable to you at the preferential rates applicable to long-term capital gains provided that you meet certain holding requirements. Dividends paid on the ADSs will be treated as qualified dividend income if (1) the ADSs are readily tradable on an established securities market in the United States and (2) we were not, in the year prior to the year in which the dividend was paid, and are not, in the year in which the dividend is paid, a passive foreign investment company (PFIC). The ADSs are listed on the New York Stock Exchange, and will qualify as readily tradable on an established securities market in the United States so long as they are so listed. Based on our audited financial statements and relevant market and shareholder data, we believe that we were not treated as a PFIC for U.S. federal income tax purposes with respect to our 2015 taxable year. In addition, based on our audited financial statements and our current expectations regarding the value and nature of our assets, the sources and nature of our income, and relevant market and shareholder data, we do not anticipate becoming a PFIC for the 2016 taxable year. However, this conclusion is a factual determination that is made annually and thus may be subject to change. Based on existing guidance, it is not clear whether dividends received with respect to the common shares will be treated as qualified dividends. In addition, the U.S. Treasury has announced its intention to promulgate rules pursuant to which holders of ADSs or common shares and intermediaries through whom such securities are held will be permitted to rely on certifications from issuers to treat dividends as qualified for tax reporting purposes. Because such procedures have not yet been issued, it is not clear whether we will be able to comply with them. Holders of ADSs and common shares should consult their own tax advisers regarding the availability of the reduced dividend tax rate in the light of the considerations discussed above and their own particular circumstances.

A U.S. Holder will be entitled, subject to a number of complex limitations and conditions, to claim a U.S. foreign tax credit in respect of any Colombian income taxes withheld on dividends received on common shares or ADSs. U.S. Holders who do not elect to claim a credit for any foreign income taxes paid during the taxable year may instead claim a deduction in respect of such Colombian income taxes provided the U.S. Holder elects to deduct (rather than credit) all foreign income taxes for that year. Dividends received with respect to the common shares or ADSs will be treated as foreign source income, subject to various classifications and other limitations. For the purposes of the U.S. foreign tax credit limitations, the dividends paid with respect to our common shares or ADSs will generally constitute "passive category income" for most U.S. Holders. The rules relating to computing foreign tax credits or deducting foreign income taxes are extremely complex, and U.S. Holders are urged to consult their own independent tax advisers regarding the availability of foreign tax credits with respect to any Colombian income taxes withheld.

Sale, Exchange or Other Taxable Dispositions of Common Shares or ADSs

A U.S. Holder generally will recognize capital gain or loss upon the sale, exchange or other taxable disposition of common shares or ADSs in an amount equal to the difference between the U.S. dollar value of the amount realized on the sale, exchange or other taxable disposition of the common shares or ADSs and the U.S. Holder's adjusted tax basis, determined in U.S. dollars, in the common shares or ADSs. Any gain or loss will be long-term capital gain or loss if the common shares or ADSs have been held for more than one year. Certain non-corporate U.S. Holders (including individuals) may be eligible for preferential rates of U.S. federal income tax in respect of long-term capital gains. The deductibility of capital losses is subject to limitations under the Code.

If you are a U.S. Holder of common shares or ADSs, the initial tax basis of your common shares or ADSs will be the U.S. dollar value of the Colombian Peso-denominated purchase price determined on the date of purchase. If the common shares or ADSs are treated as traded on an "established securities market," a cash basis U.S. Holder, or, if it elects, an accrual basis U.S. Holder, will determine the dollar value of the cost of such common shares or ADSs by translating the amount paid at the spot rate of exchange on the settlement date of the purchase. Such an election by an accrual basis U.S. Holder must be applied consistently from year to year and cannot be revoked without the consent of the Internal Revenue Service ("IRS"). If you convert U.S. dollars to Colombian Pesos and immediately use that currency to purchase common shares or ADSs, such conversion generally will not result in taxable gain or loss to you.

With respect to the sale or exchange of common shares or ADSs, the amount realized generally will be the U.S. dollar value of the payment received determined on (1) the date of receipt of payment in the case of a cash basis U.S. Holder and (2) the date of disposition in the case of an accrual basis U.S. Holder. If the common shares or ADSs are treated as traded on an "established securities market," a cash basis taxpayer, or, if it elects, an accrual basis taxpayer, will determine the U.S. dollar value of the amount realized by translating the amount received at the spot rate of exchange on the settlement date of the sale.

Deposits and withdrawals of common shares in exchange for ADSs, and ADSs for common shares generally will not result in the realization of gain or loss for U.S. federal income tax purposes.

Backup Withholding and Information Reporting

In general, dividends on common shares or ADSs, and payments of the proceeds of a sale, exchange or other taxable disposition of common shares or ADSs, paid within the United States, by a U.S. payor through certain U.S.-related financial intermediaries to a U.S. Holder are subject to information reporting and may be subject to backup withholding at a current rate of 28% unless the holder (1) establishes that it is a corporation or other exempt recipient or (2) with respect to backup withholding, provides an accurate taxpayer identification number and certifies that it is a U.S. person and that no loss of exemption from backup withholding has occurred.

Backup withholding is not an additional tax. The amount of any backup withholding tax from a payment to a U.S. Holder will be allowed as a credit against the U.S. Holder's U.S. federal income tax liability, provided that the required information is timely furnished to the IRS. A U.S. Holder generally may obtain a refund of any amounts withheld under the backup withholding rules that exceed its U.S. federal income tax liability by timely filing a refund claim with the IRS.

U.S. Tax Considerations for Non-U.S. Holders

A holder or beneficial owner of common shares or ADSs that is not a U.S. Holder for U.S. federal income tax purposes (a "non-U.S. Holder") generally will not be subject to U.S. federal income or withholding tax on dividends received on common shares or ADSs, unless the dividends are "effectively connected" with the non-U.S. Holder's conduct of a trade or business within the United States. In such a case a non-U.S. Holder generally will be taxed in the same manner as a U.S. Holder. In the case of "effectively connected" dividends received by a corporate non-U.S. Holder, the corporate non-U.S. Holder may, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate.

A non-U.S. Holder of common shares or ADSs will not be subject to U.S. federal income or withholding tax on gain realized on the sale of common shares or ADSs, unless (i) the gain is "effectively connected" with the non-U.S. Holder's conduct of a trade or business in the United States, or (ii) in the case of gain realized by an individual non-U.S. Holder, the non-U.S. Holder is present in the United States for 183 days or more in the taxable year of the sale and certain other conditions are met. In the case of "effectively connected" gains realized by a corporate non-U.S. Holder, the corporate non-U.S. Holder may, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate.

Although non-U.S. Holders generally are exempt from backup withholding and information reporting requirements, a non-U.S. Holder may be required to comply with certification and identification procedures in order to establish its exemption from information reporting and backup withholding.

6.6 *Exchange Controls and Limitations*

Payments in foreign currency with respect to certain foreign exchange transactions including international investments between Colombian residents and non-Colombian residents must be conducted through the foreign exchange market. Therefore, any foreign currency income or expense under the ADRs must be completed through the appropriate channels of the foreign exchange market. Transactions conducted through the foreign exchange market are made at market rates freely negotiated with authorized foreign exchange intermediaries (local banks, financial corporations, administrators and others). As of September 25, 1999 the Colombian foreign exchange regime is structured under the system of free flotation of the exchange rate whereby market forces determine the level of exchange rate from time to time.

Foreign portfolio investments must be made through authorized foreign exchange investment management companies. Only brokerage firms, trust companies and investment management companies, subject to the inspection and supervision of the Superintendency of Finance, are allowed to make investments in the local Colombian market on behalf of foreign investors. Such brokerage firms, trust companies and investment management companies also act as the foreign investors' local representatives for tax and foreign exchange purposes.

Colombian law provides that the Colombian Central Bank may intervene in the foreign exchange market at its own discretion at any time (i.e. it may limit the remittance of dividends whenever the international reserves fall below an amount equal to three months of imports). Additionally, from time to time, the Colombian government introduces amendments to the International Investment Statute. Hence, we cannot assure you that the Colombian Central Bank will not intervene in the future imposing restrictions to the free convertibility system currently applicable in Colombia. See the section *Risk Review—Risk Factors—Risks Related to Colombia’s Political and Regional Environment.*

Registration of Foreign Investment Represented in Underlying Shares

Colombia’s International Investment Statute and the regulations issued by the Colombian Central Bank, which have been amended from time to time through related decrees and regulations, govern the manner in which non-Colombian resident entities and individuals can invest in Colombia and participate in the Colombian securities markets. Among other requirements, the International Investment Statute and Colombian Central Bank regulations mandate registration of foreign investment transactions with the Colombian Central Bank and specify procedures to authorize and administer such foreign investment transactions. Additionally, pertinent information related to foreign investment transactions must be updated on a regular basis (yearly or monthly, depending on the type of information).

Under the International Investment Statute and Colombian Central Bank regulations, the failure of a foreign investor to report or register with the Colombian Central Bank foreign exchange transactions relating to investments in Colombia on a timely basis may (i) prevent the investor from obtaining remittance rights, (ii) constitute an exchange control infraction, and (iii) result in financial sanctions.

Notwithstanding the regulations described above, foreign investors who acquire ADRs are not required to register this investment with Colombian authorities. Holders of ADRs will benefit from the registration to be obtained by the local custodian for our common shares underlying the ADRs in Colombia. Such registration allows the custodian to convert dividends and other distributions with respect to the common shares into foreign currency and remit the proceeds abroad. If investors in ADRs choose to surrender their ADRs and withdraw common shares, they must retain an administrator, who will act as a local representative for the investments, and register their investments in common shares as a portfolio investment through said local representative. The local representative is the brokerage firm, trust company or investment management company that acts on behalf of the holders of the ADRs in Colombia, and the request for registration is made by them.

Colombian residents who acquire ADRs and either receive profits from this investment, surrender their ADRs or liquidate their investment in ADRs must register these operations with the Colombian authorities and comply with applicable regulations through its Colombian brokerage firm.

In obtaining its own foreign investment registration, an investor who surrenders its ADRs and sells common shares may incur expenses and/or suffer delays in the application process. Investors would only be allowed to transfer dividends abroad or transfer funds received as distributions relating to our common shares after their foreign investment registration procedure with the Colombian Central Bank has been completed. In addition, the depositary’s foreign investment registration may also be adversely affected by future legislative changes, but its rights to transfer dividends abroad or profits arising from distributions relating to our common shares must be maintained according to Colombian law and foreign investment treaties entered into by Colombia in force at the time of the registration of the investment, except when Colombia’s international reserves fall below an amount equivalent to three months’ worth of imports. Prospective purchasers of common shares or ADSs should consult their own foreign exchange advisors.

6.7 Exchange Rates

On April 22, 2016, the Representative Market Exchange Rate was COP\$2,928.70 per US\$1.00. The Federal Reserve Bank of New York does not report a noon-buying rate for Colombian Pesos. The Superintendencia Financiera, or Superintendency of Finance, calculates the Representative Market Exchange Rate based on the weighted averages of the buy and sell foreign exchange rates quoted daily by foreign exchange rate market intermediaries including financial institutions for the purchase and sale of U.S. dollars. The Superintendency of Finance also calculates the Representative Market Exchange Rate for each month for purposes of preparing financial statements and converting amounts in foreign currency to Colombian Pesos.

The following table sets forth the high, low, average and period-end exchange rate for Colombian Peso/U.S. dollar Representative Market Exchange Rate for each of the last five years and for the last six months.

Table 63 – Colombian Peso/U.S. dollar Representative Market Exchange Rate

| | Exchange Rates | | | |
|--------------------------------|----------------|----------|----------|------------|
| | High | Low | Average | Period-End |
| 2011 | 1,972.76 | 1,748.41 | 1,848.17 | 1,942.70 |
| 2012 | 1,942.70 | 1,754.89 | 1,798.23 | 1,768.23 |
| 2013 | 1,952.11 | 1,758.45 | 1,868.90 | 1,926.83 |
| 2014 | 2,446.35 | 1,846.12 | 2,000.68 | 2,392.46 |
| 2015 | 3,356.00 | 2,360.58 | 2,743.39 | 3,149.47 |
| October | 3,086.75 | 2,855.74 | 2,929.47 | 2,921.32 |
| November | 3,108.70 | 2,819.63 | 3,001.38 | 3,101.10 |
| December | 3,356.00 | 3,131.95 | 3,244.20 | 3,149.47 |
| 2016: | | | | |
| January | 3,375.80 | 3,149.47 | 3,270.20 | 3,287.31 |
| February | 3,434.89 | 3,287.31 | 3,354.96 | 3,306.00 |
| March | 3,319.80 | 3,022.35 | 3,128.79 | 3,022.35 |
| April (through April 22, 2016) | 3,109.60 | 2,899.92 | 3,023.87 | 2,928.70 |

Source: Superintendency of Finance for historical data. *Banco de la República*, or the Colombian Central Bank, for averages.

6.8 Major Shareholders

Major Shareholders

The following table sets forth the names of our major shareholders, and the number of shares and the percentage of outstanding shares owned by them at March 31, 2016:

Table 64 – Major Shareholders

| Shareholders | At March 31, 2016 | |
|---|-----------------------|-------------|
| | Number of shares | % Ownership |
| Nation ⁽¹⁾ – Ministry of Finance and Public Credit | 36,384,788,817 | 88.49 |
| Public float | 4,731,905,873 | 11.51 |
| Total | 41,116,694,690 | 100 |

(1) Includes 2,000 shares owned by other state entities.

All our common shares have identical voting rights.

As of March 31, 2016, 2.15% of our common shares were held of record in the form of American Depository Shares. As of March 31, 2016, we had 42 registered holders and as of February 19, 2016 we had 12,104 beneficiaries of common shares, or ADSs representing common shares, in the United States.

Changes in the Capital of the Company

There are no conditions in our bylaws governing changes in our capital stock that are more stringent than those required under Colombian law, with the exception that the Nation must hold a minimum of 80% of our capital stock at all times.

6.9 Enforcement of Civil Liabilities

We are a Colombian company. Most of our Directors and executive officers and some of the experts named in this annual report reside outside the United States. All or a substantial portion of our assets and the assets of these persons are located outside of the United States. As a result, it may not be possible for you to affect service of process within the United States upon us or these persons who are residents in Colombia or to enforce against us or these persons who are residents in Colombia judgments in U.S. courts obtained in such courts predicated upon the civil liability provisions of the U.S. federal securities laws. Colombian courts will enforce a U.S. judgment predicated on the U.S. securities laws through a procedural system known under Colombian Law as “exequatur.” The Colombian Supreme Court will enforce a foreign judgment, without reconsideration of the merits only if the judgment satisfies the requirements set forth in Articles 605 through 607 of Law 1564 of 2012 (*Código General del Proceso*) which entered into force on January 1, 2016, pursuant to *Acuerdo* No. PSAA15-10392, of October 1, 2015, issued by the Colombian Superior Council of the Judiciary (*Consejo Superior de la Judicatura*), as follows:

- A treaty exists between Colombia and the country where the judgment was granted relating to the recognition and enforcement of foreign judgments or, in the absence of such treaty, there is reciprocity in the recognition of foreign judgments between the courts of the relevant jurisdiction and the courts of Colombia;
- The foreign judgment does not relate to “in rem rights” vested in assets that were located in Colombia at the time the suit was filed;
- The foreign judgment does not contravene or conflict with Colombian laws relating to public order other than those governing judicial procedures;
- The foreign judgment, in accordance with the laws of the country where it was rendered, is final and is not subject to appeal;
- A duly legalized copy of the judgment (together with an official translation into Spanish if the judgment is issued in a foreign language) has been presented to the Supreme Court of Colombia;
- The foreign judgment does not refer to any matter upon which Colombian courts have exclusive jurisdiction;
- No proceeding is pending in Colombia with respect to the same cause of action, and no final judgment has been awarded in any proceeding in Colombia on the same subject matter and between the same parties;
- In the proceeding commenced in the foreign court that issued the judgment, the defendant is served in accordance with the laws of such jurisdiction and in a manner reasonably designated to give the defendant an opportunity to defend against the action; and
- The legal requirements pertaining to the exequatur proceedings have been observed;

The United States and Colombia do not have a bilateral treaty providing for automatic reciprocal recognition and enforcement of judgments in civil and commercial matters. The Colombian Supreme Court has in the past accepted that reciprocity exists when it has been proven that either a U.S. court has enforced a Colombian judgment or that a U.S. court would enforce a foreign judgment, including a judgment issued by a Colombian court. However, such enforceability decisions are considered by Colombian courts on a case-by-case basis.

Proceedings for enforcement of a money judgment by attachment or execution against any assets or property located in Colombia are within the exclusive jurisdiction of Colombian courts and such proceedings are conducted in Spanish. All parties affected by a foreign judgment in exequatur proceedings must be summoned to the exequatur proceedings in accordance with the rules that apply to the Colombian courts. In the course of such proceedings, both the plaintiff and the defendant are afforded the opportunity to request that evidence be collected in connection with the requirements listed above. In addition, before the judgment is rendered, each party may file final allegations in support of such party’s position regarding the above-mentioned requirements.

Assuming that a foreign judgment complies with the standards set forth in the preceding paragraphs and the absence of any condition referred to above that would render a foreign judgment not subject to recognition under Colombian law, such foreign judgment would be enforceable in Colombia in an enforcement proceeding under the laws of Colombia, provided that the Colombian Supreme Court has previously granted exequatur upon the foreign judgment.

7. Corporate Governance

Since 2004, Ecopetrol S.A. has voluntarily adopted transparency, governance and control practices to facilitate corporate governance in order to generate confidence among stakeholders and ensure the sustainability of its business.

The corporate governance practices at Ecopetrol S.A.:

- Promote and guarantee all stakeholders transparency, objectivity and competitiveness.
- Add value to the company and attract investors.
- Protect shareholders, investors and stakeholders rights.
- Encourage financial markets confidence.
- Accomplish the highest corporate governance standards.

Statement of the Nation as Majority Shareholder

Ecopetrol's majority shareholder (the Nation, represented by the Ministry of Finance and Public Credit), is unilaterally committed to protect the interests of the minority shareholders in the following topics:

- *Composition of Board of Directors*: including in its list of candidates a Representative for hydrocarbon producing departments operated by Ecopetrol and a Representative for the minority shareholders, who will be chosen by the 10 shareholders with the largest stock participations.

According to corporate governance practices recommended by the OECD, organization to which Colombia is in the process of access, the National Government begun to implement the practice of reducing the participation of Directors with a ministerial level in Ecopetrol's Board of Directors. Thus, in 2017 in the ordinary Shareholders' Assembly, the National Government will nominate only one (1) non-independent Director with a ministerial level and in 2018 no director of ministerial rank will be nominated.

- *Dividend policy*: guaranteeing the right of each shareholder to receive his pro rata dividends in accordance with Colombian law.
- *Issues not included in the agenda of extraordinary meetings of the Shareholders Assembly*: permitting a vote on those initiatives submitted by one or more shareholders representing at least 2% of the subscribed shares of the company.
- *Asset disposal*: ensuring that any asset disposal of an amount equal or higher than 15% of the stock exchange capitalization of Ecopetrol is discussed and decided by the Shareholders' General Assembly and that the Nation will only vote affirmatively if the vote of minority shareholders is equal to or exceeds 2% of the shares subscribed by shareholders other than the Nation.

7.1 Bylaws

The Bylaws of Ecopetrol S.A. are contained in Public Deed No. 5314 of December 14, 2007, issued by the Second Notary of Bogotá; amended by Public Deed No. 560 of May 23, 2011, issued by the Notary Forty- Six of Bogotá, Deed No. 666 of May 7, 2013, issued by the Notary Sixty-Five of Bogotá, and Deed No. 1049 of May 19, 2015, issued by the Notary Second of Bogotá.

This summary does not purport to be complete and is qualified by reference to our bylaws, which are filed as an exhibit to this annual report. For a description of the provisions of our bylaws relating to our Board of Directors and its committees, see the sections Corporate Governance—Board of Directors—Board Practices and —Board Committees.

On March 26, 2015, the Shareholders' General Assembly approved the following amendments to our bylaws:

1. The adoption of the following corporate governance practices recommended by the Superintendency of Finance regarding the New Code of Corporate Best Practices of Colombia:
 - Extension of the deadline for convening ordinary and extraordinary meetings (amendment to Articles 19 and 20).
 - The majority of the Board of Directors will be constituted by independent members (amendment to paragraph 1, Article 23).
 - Possibility of performing different kind of evaluations of the Board of Directors (amendment to paragraph 5, Article 23).
 - Reference to certain guidelines concerning the appointment and duties of the Chairman and Secretary of the Board of Directors (new paragraph 6, Article 23).
 - Modification in the name of the audit and risk committee of the Board of Directors in order to make explicit its risk management role (amendment to Paragraph 27.1 of Article 27).
 - Obligation to comply with voluntarily adopted corporate governance practices (new Article 52).
2. The company's reserves accounts amounting to COP\$14.76 trillion in the financial statements as of December 31, 2014 were capitalized by increasing the nominal value of shares from COP\$250 to COP\$609 per share.

General Meeting of Shareholders

Shareholders' meetings may be ordinary or extraordinary. Ordinary meetings will take place in our legal domicile located in Bogota, Colombia, within the first three months following the end of each fiscal year, on the day and at the time set forth in the notice for the general shareholders' meeting. The call for the general shareholders' meeting is published on the Ecopetrol S.A. website and in a newspaper of wide circulation 30 calendar days prior to the date on which the meeting will take place and on the Sunday previous to the meeting, must be published at Ecopetrol S.A.'s website www.ecopetrol.com.co. The call for the general shareholders' meeting is also sent electronically to shareholders.

In the ordinary general shareholders' meeting, our Board of Directors and the external auditor are appointed and our annual financial statements, profit distribution, audit and management reports, including our corporate governance report and sustainability report, and any other matter provided under applicable law or our corporate bylaws are approved.

Extraordinary meetings of shareholders may be called by our Board of Directors, by our president or chief executive officer, by our external auditor, or by shareholders holding at least 5% of the shares outstanding, or when unforeseen or urgent needs of the Company require it. Calls to extraordinary meetings should be made at least 15 calendar days prior to the date of the meeting, with the exception of the case where the Law requires a greater time between the summons and the meeting. Such a call is published on the Ecopetrol S.A. website and in a newspaper of wide circulation. The meeting notice must specify the agenda for the meeting.

The required quorum for both ordinary and extraordinary meetings is a plural number of shareholders representing 50% plus one of the subscribed shares entitled to vote and decisions are approved with a majority of the members present. This quorum is exempted in the case of "second-call meetings," which may take place when a meeting fails to obtain the required quorum and is called within a period between 10 business days and 30 business days from the first date, in which case decisions may be adopted by a majority of the shares present regardless of the number represented.

Decisions made at ordinary and extraordinary shareholders' meeting must be approved by a plural number of shareholders representing the majority of the shares present. Colombian law requires supermajorities in the following cases:

- The vote of at least 70% of the shares present and entitled to vote at the ordinary shareholders' meeting is required to approve the issuance of stock not subject to preemptive rights;
- The vote of at least 78% of the shares represented entitled to vote is required to approve the distribution of the annual net profits. In the absence of this special majority, at least 50% of the net profits must be distributed. If the sum of all legal reserves (statutory, legal and optional) exceeds the amount of the outstanding capital, the Company must distribute at least 70% of the annual net profits;
- The vote of at least 80% of the shares represented is required to approve the payment of dividends in shares; and
- The vote of 100% of the outstanding and issued shares is required to replace a vacancy on the Board of Directors without applying the electoral quotient system.

Shareholders may be represented by proxies provided that the proxy: (1) is in writing (faxes and electronic documents are valid), (2) specifies the name of the representative, (3) specifies the date or time of the meeting for which the proxy is given and (4) includes other information specified by the applicable law. Proxies granted abroad do not require legalization or an apostille.

During our ordinary annual shareholders' meeting, our employees and Directors are only allowed to represent their own shares, unless they act as legal representatives.

Preference Rights and Restrictions Attaching to Our Shares

We have only one class of stock without special rights or restrictions (ordinary shares). Our shareholders do not have any type of preemptive rights.

Under Commercial Colombian law, our shareholders have the following economic privileges and voting rights:

- To participate and vote on the decisions of the general shareholders' meeting;
- To receive dividends based on the financial performance of the Company in proportion to their share ownership;
- To transfer and sell shares according to our bylaws and Colombian law;
- To inspect corporate books and records 15 business days prior to the ordinary shareholders' meeting where the year-end financial statements are to be approved;
- Upon liquidation, to receive a proportional amount of the corporate assets after the payment of external liabilities; and
- To sell the shares, known as *derecho de retiro*, if a corporate restructuring affects the economic or voting rights of the shareholders in the terms and conditions established under Colombian law.

Our bylaws and corporate governance code provide additional rights to our minority shareholders. These rights include:

- *Sale of Assets*. For a ten-year period counted from the date of subscription of the declaration of the Nation dated July 26, 2007 or until the Nation loses its status as majority shareholder, the Nation guarantees that any sale of 15% or more of our assets requires the approval of the general shareholders' meeting and that the Nation would only be allowed to vote its shares in favor of the proposal if 2% or more of our minority shareholders accept the proposal.

- *Candidate List.* Pursuant to our bylaws and Law 1118 of 2006, the Nation will include in its candidate list for election of members of the Board of Directors one member selected by the departments that produce hydrocarbons. In addition, pursuant to the declaration of the Nation dated July 26, 2007, the Nation will include in its candidate list for election of members of the Board of Directors one member selected by the ten largest minority shareholders. The minority shareholders' right to select a candidate loses its effect when minority shareholders, according to their share participation, name a member to our Board of Directors.
- *Extraordinary Meetings.* Our bylaws and corporate governance code provide that the entity exercising permanent control over Ecopetrol must instruct the Company's CEO or External Auditor to call an extraordinary meeting of the Company's shareholders when so requested by a plurality of shareholders holding at least 5% of the total number of outstanding shares. Such requests shall be made in writing and must clearly indicate the purpose of the meeting.
- *Investor Attention Office.* Ecopetrol has an investor attention office, a specialized unit responsible for receiving complaints from our shareholders. Pursuant to our bylaws, shareholders holding at least 5% of the total number of shares outstanding may request that the investor attention office conduct a special audit of the following documents: the income statement; the proposal for the distribution of profits; the report of the Board of Directors as to the economic and financial status of our Company; the report from our general counsel as to the legal status of our Company; and the report from the independent auditors. Special audits cannot be made of documents that contain scientific, technological or statistical information of our Company, or agreement that gives us competitive and economic advantages over our competitors, or in respect of any document related to intellectual property. Shareholders also have the right to propose good corporate governance recommendations to the office for the protection of investors.
- *Others.* Pursuant to our bylaws, shareholders holding at least 5% of the total number of shares outstanding may propose recommendations to our Board of Directors pertaining to the management of our Company. Any shareholder may file a written petition to our Board of Directors to investigate corporate governance violations that the shareholder believes to have been committed.

Amendments to Rights and Restrictions to Shares

We have only one class of stock and it has no special rights or restrictions (ordinary shares). Our shareholders do not have any type of preemptive rights. The rights given to our shareholders by law are described in our bylaws and may only be modified through an amendment to the law.

The additional rights given to our minority shareholders in our bylaws and corporate governance code may only be modified through an amendment of those internal documents.

Limitations on the Rights to Hold Securities

There are no limitations in our bylaws or Colombian law on the rights of Colombian residents or foreign investors to own the shares of our Company, or on the right to hold or exercise voting rights with respect to those shares, except in cases of legal representation and except that the Nation must hold a minimum of 80% of our capital stock at all times.

Restrictions on Change of Control Mergers, Acquisitions or Corporate Restructuring of the Company

Under Colombian law and our bylaws, the general shareholders' meeting has full authority to approve any corporate restructuring, including any mergers, acquisitions or spin-offs. Corporate restructurings are also subject to the requirement that the Nation must hold a minimum of 80% of our common stock at all times. So long as Law 1118 of 2006 is in effect, there cannot be any restructuring that results in a change of control of our Company.

Ownership Threshold Requiring Public Disclosure

Our corporate governance code (Title III, chapter 1, Section 5, Identification of the Main Shareholders) provides that we must disclose periodically on our web page, the names of the shareholders of our Company including, at least, the 20 shareholders with the greatest number of shares. We must also disclose this information to the Superintendency of Finance at the end of each quarter.

Colombian securities regulations set forth the obligation to disclose any material event or *hecho relevante*. Any transfer of shares equal or greater than 5% of our capital stock or any person acquiring a percentage of shares that would make him the beneficial owner of 5% or more of our capital stock, is a material event, and therefore, must be disclosed to the Superintendency of Finance. The regulation includes other criteria in order to identify when to report a material event other than the situations described in the previous sentence.

External Auditor

Pursuant to our bylaws, our external auditor shall not be appointed for more than five consecutive one-year terms by us. However, an external auditor may be hired again after two terms have passed since the conclusion of its last term of appointment. At the ordinary general shareholders' meeting on March 31, 2016, the shareholders appointed Ernst & Young Ltda. as external auditor of Ecopetrol.

7.2 Code of Ethics

We have adopted a code of ethics, which complies with applicable U.S. and Colombian law. Our code of ethics applies to our Board of Directors, our Chief Executive Officer, our Chief Financial Officer, principal accounting officer, persons performing similar functions and in general to all of the other employees of the company and its affiliates.

All of our agreements with suppliers or third parties include a provision relating to compliance with applicable anti-bribery and anti-corruption regulations. These agreements also require our suppliers and third parties to accept our Code of Ethics and our compliance manuals.

Our code of ethics is available on our website at http://www.ecopetrol.com.co/especiales/codigoEtica_/index.html.

If we amend the provisions of our code of ethics or if we grant any waiver of such provisions, we will disclose such amendment or waiver on our website at the same address.

7.3 Board of Directors

The information below sets forth the names and business experience of each of our current Directors elected at the shareholders' ordinary meeting held on March 31, 2016 for terms of one year beginning on that date, as of the date hereof:

Minister of Finance and Public Credit, Mauricio Cárdenas Santamaría (53) has been a member of our Board of Directors as a non-independent Director, appointed by the National Government, since March 27, 2008. Mr. Cárdenas is the Minister of Finance and Public Credit since September 2012. He was the Minister of Mines and Energy of Colombia from September 26, 2011 to September 3, 2012. He has served as Senior Fellow and Director at the Latin America Initiative of the Brookings Institution in Washington, D.C. Previously, Mr. Cárdenas served as Executive Director of Fedesarrollo (Fundación para la Educación Superior y el Desarrollo), President of Empresa de Energía Eléctrica de Bogotá, Minister of Economic Development, Minister of Transport and Director of the National Planning Agency of Colombia. Mr. Cárdenas holds a B.A. and an MSC in economics from the Universidad de los Andes and a Ph.D. in economics from the University of California, Berkeley. In 2001, Mr. Cárdenas was a visiting scholar at Harvard University's Center for International Development. Mr. Cárdenas has also served as a member of the Board of Directors of various organizations, including the Latin American and Caribbean Economic Association, Universidad de los Andes and the BVC. Currently, he is a Director of the Colombian Central Bank.

Director of the National Planning Agency of Colombia, Simón Gaviria Muñoz (35) has been a member of our Board of Directors since August 29, 2014 as a non-independent Director, appointed by the National Government. Mr. Gaviria is Director of the National Planning Agency since August, 2014. Before joining the National Planning Agency, Mr. Gaviria was the head of the Colombian Liberal Party. From 2006 and 2014 he served as representative to the Cámara de Representantes by Bogotá and from July 2011 and July 2012 he served as chairman of the Cámara de Representantes. During his early professional years he worked as a financial analyst at JP Morgan Chase Corporate Finance in New York. Mr. Gaviria is an economist from the University of Pennsylvania with a Master's Degree in mathematics and econometrics from the same university.

Gustavo Adolfo Carvajal Sinisterra (54) has been a member of our Board of Directors as an independent Director since March 31, 2016. Mr. Carvajal was Ambassador of Colombia in France, as well as Non-Resident Ambassador in Monaco and Algeria and Ambassador to UNESCO from February 2011 to August 2013. He has held in various positions in the Carvajal Organization and has served as CEO of Grupo Editorial Norma. Mr. Carvajal holds a B.A. in economics and politics from the Adelphi University in New York and an MBA from Babson College in Boston. He is currently Chairman of the Board of Carvajal S.A. and a member of multiple boards of the Carvajal Organization. Mr. Carvajal is also a member of the Superior Council of the ICESI University, the Business Council of Latin America, the Board of Fedesarrollo, the Board of the Chamber of Commerce of Cali, the ANDI board and the Bolivar Group Board.

Jaime Ardila Gómez (60) has been a member of our Board of Directors as an independent Director since March 31, 2016. Mr. Ardila was president of General Motors for South America and has held various positions within General Motors, including in that company such as President for Brazil and Mercosur; Chief Financial Officer for Latin America, Africa and the Middle East; President and Managing Director in Argentina; COLMOTORES in Colombia and Ecuador; Omnibus BB, Chief Financial Officer in Chile; and Treasurer in Mexico, among others. He also served as Managing Director in Colombian Operations for N.M Rothschild and Sons and Secretary General of the Ministry of Industry and Trade in Colombia. Mr. Ardila holds a B.A. in economics from the University of Bogota Jorge Tadeo Lozano and a master's degree in economics from the London School of Economics. Currently he is a member of the Board of Directors of Goldman Sachs BDC, Accenture, Council of the Americas and the Chamber of Commerce of Brazil.

Jorge Pinzón Sánchez (55) has been a member of our Board of Directors as an independent Director since December 6, 2012. He is a freelance attorney and an arbitrator registered at the Centers of Conciliation and Arbitration of the Chambers of Commerce of Bogotá and Barranquilla. He was a partner at Estudios Palacios Lleras S.A., a law firm specializing in consulting and arbitration of business, commercial and tax law. He also has served as the head of the Superintendency of Corporations as well as of the Superintendency of Finance of Colombia. He was also a member of the Advisory Committee of the Banking Superintendency, member of the General Board of the Securities Superintendency of Colombia, Secretary General of the Ministry of Finance and Public Credit and Deputy General Counsel, Secretary General and General Counsel of Banco del Comercio, among other positions in the public and private sector. He served several years as a Colombian representative to the United Nations Commission on International Trade Law. Mr. Pinzón holds a degree in law and a master's degree in philosophy from Universidad Javeriana. Mr. Pinzón has been a member of several boards of directors of Colombian financial sector companies.

Joaquín Moreno Uribe (67) has been a member of our Board of Directors as an independent Director since March 27, 2008. Mr. Moreno worked for 33 years for the Royal Dutch/Shell Group. He has held various positions such as Project Manager in Colombia; Project and Operations Manager and Marketing and Operations Manager of Shell Química de Venezuela; Director of Marketing for Agrochemical Products and Global Marketing Manager for Petrochemical Products at Shell Centre-Shell International Chemicals Company in London; Director of Shell Venezuela S.A.; Director of Shell Colombia S.A., Director of Cerromatoso S.A., a Colombian mining company that is located in the department of Córdoba, dedicated to the production of ferro nickel and iron nickel alloy, and Exploration and Production Business Economics and Strategic Planning Director for Europe and the Middle East at the Shell International Headquarters in The Hague, the Netherlands. Mr. Moreno has also served as Country Chairman and President for Shell in Mexico, Colombia and Venezuela, as well as Regional CEO for Downstream Oil Business in the Northern Latin American Region. Mr. Moreno earned a degree in civil engineering from Universidad Industrial de Santander and completed a program in advanced management at Harvard University Business School. Mr. Moreno has been a member of the boards of directors of various local and international companies.

Horacio Ferreira (46) has been a member of our Board of Directors as an independent Director, representing the hydrocarbon producing provinces of Colombia, since January 23, 2014. He is an executive leader with more than 20 years of international experience in the oil industry. His knowledge and expertise stem from previous positions as CEO and President of an oilfield services company in Houston, TX to application of state of art technologies in the oil industry. He has led and executed numerous reservoir engineering projects in the Americas, Europe, Africa, Middle East and Far East and has conducted research in optimization of multiphase meters, underbalanced reservoir engineering, real time reservoir and production analysis, reservoir simulation and waterflood techniques with horizontal wells. He holds a BS in Petroleum Engineering from Texas A&M University, master and doctoral degrees in Petroleum Engineering from Texas A&M University, and a business graduate degree in Management of International Corporations from Texas A&M University.

Roberto Steiner Sampedro (56) has been a member of our Board of Directors as an independent Director, representing the shareholders, since October 12, 2011. Mr. Steiner is an associate researcher and former Executive Director of Fedesarrollo. He served as Alternate Executive Director of the International Monetary Fund, Director of the Economics Research Department of the Colombian Central Bank, Director of the Economic Development Research Centre of Universidad de los Andes, Consultant at the World Bank, Deputy Director of Fedesarrollo, Deputy Director of the Economics Research Department of the Central Bank of Colombia, and Senior Economist at the Colombian Central Bank. He was a professor and researcher at various Colombian universities, including the Universidad de los Andes, Universidad Javeriana and Universidad Nacional. Also, he was a summer professor at Columbia University in New York. Mr. Steiner earned a degree in economics from Universidad de los Andes and master and doctoral degrees in economics from Columbia University in New York.

Carlos Alfredo Cure Cure (72) has been a member of our Board of Directors as an independent Director since September 5, 2015. Mr. Cure was Ambassador of Colombia in Venezuela and before becoming a diplomat, he was Chief Financial Officer and President of Bavaria S.A., the largest brewery in Colombia, and President of Avianca S.A., the national airline, and advisor to the Board of the Olympic Group S.A. He also served as deputy financial manager of Cementos del Caribe, CEO of Cementos Toluviejo and CEO of Shipyards Industrial Union. Mr. Cure holds a degree in Civil Engineering from the National University of Medellin. In addition, he has been a member of different boards of directors of Colombian companies. Currently is member of the board of directors of Isagen.

7.3.1 Board Practices

Our Board of Directors is composed of nine members and is responsible for, among other things, establishing our general business policies. The majority of the Board of Directors must be independent, and must be elected pursuant to the criteria set out in paragraph two, Article 44, Law 964, 2005, and in accordance with the procedure determined in Decree 3923, 2006, or any other provisions that regulate, amend, replace or add such regulations. In addition, pursuant to our bylaws and in accordance the procedures described therein, our majority shareholder must include, in its list of candidates for the last two seats in the Board of Directors, the name of one individual jointly proposed by departments that produce hydrocarbons and one individual jointly proposed by the ten minority shareholders with the highest equity participation. According to Colombian law, the members of the Board of Directors must be elected at the annual shareholders' meeting in accordance with a proportional representation system similar to cumulative voting (through an electoral quota voting system). The number of votes required to fill each position is calculated by dividing the number of possible votes by the number of open board positions. The members of the Board of Directors may be elected without an electoral quota voting system when there is unanimity. Pursuant to our bylaws, Directors are elected for a one-year term, and the positions are filled either by person or by position. Members of the Board may be reelected indefinitely. Currently, we have two members appointed by their position: the Minister of Finance and Public Credit and the Director of the National Planning Agency. Our current Directors were elected at the ordinary shareholders' meeting held on March 31, 2015. Directors may be removed without cause at any moment by a majority of the shareholders present at a general shareholders' meeting.

Our CEO is appointed by the Board of Directors and has two alternates. The CEO is elected for a two-year term, may be reelected indefinitely and freely removed prior to the expiration of his term. In accordance with our bylaws, the Board of Directors must evaluate the annual performance of the CEO and such results must be published in Ecopetrol's web page or in an alternative media vehicle.

The compensation of our Directors is set exclusively by the shareholders at the general shareholders' meeting. Directors are compensated for attending board meetings and committee meetings. A Board meeting requires a quorum of at least five members and decisions are approved with a majority of the Directors present. In the practice a consensus decision making operates in the Board.

Under Colombian law, a director or executive officer must abstain from participating in any transaction that may result in a conflict of interest or that involves competition with the company, unless authorized at a general shareholders' meeting. The general shareholders may approve or reject the transaction giving rise to the conflict of interest with the vote of the majority of the shares present at the shareholders' meeting. If the director or executive officer who has the conflict is a shareholder, his or her vote must be excluded. We disclose conflicts of interest of our employees, executive officers and Directors in our annual reports.

Neither our bylaws nor our corporate governance code provide a retirement age for our Directors. Under our bylaws, there is no requirement for a person to have a minimum number of shares to be elected as a Director. Colombian law provides that Directors willing to sell or purchase shares in our Company need prior authorization from the entire Board of Directors. Colombian law does not impose any limitation as to the number of shares that may be acquired by a Director.

7.3.2 Board Committees

Pursuant to our bylaws, our Board of Directors has four committees (audit and risk committee, corporate governance and sustainability committee, compensation and nomination committee and business committee), which establish guidelines, set specific actions and evaluate and submit proposals designed to improve performance in the areas under their supervision and control. These committees are comprised of members of the Board of Directors who are also appointed by the members of the Board of Directors and the chairman of each of the committees must be an independent Director. In addition to applicable regulations, the committees also have their own specific regulations that establish their purposes, duties and responsibilities.

Table 65 – Composition of committees of the Board of Directors as of April 22, 2016.

| <u>Audit and Risk Committee</u> | <u>Compensation and Nomination Committee</u> | <u>Corporate Governance and Sustainability Committee</u> |
|--|--|---|
| Horacio Ferreira Rueda Jaime Ardila Gómez Joaquín Moreno Uribe Jorge Pinzón Sánchez | Minister of Finance and Public Credit Carlos Cure Cure Roberto Steiner Sampedro Gustavo Carvajal Sinisterra | Horacio Ferrerira Rueda Jorge Pinzón Sánchez Roberto Steiner Sampedro Carlos Cure Cure |
| <u>Business Committee</u> | | |
| Minister of Finance and Public Credit Horacio Ferreira Rueda Joaquín Moreno Uribe Carlos Cure Cure Gustavo Carvajal Sinisterra Jaime Ardila Gómez Director of the National Planning Agency of Colombia | | |

Audit and Risk Committee

Our audit and risk committee, which must be comprised of at least three members, all of them independent Directors, is our highest internal control body and provides support to our Board of Directors on risk, accounting and financial matters. It is in charge of guaranteeing the design, implementation and supervision of our internal control over financial reporting. It also ratifies the annual hydrocarbons reserves report and provides support for our Board on analyzing topics related to financial matters, risks, control environment and the assessment of the Company's internal and external auditors.

All committee members are required to be knowledgeable in accounting matters and at least one of them is required to be an expert in financial and accounting matters.

Our Board of Directors has determined that Jaime Ardila Gómez qualifies as an "audit committee financial expert," and he is independent under the definition of "independent" applicable to us under the rules of the NYSE.

The audit and risk committee approves on a case-by-case basis any engagement of our external independent auditors to provide services different than those related to auditing our financial statements. Occasionally, the audit and risk committee will have no doubt that these additional services do not compromise the external auditor's independence. When in doubt, the committee will request the opinion of the internal auditor.

Compensation and Nomination Committee

Our compensation and nomination committee, which must be comprised of at least three members, including at least one independent director, provides general guidelines for the selection and compensation of our executive officers and employees.

Corporate Governance and Sustainability Committee

Our corporate governance and sustainability committee, which must be comprised of at least three members, including at least one independent director, makes proposals to our Board of Directors to ensure and supervise the fulfillment of our good corporate governance and sustainability practices in accordance with our corporate governance code.

Business Committee

Our business committee, which must be comprised of at least five members, including at least one independent Director, assists our Board in analyzing potential business ventures. Based on its delegation of power, the committee studies and analyzes capital expenditure policies, major investment projects, strategy, new business and other matters that would help us move forward in our efforts toward the consolidation of our strategy. The primary criteria used in the committee's decision-making process are the optimization of our portfolio and the proper allocation of our resources.

7.4 Compliance with NYSE Listing Rules

The following is a summary of the significant differences between our corporate governance practices and those required for U.S. companies under the NYSE listing standards.

NYSE Standards

Our Corporate Governance Practices

Director Independence

The majority of the board of directors must be independent. §303A.01. "Controlled companies," which would include Ecopetrol if we were a U.S. issuer, are exempt from this requirement. A controlled company is one in which more than 50% of the voting power is held by an individual, group or another company, rather than the public. §303A.00.

Pursuant to our bylaws, the majority of the Board of Directors must be independent. As of the date of this annual report, we have seven (7) independent Directors and two (2) non-independent Directors.

Executive Sessions

The non-management directors of each listed company must meet at regularly scheduled executive sessions without management. §303A.03.

A comparable rule does not exist under Colombian law. Except for our audit and risk committee, our Board of Directors does not meet without management.

Nominating/Corporate Governance and Sustainability Committee

A nominating/corporate governance and sustainability committee composed entirely of independent directors is required. The committee must have a charter specifying the purpose, duties and evaluation procedures of the committee. §303A.04. "Controlled companies" are exempt from these requirements. §303A.00.

Colombian law does not require the establishment of a nominating and a corporate governance and sustainability committee composed entirely of independent directors. Pursuant to our bylaws and board charter, these committees shall be composed of a majority of independent Directors.

NYSE Standards

Our Corporate Governance Practices

Compensation Committee

A compensation committee composed entirely of independent directors is required, which must evaluate and approve executive officer compensation. The committee must have a charter specifying the purpose, duties and evaluation procedures of the committee. §303A.05. "Controlled companies" are exempt from this requirement. §303A.00.

Colombian law does not require the establishment of a compensation committee composed entirely of independent directors. Pursuant to our bylaws and board charter, this committee shall be composed of a majority of independent Directors.

Audit and Risk Committee

An audit committee with a minimum of three independent directors satisfying the independence and other requirements of Rule 10A-3 under the Exchange Act and the more stringent requirements under the NYSE standards is required. §§303A.06 and 303A.07.

According to Law 964 of 2005, Colombian companies that are authorized to issue securities by the Superintendency of Finance must have an audit committee that satisfies the requirements of Law 964 of 2005, including its minimum number of members, independence criteria and audit related duties. Our audit and risk committee is composed entirely of independent Directors, and the committee meets the requirements of Law 964 of 2005 and Rule 10A-3 under the Exchange Act.

Equity Compensation Plans

Equity compensation plans and all material revisions thereto require shareholder approval, subject to limited exemptions. §§303A.08 and 312.03.

Under Colombian law, no similar right to vote on equity compensation plans and material revisions thereto is given to shareholders. We do not give our shareholders the right to vote on equity compensation plans and material revisions thereto.

Corporate Governance Guidelines

Listed companies must adopt and disclose corporate governance guidelines. §303A.09.

The Superintendency of Finance recommends the adoption of corporate governance guidelines to all Colombian issuers. According to Superintendency of Finance Circular No. 028, 2014, the adoption of corporate governance guidelines is voluntary. Listed companies must annually publish a corporate governance survey comparing their corporate governance standards with those recommended by the Superintendency of Finance. Our corporate governance code and our survey of the adoption of Colombian practices are available on our website at <http://www.ecopetrol.com.co>.

Code of Ethics for Directors, Officers and Employees

Corporate governance guidelines and a code of business conduct and ethics is required, with disclosure of any waiver for directors or executive officers. The code must contain compliance standards and procedures that will facilitate the effective operation of the code. §303A.10.

We have adopted a code of ethics which complies with applicable U.S. and Colombian law. Our code of ethics applies to our chief executive officer, chief financial officer, principal accounting officer, persons performing similar functions and generally to all the employees, members of the Board of Directors, suppliers, and contractors of Ecopetrol S.A. and its corporate group. Our code of ethics is available on our website at <http://www.ecopetrol.com.co>.

7.5 Management

The following presents information concerning our executive officers and senior management. Unless otherwise noted, the majority of these individuals are Colombian citizens.

Juan Carlos Echeverry (53) has served as the Chief Executive Officer of Ecopetrol, Colombia's National Oil Company, since April 2015. He has previously served as Colombia's Minister of Finance and Minister of Economic Planning. During his mandate as Minister of Finance in 2011, four international publications (The Banker, America Economía, Emerging Markets, and Institutional Investor) awarded him as the Best Finance Minister of the Americas. Previously, Mr. Echeverry represented Colombia in the Board of Directors of the Inter-American Development Bank (Washington D.C.) and served as Dean of Economics at Universidad de los Andes (Bogotá), and Associate Professor of Economics at Instituto de Empresa in Madrid, Spain and in Universidad de los Andes. In 2002 he founded Econcept SAS, a consulting firm on economics dedicated to advising foreign and domestic firms investing in Colombia, serving as expert witnesses in arbitration and micro and macro-economic consulting. He is the author of several books about the Colombian economy and co-author of publications focusing on developing economies. Among his work there are economic studies on Africa and countries of the Pacific Basin. Mr. Echeverry has a Ph.D. in Economics from New York University and an outstanding academic career in the field of Economics.

Felipe Bayon Pardo (50) has served as the Executive Vice President of Ecopetrol since February 2016. Mr. Bayon holds a degree in Mechanical Engineering from the Universidad de los Andes. He has over 24 years of experience in the oil and gas industry. For the last 20 years, he worked at BP plc, most recently as Senior Vice President of BP America and Head of Global Deepwater Response. From 2005 to 2010, he was the Regional President of BP Southern Cone (South America), and prior to 2005 he worked in BP's headquarters as Chief of Staff to the CEO and the Head of the Executive Office for Exploration and Production. He began his career in 1995 in BP Colombia, as a Project Engineer, where he held various positions until becoming Vice President of Operations in Colombia.

María Fernanda Suárez (41) has served as the Chief Financial Officer of Ecopetrol since August 2015. Ms. Suárez holds a degree in Business Administration from CESA and a master's degree in Policy Management from Georgetown University. Ms. Suárez has 19 years of experience in the public and private sectors. She has held various positions in these sectors, including Public Credit Manager at Ministry of Finance and Public Credit in the Treasury Department, Investment Chief Officer at Porvenir and other high-level positions at Citibank, ABN AMRO and Bank of America. She has served on the board of directors for ISA, Isagen, XM, FEN and Banco Agrario.

Hector Manosalva (52) joined Ecopetrol in 1986 and has served as Vice-President for Development and Production since July 2010. Mr. Manosalva holds a degree in Petroleum Engineering from the Universidad de América in Bogotá, and completed post-graduate studies in finance at the Universidad EAFIT and Executive Management at the Universidad de los Andes. Over the course of his career at Ecopetrol, Mr. Manosalva has held various positions, including Executive Vice-President for Production and Exploration, Vice-President of Production, Production Manager of the Central Region, President of Colombia's Advisor for Safety and Security of National Energy Infrastructure, Director of HSE and Corporate Social Responsibility, Production Manager of the Southern Region and Head of the Production Planning Division.

Max Torres (58) has served as Exploration Vice President since September 2014. Mr. Torres holds a B.S. degree in Geology from Universidad Nacional of Tucumán in Argentina and an M.S. in Stratigraphy from Georgia State University. He has more than 28 years of experience in oil and gas exploration and production and is a proven world class oil and gas finder and a champion of Latin American oil and gas exploration. Among his many professional accomplishments, Mr. Torres was directly responsible for the 16 Tcfg Perla gas field discovery in Venezuela, the 275 Tcfg super giant Galkynysh gas field discovery in Turkmenistan, as well as other oil and gas discoveries. Prior to joining Ecopetrol, Mr. Torres worked at Repsol from 1997 to 2013 as Exploration Director for Europe and the Middle East, Exploration Director for Europe and Africa and Exploration Director for Latin America.

Jaime Bocanegra (47) has served as Vice President of Transportation since April 2013. Mr. Bocanegra holds a bachelor's degree in Petroleum Engineering from Universidad de América in Colombia, a specialization degree in Management, a specialization degree in Management of Oil and Gas Industry Assets and Strategic Leadership. He has worked for Ecopetrol for the last 23 years and has held various positions within the company, including Interim Vice President of Sustainable Development and Environmental, Plant Coordinator, Multipurpose Pipelines Manager, Chief of Operations and Maintenance Department, Dosquebradas Program Manager and Centralized Operations Manager.

Thomas Rueda Ehrhardt (42) has served as Cenit's Chief Executive Officer since November 2014. Mr. Rueda holds a degree in Business Administration from Los Andes University (Bogotá) with continuing studies in Management at Cambridge University (England) and Organizational Development at Duke University (Calgary). He has more than 19 years of experience in the oil and gas sector. He began his career at BP where he held various positions, including the Pipeline and Crude Oil Export Manager, Planning Manager, Financial Manager for BP Angola Business Unit, and Planning Manager for E & P at BP Headquarters. He also worked for Talisman as their Asset Manager for Piedemonte and Ocesa. He joined Cenit in 2013 as Chief Financial Officer.

Tomas Hernandez (61) has served as Vice President of Refining and Industrial Processes since February 2016. He has over 37 years of international experience in the oil and gas sector. He has served as Business Manager at Chevron's Pascagoula refinery in the United States, General Manager for Marketing Operations for Chevron Texaco in Latin America and Africa-Europe-Pakistan Regions and has spent over 20 years in managerial positions in various refineries at Chevron. Prior to joining Ecopetrol, he was Deputy Upgrader Manager at Petropiar, a joint venture in which Chevron participates. Mr. Hernandez holds a degree in Chemical Engineering from the University of Missouri – Rolla (University of Science and Technology Missouri).

Juan Pablo Ospina (48) has served as the Vice President of Sales and Marketing since May 2015. Mr. Ospina holds a bachelor degree in Mechanical Engineering from Universidad Pontificia Bolivariana de Medellín, and completed studies in management and leadership at University of North Carolina and the Thunderbird Management School in Phoenix, Arizona. During his 20 years of experience in the oil and gas industry, he has built a career in sales, marketing and economic regulation. He has worked for Grupo Empresarial Ecopetrol for more than seven years; five directly with Ecopetrol S.A. in different roles as the leading expert in new business development and as the refined products sales manager. Before joining Ecopetrol, he was Commercial Director for Cenit, Ecopetrol's subsidiary for transport and logistics of oil and refined products within the country.

Carlos Alberto Vargas Medina (46) has served as Vice President of Transformation since December 2015. Mr. Vargas holds a degree in Petroleum Engineering from America University. He has 23 years of experience across the integrated oil and gas value chain with a focus in drilling and well interventions and an expertise in exploration, appraisal, development and production onshore and offshore wells. He has held management positions in the United Kingdom, Argentina, Bolivia and Colombia, where he has developed key skills in strategy, performance management systems, risks management, HSE and integration of multicultural and multidisciplinary teams. Prior to taking his current position, he was the Vice President of Drilling and Completions at Equion.

Fernán Ignacio Bejarano Arias (60) has served as Vice-president of Legal Affairs and General Counsel at Ecopetrol since March 2016. Mr. Bejarano Arias holds a bachelor's degree in Law from Universidad Javeriana in Bogotá and an LLM from the American University (Washington D.C.). In his more than thirty years of professional experience, he has been a partner at the law firms of Estudios Palacios Lleras S.A, Bejarano Cárdenas y Ospina y Asociados Ltda and OPEBSA Compañía de Abogados S.A.S. and has worked for several years at important positions in the public sector, such as the Vice Minister of Foreign Affairs, Secretary of the Monetary Board, Secretary of the Board of Directors of the Banco de la República (Colombian Central Bank), Office of Legal Affairs Counselor at the Presidency of the Republic of Colombia, Vice-president of Legal Affairs and General Counsel at Corporación Financiera Colombiana. Mr. Bejarano Arias has been a professor at the Faculty of Law of the Universidad Javeriana, and has been arbitrator before the Center for Arbitration and Conciliation of the Bogotá Chamber of Commerce.

María Juliana Alban (41) has served as Compliance Vice-president and Compliance Officer since July 2015. Ms. Alban holds a law degree from Universidad Sergio Arboleda with a specialization in Commercial and Financial Law from the same institution. Since 2007, Ms. Alban has worked in the Attorney General's Office (*Procuraduría General de la Nación*) as Secretary General and Chief of Legal Office, among other positions within the institution.

Alejandro Arango (56) has served as Vice president of Human Resources at Ecopetrol S.A. since October 2014. He has more than 20 years of professional experience around the world and has worked as a Vice President of Human Resources at Banco Santander in Colombia and as Human Resources Director of the Consumer Finance Division, Strategy Division and Cards Division at Banco Santander in Spain. Mr. Arango has also served as Human Resources Director for the Asia Pacific region at Banco Santander in Hong Kong and as a Global Human Resources Division T&O, among others. Mr. Arango holds a degree in Strategic Marketing from CESA School of Business and a bachelor's degree in Theology from the Universidad Hochschule Sankt Georgen (Frankfurt) and a bachelor's degree in Philosophy from Javeriana University.

Andrés Mantilla (45) has served as the Director of the Colombian Petroleum Institute of Ecopetrol, the technology development center of the company, since September 2013, and has served as Deputy Vice President of Innovation and Technology since November 2015. He holds a degree in Petroleum Engineering from Universidad Industrial de Santander, Colombia, a master's of science in Petroleum Engineering from Stanford University, and a Ph.D. in Geophysics from Stanford University. His professional work includes participation, leadership and management of technical teams and technology development, demonstration and implementation projects in the oil and gas industry. He worked for Ecopetrol holding various positions between 1994 and 2006. Before rejoining Ecopetrol in 2013, he worked for BP Colombia, Marathon Oil Company and Maersk Oil. During his professional career he has had exposure to exploration and production projects and the evaluation of new ventures in Colombia, the Gulf of Mexico, the North Sea, West Africa, South America and the Middle East.

Eduardo Uribe Botero (56) has served as Vice President of Sustainable Development and Environmental since August 2015. Mr. Uribe holds a degree in Agricultural Engineering from Caldas University, a master's of science in Soil Chemistry and a Ph.D. in Fertility and Management of Tropical Soils. He has over 25 years of experience in the private and public sectors. In 1994, he was appointed the first Vice Minister of the Environment in Colombia. In recent years he has served as a strategic, environmental and social advisor to companies and organizations in the fields of hydrocarbons, mining, energy, forestry, environmental and agribusiness through the consulting firm Optim Consulting.

María Consuelo Rodríguez (43) has served as Director of Corporate Affairs since September 2015. Mrs. Rodríguez holds a degree in law from Universidad Externado de Colombia with a specialization in Economic Law and Telecommunication Regulation and Management from the same institution. She served as Secretary of Cabinet of the Ministry of Defense until July 2015. During her legal career she has worked with and advised entities such as the President of the Republic, the Ministry of Finance and Public Credit, the National Planning Agency and the Superintendency of Health and Finance, among others. Mrs. Rodríguez has experience in constitutional, administrative and tax matters in various public and private entities, as well as management of non-profit organizations, crisis care, strategic communications and high-level dialogue with the state, private and nongovernmental sectors.

Carlos Eduardo Zamudio Rojas (50) has served as the Director of the Shared Services Center of Ecopetrol in Colombia since August 2012. Mr. Zamudio has more than 20 years of professional experience and holds degrees in Management and Finances from the Universidad Javeriana and Universidad de los Andes, respectively. He has extensive experience in service delivery operations in multinational companies at regional and global levels, including Belcorp and Procter & Gamble. At Belcorp, a leader in the beauty industry in Latin America, he was Corporate Director of the Shared Services Center where he covered 15 countries including the United States and Brazil. While at Procter & Gamble he was a recognized as a leader in the Latin America region, as the Corporate Manager of Finance in Chile, Brazil, Costa Rica and Colombia, as well as the Global Business Services Manager for Latin America.

Margarita Escobar Pereira (34) has served as Secretary General and Secretary of the Board of Directors since August 2015. Mrs. Escobar holds a law degree from Colegio Mayor de Nuestra Señora del Rosario with a specialization in Tax Law from the same institution. Prior to joining Ecopetrol, Mrs. Escobar worked as pre-graduate and post-graduate professor in financial law at Universidad del Rosario and as Chief Legal Adviser of the Ministry of Finance and Public Credit. She has also served as Deputy Superintendent of the Health Superintendence of the Nation, an advisor in National Department of Planning and an advisor in the General Department of the Presidency of the Republic of Colombia.

None of our Directors or executive officers has any familial relationship with any Director or executive officer.

7.6 Compensation of Directors and Management

Based on a resolution adopted at our annual shareholders' meeting in 2012, compensation for Directors' attendance in person at meetings of the Board of Directors and/or committee meetings increased from the equivalent of four to six minimum monthly wage salaries, which totals approximately COP\$3.9 million for 2015 and COP\$3.7 million for 2014. Fees for attendance at virtual meetings are set at 50% of the in-person meeting fee.

The total compensation paid to our Directors, executive officers and senior management during 2015 amounted to COP\$16.4 billion.

Our Directors are not eligible to receive pension and retirement benefits from us. The total amount set aside to provide pension and retirement benefits to our eligible executive officers totals COP\$10.3 billion.

7.7 Share Ownership of Directors and Executive Officers

No individual Director or executive officer beneficially owns more than 1% of our outstanding shares.

Table 66 – The following Directors and executive officers own shares of Ecopetrol:

| <u>Director</u> | <u>Shares</u> | <u>%</u> |
|------------------------------|---------------|------------|
| Joaquín Moreno Uribe | 127,988 | 0.0003113% |
| Mauricio Cárdenas Santamaría | 2,000 | 0.0000049% |
| Roberto Steiner Sampedro | 50,000 | 0.0001216% |
| Juan Carlos Echeverry Garzón | 33,420 | 0.0000813% |

| <u>Executive Officer</u> | <u>Shares</u> | <u>%</u> |
|--------------------------|---------------|------------|
| Héctor Manosalva | 49,380 | 0.0001201% |

Under Colombian law, all of our shareholders have the same economic privileges and voting rights.

7.8 Controls and Procedures

Disclosure Controls and Procedures

As required by Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as of December 31, 2015, we evaluated the design and effectiveness of our financial disclosure controls and procedures under the supervision and participation of our management, including our Chief Executive Officer and Chief Financial Officer. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even if effective, disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives.

Based upon this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that as of the end of the period covered by this annual report, our disclosure controls and procedures were effective to provide reasonable assurance that the information required to be disclosed in the reports that we file and submit under the Securities Exchange Act of 1934 is recorded, summarized and reported as and when required and is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

Management’s Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15(d)-15(f) under the Securities Exchange Act of 1934. Our internal control over financial reporting is a process designed under the supervision of our Chief Executive Officer and Chief Financial Officer, and affected by our board of directors, management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our financial statements for external reporting purposes in accordance with generally accepted accounting principles, and it includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect transactions and dispositions of our assets;
- 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 are being made only in accordance with authorization of our management and directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Therefore, effective control over financial reporting cannot, and does not, provide absolute assurance of achieving our control objectives. Also, projection of any evaluation of the effectiveness of the internal controls to future periods is 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.

As of the year ended December 31, 2015, our management conducted an assessment of the effectiveness of our internal control over financial reporting in accordance with the criteria established in the publication “Internal Control – Integrated Framework (2013)”, issued by the Committee of the Sponsoring Organizations of the Treadway Commission, as well as the rules set by the SEC in its Final Rule “Management’s Report on Internal Control Over Financial Reporting and Certification of Disclosure in Exchange Act Periodic Reports.”

Based on the assessment performed, management concluded that our internal control over financial reporting was effective as of the end of the period covered by this annual report.

The effectiveness of our internal control over financial reporting has been audited by PricewaterhouseCoopers Ltda., an independent registered public accounting firm, as stated in their audit report accompanying our consolidated financial statements.

Audit and Non-Audit Fees

Our consolidated financial statements for the fiscal years ended December 31, 2015 and December 31, 2014 were audited by PricewaterhouseCoopers Ltda.

The following table sets forth the fees billed to us by PricewaterhouseCoopers Ltda. during the fiscal year ended December 31, 2015 and 2014.

Table 67 – Fees Billed to us by PricewaterhouseCoopers Ltda.

| | As of December 31, | |
|-------------------------------|--|---------------|
| | 2015 | 2014 |
| | (in millions of Colombian Pesos, excluding 16% value added tax) | |
| Audit fees | 8,199 | 9,533 |
| Audit-related fees | 606 | 458 |
| Tax fees | – | 30 |
| All other fees ⁽¹⁾ | 5 | 65 |
| Total | 8,810 | 10,086 |

(1) These fees are comprised of coaching sessions in management skills dictated to officers of some affiliates as well as participation in open training courses.

Audit Fees. The audit fees listed in the table above are the aggregated fees billed by PricewaterhouseCoopers Ltda. in connection with their audits of our annual consolidated financial statements (IFRS), interim consolidated financial statements (under IFRS), subsidiary audits (under local GAAP) and review of periodic documents filed with the SEC. In addition, these audit fees include fees related to our independent auditors’ audits of our internal controls over financial reporting.

Audit-related Fees. The audit-related fees listed in the table above are the fees billed by PricewaterhouseCoopers Ltda. in connection with their agreed-upon procedures of our variable compensation bonus system as well as the audit of the joint operation agreement of Ecopetrol Germany GmbH.

Tax Fees. The tax fees listed in the table above correspond to (1) assisting some subsidiaries in the preparation and filing of appropriate tax returns with the tax authorities (including electronic filings), (2) advising some subsidiaries about the tax consequences associated with new or proposed legislation and (3) rendering advice to some subsidiaries on the likely tax consequences of proposed transactions and the appropriate methods of structuring and reporting.

Changes in Internal Control over Financial Reporting

There were no changes made in our internal control over financial reporting during the year ended December 31, 2015 that have materially affected or are reasonably likely to materially affect the Company's internal controls over financial reporting.

Change in Registrant's Certifying Accountant

At the ordinary general shareholders' meeting on March 31, 2016, the shareholders of Ecopetrol S.A. dismissed PricewaterhouseCoopers Ltda. and appointed Ernst & Young Ltda. as recommended by the Company's Audit Committee, as the new independent registered public accounting firm.

During the Company's two fiscal years ended December 31, 2015 and 2014 and subsequent interim periods through the date of its report, there were no disagreements with PricewaterhouseCoopers Ltda. on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements if not resolved to the satisfaction of PricewaterhouseCoopers Ltda. would have caused them to make reference thereto in their reports on the consolidated financial statements for such periods.

During the Company's two most recent fiscal years ended December 31, 2015 and 2014 and the subsequent periods through the date of its report, there have been no reportable events (as defined in Item 16F(a)(1)(v) of Form 20-F).

We have not previously consulted with Ernst & Young Ltda. regarding either (i) the application of accounting principles to a specific completed or contemplated transaction; (ii) the type of audit opinion that might be rendered on our financial statements; or (iii) a reportable event (as provided in 16F(a)(1)(v) of Form 20-F) during the years ended December 31, 2015 and 2014, or any later interim period, including the interim period up to and including the date of its report.

We have provided PricewaterhouseCoopers Ltda. with a copy of the foregoing disclosure, and have requested that PricewaterhouseCoopers Ltda. furnish us with a letter addressed to the SEC stating whether or not PricewaterhouseCoopers Ltda. agrees with such disclosure, which we attach to this report as Exhibit 16.1 as required by Item 16F(a)(3) of Form 20-F.

Attestation Report of the Registered Public Accounting Firm

PricewaterhouseCoopers Ltda.'s attestation report on our internal control over financial reporting is included in their audit report accompanying our consolidated financial statements. See *Report of Independent Registered Public Accounting Firm—PricewaterhouseCoopers Ltda.* to the consolidated financial statements.

Significant Changes

For a description of significant events since December 31, 2015, please see Note 36 – Subsequent events to our consolidated financial statements.

8. **Financial Statements**

Ecopetrol S. A.

Consolidated Financial Statements

For the years ended December 31, 2015 and 2014, at December 31, 2015 and 2014
and the opening statement of financial position at January 1, 2014.

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of
Ecopetrol S. A.

In our opinion, the accompanying consolidated statement of financial position and the related consolidated statement of profit or loss, statement of other comprehensive income, statement of changes in equity and statement of cash flows present fairly, in all material respects, the financial position of Ecopetrol S. A. and its subsidiaries (the "Company") at December 31, 2015, December 31, 2014, and January 1, 2014 and the results of their operations and their cash flows for each of the two years in the period ended December 31, 2015 in conformity with International Financial Reporting Standards as issued by the International Accounting Standards Board. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2015, based on criteria established in Internal Control - Integrated Framework 2013 issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for these financial statements, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Annual Report on Internal Control over Financial Reporting appearing under Item 7.8 (Controls and Procedures). Our responsibility is to express opinions on these financial statements and on the Company's internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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 (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) 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 (iii) 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/ PricewaterhouseCoopers Ltda.

Bogotá, Colombia
April 28, 2016

Ecopetrol S.A.

Consolidated statement of financial position

At December 31, 2015, December 31, 2014 and January 1, 2014

(Figures expressed in millions of Colombian pesos)

| | Notes | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|--|-------|----------------------|----------------------|--------------------|
| Assets | | | | |
| Current assets | | | | |
| Cash and cash equivalents | 6 | 6,550,450 | 7,618,178 | 8,805,090 |
| Trade and other receivables | 7 | 3,427,412 | 4,287,553 | 5,804,495 |
| Inventories | 8 | 3,057,958 | 2,929,921 | 3,559,586 |
| Tax assets | 9 | 4,501,734 | 2,019,066 | 1,545,535 |
| Equity instruments measured at fair value | 10 | 913,488 | 1,581,466 | 1,505,033 |
| Other financial assets | 11 | 329,227 | 817,977 | 1,547,133 |
| Other current assets | 12 | 1,090,324 | 1,385,116 | 930,883 |
| | | 19,870,593 | 20,639,277 | 23,697,755 |
| Non-current assets held for sale | 13 | 242,745 | 1,362 | 1,362 |
| | | 20,113,338 | 20,640,639 | 23,699,117 |
| Non-current assets | | | | |
| Investments in associates and joint ventures | 14 | 1,931,934 | 2,390,189 | 2,657,198 |
| Trade and other receivables | 7 | 584,571 | 435,404 | 356,373 |
| Property, plant and equipment | 15 | 65,105,073 | 55,665,007 | 46,599,417 |
| Natural and environmental resources | 16 | 24,043,297 | 24,120,664 | 21,725,479 |
| Intangibles | 17 | 388,051 | 245,152 | 272,070 |
| Deferred tax assets | 9 | 8,239,472 | 4,245,416 | 3,893,883 |
| Other financial assets | 11 | 1,256,152 | 663,842 | 504,500 |
| Goodwill | 19 | 1,159,922 | 1,426,822 | 1,426,822 |
| Other non-current assets | 12 | 766,380 | 1,090,716 | 941,056 |
| | | 103,474,852 | 90,283,212 | 78,376,798 |
| Total Assets | | 123,588,190 | 110,923,851 | 102,075,915 |
| Liabilities | | | | |
| Current liabilities | | | | |
| Loans and borrowings | 20 | 4,573,620 | 3,517,522 | 3,121,068 |
| Trade and other payables | 21 | 7,757,277 | 8,798,965 | 9,966,622 |
| Labor and pension plan obligations | 22 | 1,392,266 | 1,379,706 | 1,337,616 |
| Tax liabilities | 9 | 2,803,559 | 1,896,938 | 2,966,470 |
| Accrued liabilities and provisions | 23 | 653,497 | 842,957 | 1,047,597 |
| Other financial liabilities | 24 | 101,319 | 140,055 | 46 |
| Other liabilities | | 144,441 | 267,587 | 249,286 |
| | | 17,425,979 | 16,843,730 | 18,688,705 |
| Liabilities related to assets held for sale | 13 | 17,628 | - | - |
| | | 17,443,607 | 16,843,730 | 18,688,705 |
| Non-current liabilities | | | | |
| Loans and borrowings | 20 | 48,649,718 | 31,524,106 | 19,572,195 |
| Trade and other payables | 21 | 6 | 30,439 | 37,383 |
| Labor and pension plan obligations | 22 | 2,459,849 | 4,419,987 | 5,414,008 |
| Deferred tax liabilities | 9 | 6,026,050 | 4,168,144 | 4,119,815 |
| Accrued liabilities and provisions | 23 | 5,423,850 | 4,995,114 | 3,870,749 |
| Other non-current liabilities | | 484,147 | 408,103 | 508,491 |
| | | 63,043,620 | 45,545,893 | 33,522,641 |
| Total liabilities | | 80,487,227 | 62,389,623 | 52,211,346 |
| Equity | | | | |
| Equity attributable to owners of the Company | 25 | 41,225,908 | 47,022,946 | 48,598,996 |
| Non-controlling interests | | 1,875,055 | 1,511,282 | 1,265,573 |
| Total Equity | | 43,100,963 | 48,534,228 | 49,864,569 |
| Total liabilities and equity | | 123,588,190 | 110,923,851 | 102,075,915 |

Ecopetrol S.A.

Consolidated statement of profit or loss

(Figures expressed in millions of Colombian pesos, except for the earnings (loss) per share, expressed in Colombian pesos)

| | Notes | For the years ended December 31, | |
|---|-------|----------------------------------|--------------------|
| | | 2015 | 2014 |
| Revenue | 26 | 52,347,271 | 65,971,888 |
| Cost of sales (before impairment of non-current assets) | 27 | 36,994,516 | 42,975,128 |
| Gross profit (excluding impairment) | | 15,352,755 | 22,996,760 |
| Administration expenses | 28 | 1,700,985 | 1,031,035 |
| Operation and project expenses | 28 | 4,034,268 | 5,520,325 |
| Impairment of non-current assets | 29 | 7,864,875 | 2,304,567 |
| Other operating income and expenses, net | 29 | (378,538) | (308,194) |
| Operating income | | 2,131,165 | 14,449,027 |
| Finance results, net | 30 | | |
| Financial income | | 621,924 | 399,818 |
| Financial expenses | | (2,718,414) | (1,640,294) |
| Foreign exchange loss, net | | (5,566,614) | (2,270,193) |
| | | (7,663,104) | (3,510,669) |
| Share of profit of associates and joint ventures | 14 | (46,687) | 166,070 |
| (Loss) Income before income tax | | (5,578,626) | 11,104,428 |
| Income tax | 9 | (710,353) | (5,434,855) |
| Net (loss) income for the period | | (6,288,979) | 5,669,573 |
| Net (loss) income attributable to: | | | |
| Owners of the Company | | (7,193,859) | 5,046,517 |
| Non-controlling interest | | 904,880 | 623,056 |
| | | (6,288,979) | 5,669,573 |
| (Loss) Earnings per share (basic and diluted) | | (175.0) | 122.7 |

ECOPETROL S. A.
Consolidated statement of other comprehensive income
 (Figures expressed in millions of Colombian Pesos)

| | Note | For the years ended December 31, | |
|---|------|----------------------------------|------------------|
| | | 2015 | 2014 |
| Net (loss) income for the period | | (6,288,979) | 5,669,573 |
| Components of comprehensive income of income tax that may be reclassified subsequently to profit or loss (net of tax): | | | |
| Accumulated foreign currency translation | 2.4 | 5,979,644 | 3,398,374 |
| Net fair value gain (Loss) on equity instruments measured at fair value | 10 | (106,911) | 76,435 |
| Realized gain on proceeds from sales of equity instruments measured at fair value | 25.5 | (19,405) | - |
| Cash Flow Hedge for Future Company Exports | 31 | (217,291) | - |
| Cash flow Hedges - Derivative financial instruments | 24 | (60,083) | - |
| | | 5,575,954 | 3,474,809 |
| Components of comprehensive income of income tax that will not be reclassified subsequently to profit or loss (net of tax): | | | |
| Remeasurement of defined benefit obligation, net of taxes | 22 | 1,404,602 | 743,793 |
| Others | | 58,643 | - |
| Other comprehensive income for the period | | 7,039,199 | 4,218,602 |
| Total comprehensive income | | 750,220 | 9,888,175 |
| Attributable to: | | | |
| Shareholders | | (328,604) | 9,114,221 |
| Non-controlling interests | | 1,078,824 | 773,954 |
| | | 750,220 | 9,888,175 |

ECOPETROL S.A.
Consolidated statement of changes in equity
 (Figures expressed in millions of Colombian Pesos)

| | Note | Subscribed and paid-in capital | Additional paid-in capital | Legal reserves | Other reserves | Other comprehensive income | Retained earnings/deficit | Equity attributable to owners of the Company | Non-controlling interests | Total Equity |
|--|------|--------------------------------|----------------------------|------------------|-------------------|----------------------------|---------------------------|--|---------------------------|-------------------|
| Balance as of December 31, 2014 | | 10,279,175 | 6,607,612 | 5,271,104 | 13,170,694 | 3,980,749 | 7,713,612 | 47,022,946 | 1,511,282 | 48,534,228 |
| Net income (loss) | | - | - | - | - | - | (7,193,859) | (7,193,859) | 904,880 | (6,288,979) |
| Dividends declared | 25 | - | - | - | - | - | (5,468,521) | (5,468,521) | (715,051) | (6,183,572) |
| Capitalization of reserves | 25 | 14,760,895 | - | - | (14,760,893) | - | - | 2 | - | 2 |
| Diluted shares | | (2) | - | - | - | - | - | (2) | - | (2) |
| Change of interest share in controlled entities | | - | - | - | - | - | - | - | - | - |
| Additions to paid-in capital | | - | 5 | - | - | - | - | 5 | - | 5 |
| Additional paid-in capital receivable | | - | 82 | - | - | - | - | 82 | - | 82 |
| Release of occasional reserves | 25 | - | - | - | (12,823,783) | - | 12,823,783 | - | - | - |
| Appropriation of reserves | 25 | - | - | - | - | - | - | - | - | - |
| Legal | | - | - | (43,378) | - | - | 43,378 | - | - | - |
| Fiscal | | - | - | - | 466,503 | - | (466,503) | - | - | - |
| Occasional | | - | - | - | 15,215,797 | - | (15,215,797) | - | - | - |
| Other comprehensive income | | - | - | - | - | - | - | - | - | - |
| Actuarial valuation | 22 | - | - | - | - | 1,404,602 | - | 1,404,602 | - | 1,404,602 |
| Net fair value (loss) on equity instruments measured at fair value | 10 | - | - | - | - | (126,316) | - | (126,316) | - | (126,316) |
| Cash Flow Hedge for Future Company Exports | 31 | - | - | - | - | (217,291) | - | (217,291) | - | (217,291) |
| Cash flow Hedges - Derivative financial instruments | 24 | - | - | - | - | (43,590) | - | (43,590) | (16,493) | (60,083) |
| Others | | - | - | - | - | 58,643 | - | 58,643 | - | 58,643 |
| Foreign currency translation | | - | - | - | - | 5,789,207 | - | 5,789,207 | 190,437 | 5,979,644 |
| Balance as of December 31, 2015 | | 25,040,068 | 6,607,699 | 5,227,726 | 1,268,318 | 10,846,004 | (7,763,907) | 41,225,908 | 1,875,055 | 43,100,963 |
| Balance as of January 1, 2014 | | 10,279,175 | 6,607,541 | 5,033,539 | 10,354,141 | (86,955) | 16,411,555 | 48,598,996 | 1,265,573 | 49,864,569 |
| Net income | | - | - | - | - | - | 5,046,517 | 5,046,517 | 623,056 | 5,669,573 |
| Dividends declared | 25 | - | - | - | - | - | (10,690,342) | (10,690,342) | (516,331) | (11,206,673) |
| Change of interest share in controlled entities | | - | - | - | - | - | - | - | (11,914) | (11,914) |
| Additions to paid-in capital | | - | 42 | - | - | - | - | 42 | - | 42 |
| Additional paid-in capital receivable | | - | 29 | - | - | - | - | 29 | - | 29 |
| Release of occasional reserves | 25 | - | - | - | (10,161,138) | - | 10,161,138 | - | - | - |
| Appropriation of reserves | 25 | - | - | - | - | - | - | - | - | - |
| Legal | | - | - | 237,565 | - | - | (237,565) | - | - | - |
| Occasional | | - | - | - | 12,977,691 | - | (12,977,691) | - | - | - |
| Other comprehensive income | | - | - | - | - | - | - | - | - | - |
| Actuarial valuation | 22 | - | - | - | - | 743,793 | - | 743,793 | - | 743,793 |
| Net fair value gain on equity instruments measured at fair value | | - | - | - | - | 76,435 | - | 76,435 | - | 76,435 |
| Foreign currency translation | 10 | - | - | - | - | 3,247,476 | - | 3,247,476 | 150,898 | 3,398,374 |
| Balance as of December 31, 2014 | | 10,279,175 | 6,607,612 | 5,271,104 | 13,170,694 | 3,980,749 | 7,713,612 | 47,022,946 | 1,511,282 | 48,534,228 |

ECOPETROL S. A.

Consolidated statement of cash flows

(Figures expressed in millions of Colombian Pesos)

| | Note | 2015 | 2014 |
|--|-------------|---------------------|---------------------|
| Cash flow provided by operating activities: | | | |
| Net (loss) income Equity holders of Ecopetrol | | (7,193,859) | 5,046,517 |
| Adjustments to reconcile net (loss) income to cash provided by operating activities: | | | |
| Non-controlling interests | | 904,880 | 623,056 |
| Income tax | 9 | 710,353 | 5,434,855 |
| Depreciation, depletion and amortization | 15- 16 - 17 | 6,770,358 | 6,417,207 |
| Foreign exchange loss, net | | 5,566,614 | 2,270,193 |
| Finance costs recognized in profit or loss | | 2,396,445 | 1,405,331 |
| Gain on disposal of non-current assets | | 59,932 | 231,899 |
| Impairment of assets | 29 | 7,856,177 | 2,381,413 |
| Fair value loss (gain) on financial assets valuation | | (109,673) | 135,427 |
| Share or profit of associates and joint ventures | 14 | 46,687 | (166,070) |
| Gain on sale of equity instruments measured at fair value | 10 | (72,339) | - |
| Realized foreign exchange cash flow hedges | 31 | (7,646) | - |
| Net changes in operating assets and liabilities | | | |
| Accounts and notes receivable | | 751,031 | 1,507,923 |
| Inventories | 8 | (183,231) | 610,843 |
| Accounts payable | 7 | (2,202,808) | (322,819) |
| Taxes payable | 9 | (1,964,995) | (3,124,887) |
| Labor obligations | 22 | (206,444) | (259,043) |
| Estimated liabilities and provisions | 23 | (216,939) | (146,499) |
| Other assets | | 654,960 | (653,196) |
| Income tax paid | | (3,148,028) | (4,819,169) |
| Cash provided by operating activities | | 10,411,475 | 16,572,981 |
| Cash flows from investing activities: | | | |
| Investment in property, plant and equipment | 15 | (8,548,933) | (8,923,568) |
| Investment in natural and environmental resources | 16 | (5,590,321) | (5,038,296) |
| Acquisition of intangibles | 17 | (112,255) | (112,018) |
| Proceeds from sales of equity instruments measured at fair value | 10 | 613,998 | - |
| Sales of other financial assets | | 1,208,898 | 1,313,837 |
| Interest received | | 293,507 | 286,527 |
| Dividends received | | 423,856 | 720,217 |
| Proceeds from sales of property, plant and equipment | | 166,211 | 184,424 |
| Net cash used in investing activities | | (11,545,039) | (11,568,877) |
| Cash flows from financing activities: | | | |
| Proceeds from borrowings | 20 | 10,985,933 | 9,094,818 |
| Repayments of borrowings | 20 | (4,903,592) | (2,693,104) |
| Interest paid | | (1,981,127) | (1,231,392) |
| Capitalizations | 25 | 3 | 41 |
| Dividends paid | 25 | (5,493,400) | (12,516,566) |
| Net cash used in financing activities | | (1,392,183) | (7,346,203) |
| Exchange difference in cash and cash equivalents | | 1,458,019 | 1,155,187 |
| Net increase in cash and cash equivalents | | (1,067,728) | (1,186,912) |
| Cash and cash equivalents at the beginning of the year | | 7,618,178 | 8,805,090 |
| Cash and cash equivalents at the end of the year | | 6,550,450 | 7,618,178 |
| Non-cash transactions | | | |
| Payment of income tax through offset of recoverable balances | | 894,451 | - |
| Capitalization of reserves | | 14,760,895 | - |
| Remittances financed for the payment of imports | | 662,099 | 457,367 |

Ecopetrol S. A.
Consolidated Financial Statements
For the years ended December 31, 2015 and 2014, at December 31, 2015 and 2014
and the opening statement of financial position at January 1, 2014.
(Expressed in millions of Colombian pesos)

1. Reporting entity

Ecopetrol S.A. is a mixed economy company, with a commercial nature, constituted in 1948 in Bogotá - Colombia. Its corporate purpose is to develop commercial or industrial activities arising from or related to the exploration, production, refining, transportation, storage, distribution, and selling of hydrocarbons, their by-products and associated products on its own or through its subsidiaries ("Ecopetrol", the "Company" or Ecopetrol Business Group).

11.51% of Ecopetrol S.A.'s shares are publicly traded on the Stock Exchanges of Colombia; New York, USA; Lima, Peru; and Toronto, Canada. The remaining shares (89.49% of the total outstanding shares) are owned by the Colombian Ministry of Finance and Public Credit.

The address of the main office of Ecopetrol S.A. is Bogotá – Colombia, Carrera 13 No. 36 - 24.

2. Basis of presentation

2.1 Statement of compliance and authorization of financial statements

These Consolidated Financial Statements of Ecopetrol S.A. for the years ended December 31, 2015 and 2014, have been prepared in accordance with International Financial Reporting Standards and Interpretations issued by the International Accounting Standards Board (IASB). The Ecopetrol Business Group adopted IFRS since January 1, 2015 with a transition date of January 1, 2014 and as such, these are its first consolidated financial statements under IFRS.

The Consolidated Financial Statements for the years ended December 31, 2014 and 2013 were prepared in accordance with Public Accounting Regime issued by the *Contaduría General de la Nación* (CGN – National Accounting Office) and other legal provisions, which were considered as previously Generally Accepted Accounting Principles (former GAAP). Former GAAP differs in certain respects from IFRS, as disclosed in Note 35 – First-time adoption of International Financial Reporting Standards - IFRS.

Accounting policies described in Note 4 have been applied consistently in all periods.

These Consolidated Financial Statements were approved by the Company's management on April 21, 2016.

2.2 Basis of consolidation

For presentation purposes, the Consolidated Financial Statements were prepared by consolidating all companies set out in Exhibit 1, which are those that Ecopetrol is able to control directly or indirectly. Control is achieved when the Company:

- Has power over the investee;
- Is exposed, or has the rights, to variable returns from its involvement with the investee; and
- Has the ability to use its power to affect its returns.

When the Company has less than a majority of the voting rights of an investee, it still has power over the investee when the voting rights are sufficient to give it the practical ability to direct the relevant activities of the investee unilaterally. The Company considers all relevant facts and circumstances in assessing whether or not the Company's voting rights in an investee are sufficient to give it power, including:

- The size of the Company's holding of voting rights relative to the size and division of holding of the other shareholders;
- Potential voting rights held by the Company, other vote holders or other parties;
- Rights arising from other contractual arrangements; and
- Any additional facts and circumstances that indicate that the Company has, or does not have, the current ability to direct the relevant activities, at the time that decisions need to be made, including voting patterns at previous shareholders' meetings.

Ecopetrol S. A.
Consolidated Financial Statements
For the years ended December 31, 2015 and 2014, at December 31, 2015 and 2014
and the opening statement of financial position at January 1, 2014.
(Expressed in millions of Colombian pesos)

Subsidiaries are consolidated from the date on which control is obtained until the date that such control ceases, using consistent accounting policies.

All intercompany assets and liabilities, equity, income, expenses and cash flows relating to transactions between entities of the Group were eliminated on consolidation. Unrealized losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Non-controlling interest represents the proportion of income, other comprehensive income and net assets in subsidiaries that is not attributable to the Company's shareholders.

In 2015, the Board of Directors of Ecopetrol S.A authorized the creation of a Colombian company indirectly wholly owned by Ecopetrol S.A. This Company will develop offshore activities in Colombia, which the company currently carries out as operator and non-operator, and take advantage of the benefits of Decree 2682/14, "pursuant to which the conditions and requirements are established for declaring the existence of Permanent Offshore Free Trade Zones". At December 31, 2015, the legal proceedings were pending to formalize the establishment of the subsidiary.

2.3 Measurement basis

The Consolidated Financial Statements have been prepared on a historical cost basis except for financial assets and liabilities that are measured at fair value through profit or loss and / or through other comprehensive income at the end of each reporting period, as explained in the accounting policies below.

Historical cost is generally based on fair value of the consideration given in exchange for goods and services.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In estimating the fair value of an asset or liability, the Group takes into account the characteristic of the asset or liability if market participants would take those characteristics into account when pricing the asset or liability at the measurement date.

2.4 Presentation and functional currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the Group entities operate (the functional currency). The consolidated financial statements are presented in Colombian Pesos, which is the Group's presentation currency.

The statement of profit or loss and statement of cash flows of subsidiaries with functional currencies different from Ecopetrol's functional currency are translated at the exchange rates at the dates of the transaction or based on the monthly average rate. Assets and liabilities are translated at the closing rate and other equity items are translated at exchange rates at the moment of the transaction. All resulting exchange differences are recognized in other comprehensive income. Upon disposal of all or part of an interest in an entity, the appropriate portion of the cumulative translation adjustment related to that entity are generally recognized in the consolidated statement of profit and loss.

2.5 Foreign currency

In the preparation of the financial statements of Ecopetrol, transactions in currencies other than the entity's functional currency are recognized at the rates of exchange prevailing at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are translated at the rates prevailing at the period end and variations presented on translation are recognized in financial results, net, except those resulting from the conversion of loans and borrowings designated as cash flow hedges, which are recognized in other comprehensive income within equity. When the hedged item affects the results, exchange differences accumulated in equity are reclassified to the Consolidate statement of profit and loss as part of the operational result.

Non-monetary items carried at fair value that are denominated in foreign currencies are translated using the rates prevailing at the date when the fair value was determined.

Net investment in foreign operations includes equity financing and long-term intercompany loans for which settlement is neither planned nor likely to occur in the foreseeable future. Exchange rate differences arising from the translation of the net investment in foreign operations, are taken to the currency translation reserve in other comprehensive income.

2.6 Classification of assets and liabilities as current and non-current assets and liabilities

In the consolidated statement of financial position, assets and liabilities are classified according to their nature as current, being those with a maturity date equal to or less than twelve months; and non-current, being those with a maturity date greater than twelve months.

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2.7 Net earnings per share (basic and diluted)

Net earnings per share (basic and diluted) are calculated based on net earnings for the period attributable to the controlling stockholders, divided by the weighted average number of subscribed shares in circulation during the period. There are no potentially dilutive securities.

3. Significant accounting judgments and estimations

The preparation of financial statements requires that the Company's management make estimations about the carrying amounts of assets, liabilities, income, expenses and commitments recognized in the Financial Statements. These estimations are carried out based on the best available information on the matters under review. Revisions to accounting estimates are recognized prospectively in the period in which the estimation is revised.

The following are the critical judgments and estimations with most significant effect on the amounts recognized in the Consolidated Financial Statements:

3.1 Oil and Gas reserves

Measurements relating to depreciation, depletion, amortization, impairment and asset retirement obligation are determined, in part, based on the Company's estimated reserves of oil and natural gas. Reserves estimation is an inherently complex process and it involves professional judgments.

The reserves estimation is conducted annually at December 31 in accordance with the United States Securities and Exchange Commission (SEC) definitions and rules set forth in Rule 4-10(a) of SEC Regulation S-X and the disclosure guidelines contained in the SEC final rule - Modernization of Oil and Gas Reporting.

The estimated reserve amounts are based on the average prices during the 12-month period prior to the ending date of the period covered in the report, determined as the unweighted arithmetic averages of the prices in effect on the first-day-of-the-month for each month within such period, unless prices were defined by contractual arrangements, as required by the SEC regulations.

Reserves estimations are prepared using geological, technical and economic factors, including projections of future production rates, oil prices, engineering data and length and amount of future investments with a certain degree of uncertainty. These estimations which are based on conditions in existence at the reporting date, which, in turn, could significantly differ from other conditions during the year or in future periods. Any changes in regulatory and/or market conditions and assumptions could materially change the quantity and value of our reserves.

Impact of oil reserves and natural gas in depreciation and depletion

Changes to estimations of reserves are applied prospectively to the amounts of depreciation, depletion and amortization charged and, consequently, the carrying amounts of exploration and production assets. Therefore all other variables being equal, a decrease in estimated proved reserves would increase, prospectively, depreciation, depletion and amortization expense, while an increase in reserves would reduce depreciation, depletion and amortization.

Information about the carrying amounts of exploration and production assets and the amounts charged to income, including depreciation, depletion and amortization, is presented in Notes 15 and 16.

3.2 Asset impairment

The Company uses its professional judgment in assessing the existence of evidence of impairment, based on internal and external factors. The recoverable amount for Cash Generating Units is calculated using reasonable assumptions regarding: (1) estimation of the volumes and market value of oil and natural gas reserves; (2) production profiles for oilfields and future production of refined and chemical products; (3) investments, taxes and future costs; (4) useful life of assets; (5) future prices, and (6) discount rate determined as the weighted average cost of capital (WACC), among other factors. Once the recoverable amount has been determined (value in use), it is compared with the net book value of the asset, thus determining whether the asset is subject to the recognition of impairment.

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Future price assumptions tend to be stable because management does not consider short-term increases or decreases in prices as being indicative of long-term levels, but they are nonetheless subject to change. Expected production volumes, which comprise proved reserves and unproved volumes, are used for impairment testing because management believes this to be the most appropriate indicator of expected future cash flows. Reserves estimates are inherently imprecise. Furthermore, projections about unproved volumes are based on information that is necessarily less robust than that available for mature reservoirs. The discount rate applied is reviewed annually.

Changes in estimates and judgments may affect the recoverable amount for the Cash Generating Units and, as a consequence, may also affect the recognition or recovery of asset impairment.

3.3 Exploration and Evaluation Cost

Certain exploration and evaluation costs are initially capitalized with the intention of establishing commercially viable reserves. The Company makes estimates in order to assess the economic viability of extracting the oil resources, as well as technical and commercial analyses to confirm intent in terms of projects' continued implementation. Changes regarding drilling success level, production costs, investment levels, and others, may result in capitalized exploration drilling costs being recognized as a cost in the Consolidated Statement of Profit and Loss for the period. Dry holes are treated like operating activities in the cash flow.

3.4 Determination of Cash Generating Units

The allocation of assets in Cash Generating Units requires significant judgment on the part of the Company, as well as interpretations regarding the integration between assets, the existence of active markets, similar exposure to market risk, shared infrastructure, and the way in which management monitors the operations. See note 4.12 for more information.

3.5 Asset Retirement Obligation

According to environmental and oil regulations, the Ecopetrol Business Group must recognize costs for the abandonment of oil extraction and transportation facilities, which include the cost of plugging and abandoning wells, dismantling facilities and environmental remediation in the affected areas.

The estimated costs of dismantling and removing these facilities are recorded in the functional currency of each company at the time of the installation of the assets. The estimated obligations created for the abandonment and dismantling are subject to annual reviews and adjusted to reflect the best available estimation, due to technological changes and political, economic, environmental and security issues, and also relationships with stakeholders.

The calculations of these estimations are complex and involve significant judgments made by Management, such as internal projections of costs, future inflation and discount rates. We consider that the retirement costs and obligations are reasonable, based on the experience of the Ecopetrol Business Group and market conditions; nevertheless, significant variations in external factors used for the calculation of the estimation could significantly impact the financial statements.

3.6 Pension Plan and other benefits

The identification of expenses, liabilities and adjustments relating to pension plans and other defined retirement benefits makes it necessary for management to use judgment in the application of actuarial assumptions. The actuarial assumptions include estimates regarding future mortality, retirement, changes in compensation and discount rate in order to reflect the value of money over time, in addition to the rate of return on the plan's assets. These assumptions are reviewed on an annual basis for purposes of actuarial valuations and may differ materially from actual results due to changing economic and market conditions, regulatory events, judicial rulings, higher or lower retirement rates, or longer or shorter life expectancies among employees. The calculation of pension bonds is maintained for compliance with the Company's pension obligations, in accordance with current regulations.

3.7 Goodwill Impairment

Ecopetrol performs annual impairment tests of goodwill in reference to fair value. Goodwill, for impairment testing purposes, is allocated to each of the cash-generating units (or groups of cash generating units) that is expected to be benefited from the synergies of the combination.

Fair value is determined using the discounted free cash flow methodology that requires assumptions and estimations to be made. The Company considers that the assumptions and estimations used are reasonable and supportable based on the current market conditions and are aligned to the risk profile of the related assets. However, different assumptions and estimations may be used which would lead to different results. Valuation models used to determine fair value are sensitive to changes in the underlying assumptions. For example, sales volumes and prices that will be paid for the purchase of raw materials are assumptions that may vary in the future. Adverse changes in any of these assumptions could lead to recognition of goodwill impairment.

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3.8 Litigation Assessments

The Company is subject to claims for regulatory and arbitration proceedings, tax assessments and other claims arising in the normal course of business. Management evaluates these situations based on their nature, the likelihood that they materialize, and the amounts involved, to decide on any changes to the amounts accrued and/or disclosed. This analysis, which may require considerable judgment, includes assessment of current legal proceedings brought against us and claims not yet initiated. In accordance with management's evaluation and guidance provided by IFRS, we create provisions to meet these costs when the liability is probable and reasonable estimations of the liability can be made.

3.9 Taxes

Calculation of the income tax provision requires interpretation of tax law in the jurisdictions where the business group operates. Significant judgment is required to determine estimates for income tax and to evaluate the recoverability of tax assets, which are based on estimates of future tax results and the ability to generate sufficient results during the periods in which such deferred taxes are deductible.

If future cash flows and taxable income differ significantly from estimates, the Company's ability to use the net deferred tax assets recorded at the reporting date could be affected. In addition, changes to tax laws could limit the Company's ability to obtain tax deductions in future periods.

3.10 Hedge Accounting

The process of identifying hedging relationships between hedging items and instruments (derivative and non-derivative, e.g. long-term foreign currency debt) and their corresponding effectiveness requires management's judgment. The Company regularly evaluates the alignment between the hedging identified and its risk management policy.

4. Accounting policies

The accounting policies indicated below have been applied consistently for all the periods presented, unless otherwise stated.

4.1 Financial instruments

The classification of financial instruments depends on the nature and purpose for which the financial assets or liabilities were acquired and is determined at the time of initial recognition. Financial assets and financial liabilities are initially measured at their fair value. Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities (other than financial assets and financial liabilities at fair value through profit or loss) are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognized immediately in profit or loss.

Financial assets through profit or loss and through other comprehensive income are stated at fair value. Financial instruments at amortized cost, loans and trade receivables, other receivables and financial assets held-to-maturity are measured at amortized cost using the effective interest method.

Equity investments available for sale that do not have a market quotation price and which fair value cannot be reliably measured are measured at cost less any loss for impairment identified at the end of each reporting period.

Fair value

Fair value measurements are estimates of the amounts for which assets or liabilities could be transferred at the measurement date, based on the assumption that such transfers take place between participants in principal markets and, where applicable, taking highest and best use into account.

The fair value hierarchy is based on the level of market available information which includes the security liquidity and availability of exchange prices or indicators generated from market operations (rates, curves, volatilities and other required valuation variables).

- Level 1: Quoted prices (unadjusted) in active markets for identical assets and liabilities. For the Company, level-1 inputs include marketable securities that are actively traded.

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- Level 2: Entries different from those of Level 1 that are observable, either directly or indirectly. For the Company, Level-2 entries include prices of similar assets, prices obtained through quotations made by stockbrokers, and prices that can be substantially corroborated with other observable data with the same term of the contract.
- Level 3: Unobservable inputs. Level-3 inputs may be required for the determination of fair value associated with certain non-recurring measurements of non-financial assets and liabilities.

For derivative contracts where publicly available information is not available, fair value estimations are generally determined using models and other valuation methods, the key inputs for which include future prices, volatility, price correlation, counterparty credit risk and market liquidity, as appropriate; for other assets and liabilities, fair value estimations are generally based on the net present value of expected future cash flows.

Effective interest method

The effective interest method is a method of calculating the amortized cost of a financial instrument and of allocating interest income over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash receipts or payments (including all fees, transaction costs and other premiums or discounts that are included in the calculation of the effective interest rate) through the expected life of the financial instrument (or, when appropriate, at a shorter period), to the net carrying amount on initial recognition.

Impairment

Financial assets at amortized cost are assessed for impairment indicators at the end of each reporting period. Financial assets are considered to be impaired when there is objective evidence that, as a result of one or more events that occurred after initial recognition, the estimated future cash flows of the asset have been affected. For financial assets measured at amortized cost, the amount of the impairment loss recognized is the difference between the asset's carrying amount and the present value of estimated future cash flows, discounted at the financial asset's original effective interest rate.

De-recognition of financial assets and financial liabilities

Ecopetrol derecognizes a financial asset when the contractual rights to the cash flows from the asset expire and when it transfers substantially all the risks and rewards of ownership of the asset to another party. If neither the risks nor rewards of ownership are transferred and the Company continues to control the transferred asset, its retained interest in the asset and any associated liability for amounts it may have to pay continue to be recognized. If all the risks and rewards of ownership of a transferred financial asset are retained, the financial asset and any collateralized borrowing for the proceeds received are recognized.

4.1.1 Cash and cash equivalents

Cash and cash equivalents include financial investments and special funds with original maturity dates of 90 days or less from their acquisition and are subject to minimal risks of changes in value.

4.1.2 Financial assets

The classification of investments in financial assets depends on the purpose of acquisition; those are classified in the following categories:

a) Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss are financial assets held for trading acquired mainly for the purpose of selling them in the short term. Financial assets at fair value through profit or loss are stated at fair value, with any gains or losses arising on re-measurement recognized in profit or loss.

b) Financial assets at fair value through other comprehensive income

Financial assets at fair value through other comprehensive income are equity instruments of other non-controlled or non-strategic companies where the Company does not exercise any type of control or significant influence thereon and where the Company does not intend to sell the instruments in the short term. They are recognized at their fair value and unrealized losses or profits are recognized in other comprehensive income. At the time of sale or impairment of the assets the related adjustments for valuation are attributed to the results of the period.

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c) Loans and receivables

Loans and receivables are financial assets with fixed or determinable payments that are not quoted in an active market are classified as current, except for those that have a maturity date longer than twelve months from the statement of financial position date, which are classified as non-current. Loans and receivables, including trade and other receivables, are measured initially at fair value and then at amortized cost using the effective interest rate method.

Loans to employees are initially recognized using the present value of the future cash flows, discounted at the current market rate of return for similar loans. If the interest rate is less than the current market rate, fair value will be less than the amount of the loan. This difference is recorded as a benefit to employees.

4.1.3 Financial liabilities

Financial liabilities correspond to the financing obtained by the Company through bank credit facilities and bonds, accounts payable to suppliers and creditors.

Bank credit facilities and bonds are initially recognized at their fair value, net of transactions costs incurred. The difference between the amount received and its nominal value is recognized in the results of the period during the time of amortization of the financial obligation, using the effective interest rate method.

Accounts payable to suppliers and creditors are short term financial liabilities recorded at their fair value, since they do not differ significantly from their fair value.

4.1.4 Derivative financial instruments and hedging activities

Financial derivatives instruments are recognized in the statement of financial position as assets or liabilities and are measured at fair value from the date when the derivative is contracted. The method of recognizing the resulting gain or loss depends on whether the derivative is designated as a hedging instrument, and if so, the nature of the item being hedged.

The Company designates certain financial instruments derivatives and non-derivatives as hedges, with respect to the risk to be covered such as:

- hedges of the fair value, when it involves a hedging the exposure to changes in fair value of a recognized asset or liability, unrecognized firm commitments, or an identifiable portion of such assets, liabilities or firm commitments.
- Cash flow hedges when it involves a hedging of the exposure to variability in cash flows that is attributable to a particular risk associated with a recognized asset or liability or a highly probable forecast transaction.
- Hedges of a net investment in a foreign operation.

At the beginning of the hedging relationship, the Company documents the relationship between the hedging instrument and the hedged element, together with their risk management objectives and their strategy to carry out hedging transactions. Additionally, at the beginning of hedging and on a continuous basis, the Company documents whether the hedging instrument is highly effective in counteracting the changes in fair values or cash flows of the items hedged.

The fair value of a hedging derivative is classified as a non-current asset or liability when the remaining maturity of the hedged item is more than 12 months and as a current asset or liability when the remaining maturity of the hedged item is less than 12 months.

Gains and losses on derivative contracts not qualifying and designated as hedges, including forward sale and purchase contracts for commodities in trading operations that may be settled by the physical delivery or receipt of the commodity, are recognized in income.

Derivatives embedded within contracts that are not already required to be recognized at fair value, and that are not closely related to the host contract in terms of economic characteristics and risks, are separated from their host contract and recognized at fair value; associated gains and losses are recognized in income.

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4.1.4.1 Cash flow hedges

The effective portion of changes in the fair value of derivative and non-derivative financial instruments that are designate and qualify as an effective cash flow hedges, is recognized in other comprehensive income and accumulated under the heading reserve. A gain or loss relating to the ineffective portion is recognized immediately in profit or loss, and is included in the "Finance Results, net" line item.

Amounts previously recognized in other comprehensive income and accumulated in equity are reclassified to profit or loss in the periods when the hedged item affects profit or loss, in the same line as the recognized hedged item. However, when the hedged forecast transaction results in the recognition of a non-financial item, the gains and losses previously recognized in the other comprehensive income and accumulated in equity are transferred from equity and included in the initial measurement of the cost of the non-financial item.

Hedge accounting is discontinued when the Company revokes the hedging relationship, when the hedging instrument expires or is sold, finished, or exercised, or when it no longer qualifies for hedge accounting. Any gain or loss recognized in other comprehensive income and accumulated in equity remains in equity and is recognized when the forecast transaction is ultimately recognized in profit or loss. When a forecast transaction is no longer expected to occur, the gain or loss accumulated in equity is recognized immediately in profit or loss.

4.2 Inventories

Inventories include assets extracted, in production process, transformed or acquired for any reason, for the purpose of being sold, transformed and consumed in the production process, or as part of services delivered.

Crude oil is valued at its production cost, including necessary expenses incurred to transport the inventory to its current locations.

Inventories of consumables (spare parts and supplies) are recognized as inventory and subsequently charged to expense, maintenance or projects, as such elements are consumed.

The cost of inventories is determined under the weighted average method, which includes acquisition costs (deducting commercial discounts, rebates obtained and other similar amounts), transformation, as well as other costs incurred in order to deliver the inventories to their current location and conditions, such as transportation costs.

Ecopetrol makes an evaluation of the net realizable value of inventories at the end of the period, recording, with charge to profit and loss, impairment to the value when they are overvalued. When the circumstances that previously caused impairment cease to exist, or when there is clear evidence of an increase in the net realizable value due to a change in economic circumstances, the amount thereof is then reversed.

4.3 Related parties

For purposes of these consolidated financial statements, related parties are considered those in which one party has the ability to control, or joint control the other or exercise significant influence over the other party in making financial or operational decisions, or is a member of the key management personnel of the entity or of a parent of the entity. The Company has considered as related parties associates, joint ventures, key management and some relevant transactions with government entities, such as the purchase of hydrocarbon and the Fuel Price Stabilization Fund See Note 4.16.

4.3.1 Investments in associates

An associate is an entity over which the Group has significant influence but not control. Generally, these entities are those in which an equity interest is maintained from 20% to 50% of the voting rights. See Exhibit I - Consolidated companies, associates and joint ventures for a detail of these companies.

Investments in associates are accounted for using the equity method and are initially recognized at their cost. The Company's investment in associates and joint ventures includes goodwill identified on acquisition, net of any accumulated impairment loss.

The Company's share of the profit or loss of its associates is recognized in the consolidated statement of profit or loss and its share of reserve movements is recognized in the Company equity reserves.

Ecopetrol makes, where necessary, adjustments to the accounting policies of associates and joint ventures to ensure consistency with the policies adopted by the Company.

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4.3.2 Joint ventures

A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint arrangement. Joint control exists only when decisions about the relevant activities require unanimous consent of the parties sharing such control. The accounting treatment for the recognition of joint ventures is the same as investments in associates.

4.4 Joint operations

Joint operation contracts are entered into between Ecopetrol and third parties in order to share risk, secure capital, maximize operating efficiency and optimize the recovery of reserves. In these joint operations, one party is designated as the operator to execute the expense and investment budget and report to partners according to their participation interests. Furthermore, each party takes its share of the hydrocarbons (crude oil or gas) produced according to its agreed participation.

When Ecopetrol participates as a non-operator partner, it records the assets, liabilities, revenues, costs and expenses based on information reported by the operators. When Ecopetrol is the direct operator of the joint venture contracts, it records its percentage of the assets, liabilities, revenues, costs and expenses, based on each partner's participation interests in the accounts corresponding to assets, liabilities, expenses, costs and revenues.

4.5 Non-current assets held for sale

Non-current assets and disposals groups are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continued use. This condition is regarded as met only when the sale is expected to qualify for recognition as a completed sale within one year from the date of classification and the asset (or disposal group) is available for immediate sale in its present condition. These assets are measured at the lower of their carrying amount and fair value less cost to sell.

4.6 Property, plant and equipment

Recognition and measurement

Property, plant and equipment are presented at cost less accumulated depreciation and accumulated losses for impairment. Tangible components related to natural and environmental resources are part of property, plant and equipment.

All directly attributable costs of bringing an asset to the location and condition needed for such issue to be capable of operating in the manner intended by management are capitalized. Such costs are mainly: a) purchase price, including import duties and non-refundable purchase taxes; b) costs of employee benefits arising directly from the construction or acquisition; c) all directly attributable costs of bringing the asset to the location and conditions needed for such issue to be capable of operating in the manner intended by management; d) borrowing costs incurred that are attributable to the acquisition and construction of qualifying assets and; e) the initial estimate of the costs of dismantling and abandonment of the item.

Spare parts and servicing equipment are recorded as inventories and recognized as an expense as they are used. Major spare parts and stand-by equipment that the entity expects to use during more than one period are recognized as property, plant and equipment.

Any gain or loss arising from the disposal of a property, plant and equipment item is recognized in profit or loss in the period incurred.

Subsequent disbursements

They correspond to all payments to be made on existing assets in order to increase or extend the initial expected useful life, increase productivity or productive efficiency, that allow a significant reduction of operating costs, increase the level of reserves in exploration or production areas or replace a part or component of an asset that is considered critical for the operation.

The costs of the day-to-day servicing, repair or maintenance of an item of property, plant and equipment are recognized as expense when incurred. However, major inspections performed, are capitalized.

Depreciation

Property, plant and equipment is depreciated using the straight-line method, except for those associated with Exploration and Production activities which are depreciated using the units-of-production method. Technical useful lives are updated annually considering factors such as: additions or improvements (due to parts replacement or critical components for the asset's operation), technological advances, obsolescence and other factors; the effect of this change is recognized from the period in which it was executed. Depreciation of an asset arises when it is available for use.

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Useful lives are determined based on the period over which an asset is expected to be available for use, physical exhaustion, technical or commercial obsolescence and legal limits or restrictions over the use of the asset.

| | |
|-------------------------------|---------------|
| Plant and equipment | 7 - 56 years |
| Pipelines, networks and lines | 10 - 53 years |
| Buildings | 19 - 72 years |
| Others | 3 - 38 years |

Lands are recorded independently of buildings and facilities and have indefinite useful lives therefore they are not subject to depreciation.

Depreciation methods and useful lives are reviewed annually by business units and adjusted if appropriate.

4.7 Natural and environmental resources

Recognition and measurement

Ecopetrol uses the successful efforts method to account for exploration and production of crude oil and gas activities, also considering IFRS 6 – Exploration for the evaluation of mineral resources.

Exploration costs

All costs associated with exploration and evaluations are recorded as exploration and evaluation assets pending on determination of whether the exploration drilling is successful or not; if determined to be unsuccessful all costs are recognized as expenses in the Statement of Profit or Loss.

Exploration costs are those incurred with the objective of identifying areas that are considered to have prospects of containing oil and gas reserves, including geological and geophysical, seismic costs, exploratory wells, exploratory-type stratigraphic test wells, among others. Exploratory wells costs are recognized as assets pending on determination of commercial viability and if not, they are recognized as exploration expenses. Other expenditures are recognized as expenses when incurred.

An asset for exploration and evaluation shall no longer be classified as such whenever the technical reliability and the commercial viability of extraction of a mineral resource are demonstrable. Before reclassification, assets are assessed for impairment, and any resulting impairment is recognized. Exploration and evaluation assets are assessed for impairment when facts and circumstances suggest its carrying value is lower than its recoverable value.

Development costs

Development costs correspond to those costs incurred to obtain access to test hydrocarbon reserves and to provide facilities for extracting, treating, gathering and storing. When a project is approved for development, the accumulated value of the acquisition and exploration costs is classified as natural and environmental resources and costs subsequent to the exploration phase are capitalized as development costs of the properties that contain such natural resources assets. All development costs are capitalized, including drilling costs of unsuccessful development wells.

Production costs

Production costs are those incurred to operate and maintain productive wells as well as the corresponding equipment and facilities. The production activity includes extraction of oil and gas to the surface, its gathering, treatment and processing as well as storage in the field. Production costs are expenses at the time they are incurred unless they add reserves, in which case they are capitalized.

Production and support equipment is recognized at historical cost and is part of property, plant and equipment and subject to depreciation.

Capitalized costs also include dismantlement, retiring and restoring costs, as well as the estimated cost of future environmental obligations. The estimation includes plugging and abandonment costs, facility dismantling and environmental recovery of areas and wells. Changes arising in new abandonment liability estimations and environmental remediation are capitalized to the related asset.

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Capitalized costs include net income obtained by the sale of crude oil from extensive testing, net of cost of sales, since they are considered necessary to complete the asset.

Depletion

Depletion of natural and environmental resources is determined using the unit-of-production method per field, using proved developed reserves as a base. Depletion factors are reviewed annually, based on the reserve report and the impact of changes of such factors on the depletion is recognized prospectively in the financial statements.

Reserves are audited by internationally recognized external consultants and approved by the Company's Board of Directors. Proved reserves consist of the estimated quantities of crude oil and natural gas demonstrated with reasonable certainty by geological and engineering data to be recoverable in future years from known reserves under existing economic and operating conditions, that is, at the prices and costs that apply at the date of the estimation.

Impairment

Assets associated to exploration, evaluation and production are subject to review for possible impairment in their recoverable value. See policy 4.12 – Impairment of assets.

4.8 Capitalization of borrowing costs

Borrowing costs related to the acquisition, construction or production of a qualifying asset that requires a substantial period of time to get ready for its intended use are capitalized as part of the cost of such asset when it is probable that future economic benefits associated with the item will flow to the Company and costs can be measured reliably. The other borrowing costs are recognized as finance costs in the period in which they are incurred.

4.9 Intangible assets

Intangible assets with finite useful lives that are acquired separately are recorded at their cost less accumulated amortization and accumulated impairment losses. Amortization is recognized on a straight-line basis over their estimated useful lives. The estimated useful life and amortization method are reviewed at the end of each reporting period, with the effect of any changes in estimations being accounted for prospectively.

Disbursements for research activities are recognized as an expense in the period in which they are incurred.

4.10 Goodwill

Goodwill is the excess of the purchase price over the fair value of the identifiable assets and liabilities of acquired companies, measured at the acquisition date. The carrying amount of goodwill is not amortized and is reviewed at least annually for possible impairment losses or when there is an indication that the asset could be impaired.

4.11 Leases

Leases are classified as finance leases whenever the terms of the lease transfer substantially all the risks and rewards of ownership. All other leases are classified as operating leases.

Assets held under finance leases, when Ecopetrol is the lessee, are recognized in the statement of financial position at an amount equal to the fair value of the leased asset or, if lower, the present value of the minimum lease payment. The corresponding liability to the lessor is included in the consolidated statement of financial position as a finance lease obligation.

Lease payments are allocated between finance expenses and reduction of the lease obligation so as to achieve a constant rate of interest on the remaining balance of the liability. Interest expenses are recognized immediately in the statement of profit or loss.

Operating lease payments are recognized as an expense on a straight-line basis over the lease term, except where another systematic basis is more representative of the time pattern in which economic benefits from the leased asset are consumed. Contingent rentals arising under operating leases are recognized as an expense in the period in which they are incurred.

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4.12 Impairment of assets

In order to evaluate the recoverable amount of tangible and intangible assets, Ecopetrol compares the carrying amount with its recoverable amount at the end of each reporting period or earlier, if there is any indicator that an asset may be impaired.

In order to make an impairment analysis, the assets are grouped into cash generating units (CGU), provided that those assets individually considered do not generate cash inflows that, to a greater extent, are independent from those generated by other assets or CGUs. The group of assets in different CGUs requires the exercise of professional judgment and the consideration, among other parameters, of the business segments. In this sense, in the segment of Exploration and Production, each CGU corresponds to each one of the different contractual areas commonly called "fields"; by exception, in those cases in which the cash inflows generated by several fields are interdependent on each other, those fields are grouped into a single CGU. In the case of the Refining and Petrochemicals segment, the CGU's correspond to each one of the refineries of the group and for the segment of Transportation each pipeline is taken as an independent CGU.

The recoverable value is the higher of the fair value less costs of sale and value in use. If the recoverable amount of an asset (or of a CGU) is lower than its net carrying amount, such amount (or that of the CGU) is reduced to its recoverable amount, recognizing a loss for impairment of value as expense.

The value in use is determined as the sum of the future discounted cash flows adjusted to the estimated risk. The estimations of future cash flows used in the evaluation of impairment of assets are made with projections of commodity prices, supply and demand estimations and the margins of the products. In case of assets or cash generating units engaged in the evaluation and exploration of reserves, proved, probable and possible reserves are considered, with a risk factor associated to them also being considered.

Once a loss for impairment of value has been recorded, future amortization expense is calculated on the basis of the adjusted recoverable value.

Impairment losses may be reversed, except those corresponding to goodwill, only if the reversal is related to a change in estimations used after the loss for impairment was recognized. These reversals shall not exceed the carrying amount of the assets net of depreciation or amortization that would have been determined if the impairment had never been recognized.

In the reclassification of any non-current asset to non-current assets held-for-sale, the carrying amount of these assets is revised to its fair value less costs of sale. No other provision for depreciation, depletion or amortization is recorded if the fair value less costs of sale is lower than the carrying amount.

4.13 Provisions and Contingent Liabilities

Provisions are recognized when Ecopetrol has a current obligation (legal or implied) as a result of a past event, it is probable that Ecopetrol will be required to settle the obligation, and a reliable estimation can be made of the amount of the obligation. Where applicable, they are recorded at present value.

Disbursements related to the conservation of the environment for current or future operations, are accounted for as expenses or assets, as it may correspond. Disbursements related to operations of the past that do not contribute to the obtaining of current or future income, are charged to expenses.

The creation of these provisions coincides with the identification of an obligation related to environmental remediation and Ecopetrol has adequate information to determine a reasonable estimation of the respective cost.

Contingent liabilities are not recognized but are subject to disclosure in the explanatory notes whenever the outlay of resources is possible; including those which values cannot be estimated.

Asset retirement obligation

Liabilities associated to the retirement of assets are recognized when there are current obligations, either legal or implied, related to the abandonment and reclamation of wells, facilities, pipelines, buildings and equipment, as the case may be; they must be recognized using the discounted cash flow technique taking into consideration the economic limit of the field or useful life of the respective asset. When it is not possible to determine a reliable estimation in the period in which the obligation originates, a provision is recognized when there is sufficient information available to make the best estimation.

The carrying amount of the provision is reviewed and adjusted annually considering changes in the variables used for its estimation. The financial cost of accreting these liabilities is recognized in results for the period as financial expense.

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4.14 Taxes

Income tax expense is comprised of income tax payable for the period (including, income tax and income tax for equality - CREE, as appropriate) and the effect of deferred taxes in each period.

Income taxes are recognized in income except when they relate to items recognized in other comprehensive income, in which case the tax is recognized in other comprehensive income. Income tax assets and liabilities are presented separately in the Consolidated Statement of Financial Position except where there is a right of set-off within fiscal jurisdictions and an intention to settle such balances on a net basis.

4.14.1 Current tax

The provision for income tax and income tax for equality (CREE), as appropriate, is calculated based on the highest amount of the taxable income and presumptive income (the minimum estimated amount of profitability on which the law expects to quantify and collect the income tax). Tax profit differs from profit before tax as reported in the consolidated statement of profit or loss, because of items income or expense that are taxable or deductible in other periods, special taxable deductions, tax losses and income or expenses that are non-taxable or non-deductible according to the applicable tax laws in each jurisdiction.

4.14.2 Deferred taxes

Deferred tax is accounted for according to the liability method. Deferred tax assets and liabilities are recognized for future tax consequences attributable to differences between the carrying amounts of existing assets and liabilities in the Consolidated Financial Statements and their respective tax bases. A deferred tax liability is recognized for all taxable temporary differences. A deferred tax asset is recognized for all deductible temporary differences and for all tax losses to be utilized, insofar there is a reasonable expectation that such differences will be offset against tax profits.

Deferred taxes on assets and liabilities are calculated based on enacted or substantively enacted statutory tax rates that we believe will be applied to taxable income during the years in which temporary differences between the carrying amounts and tax bases are expected to be reversed.

The carrying amount of a deferred tax asset is subject to review at the end of each reporting period and it is reduced to the extent it is estimated probable that there will not be enough future taxable profit that allows the total or partial recovery of the asset.

Consolidated deferred tax, is calculated as the sum of the deferred tax in the individual financial statements of the companies of the Ecopetrol Business Group adjusted by deferred taxes on business combinations, intercompany transactions or other adjustments at a consolidated level.

Deferred taxes are not recognized when they arise in the initial recognition of an asset or liability in a transaction (except in a business combination) that, at the time of the transaction, does not affect the accounting or tax profit, or in respect of the taxes on the possible future distribution of accumulated profits of subsidiaries or investments accounted for by the equity method, if at the time of the distribution it may be controlled by Ecopetrol S.A. and it is probable that the retained earnings will be reinvested by the Group companies and therefore, will not be distributed to Ecopetrol S.A.

4.15 Employee benefits

Salaries and benefits for Ecopetrol staff are governed by the Collective Labor Agreement 01 of 1977, and in their absence, by the Substantive Labor Code. In addition to the legally mandated benefits, employees are entitled to fringe benefits which are subject to the place of work, type of work, length of service, and basic salary. An annual interest of 12% is recognized on accumulated severance amounts for each employee, and the payment of compensations is provided for when special circumstances arise resulting in the non-voluntary termination of the contract, without just cause, and in periods other than the probationary period.

Ecopetrol S.A. belonged to the Special Pension Regime, under which allowances are a Company's responsibility and not a Pension Fund's responsibility. However, Act 797 of January 29, 2003 determined that Ecopetrol employees who joined the Company at that date would be subject to the provisions of the General Pension Regime. Consequently, allowances for employees retired at July 31, 2010 are still Ecopetrol's responsibility. Likewise, these employees are entitled to such pension bonus if they worked with Ecopetrol prior to January 29, 2003, but whose labor agreement expired without renewal before that date.

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All social benefits of employees who joined the Company before 1990 are Ecopetrol's responsibility, without the involvement of any social security entity or institution. The cost of health services for the employee and his/her relatives registered with the Company is determined by means of a mortality table, prepared based on facts occurring during the year.

For employees who joined the Company subsequent to the entry into effect of Act 50 of 1990, the Company makes periodic contributions for severance payments, pensions and occupational injuries to the funds created for these respective obligations.

In 2008, Ecopetrol S.A. partially commuted the value corresponding to monthly pension payments from its pension liabilities, transferring such liabilities and their underlying amounts to pension-related autonomous equities (PAP, by its acronym in Spanish). The funds transferred, and returns on those funds, cannot be redirected nor can they be returned to the Company until all of the pension obligations have been fulfilled. The commuted obligation covers allowances and pension bonds payments; while health and education remains under the labor liability in charge of Ecopetrol.

Employee-benefits are divided into four groups comprised as follows:

a) Short-term employee benefits and post-employment benefits:

Benefits to employees in the short term mainly correspond to those which payment will be made in the term of twelve months following to the closing of the period in which the employees have rendered their services. This mainly includes salaries, severances, vacations, bonuses and other benefits.

Post-employment benefits of defined contributions correspond to the periodic payments for severances, pensions and professional risk payments that the Company makes to the respective funds that assume these obligations in their entirety.

The above benefits are recognized as an expense with an associated liability after deducting any already paid amounts.

b) Post-employment defined benefit plans:

In the defined benefits plan, the Company provides the benefits agreed to current and former employees and assumes the actuarial and investment risks.

The following benefits are classified as long-term defined benefit plans recognized in the financial statements according to the valuations made annually by an independent actuaries:

- Pensions.
- Health care to relatives.
- Pension bonds.
- Educational plan.
- Retroactive severances.

The liabilities or assets recognized in the statement of financial position in respect of these benefit plans are the present value of the defined benefit obligation at the date of the statement of financial position, less the fair value of plan assets.

The defined benefit obligation is calculated annually by independent actuaries using the projected credit unit method, which takes into account employees' years of service and, for pensions, average or final pensionable remuneration, and are discounted to their present value using interest rates of high-quality corporate bonds denominated in the currency in which the benefits will be paid and of a duration consistent with the plan obligations.

The amounts recognized in income in respect of defined benefit plans mainly comprise service cost and net interest. Service cost comprises principally the increase in the present value of the obligation for benefits resulting from employee service during the period (current service cost). Plan amendments are changes to benefits and are generally recognized when all legal and regulatory approvals have been received and the effects have been communicated to members. Net interest is calculated using the net defined benefit liability or asset matched against the discount rate yield curve at the beginning of each year for each plan. Remeasurements of the net defined benefit liability or asset resulting from actuarial gains and losses, the effect of the asset ceiling and the return on plan assets excluding the amount recognized in income are recognized in other comprehensive income.

There is no service cost for the pension plan as the beneficiaries were retired on or before July 31, 2010.

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Where the plan assets exceed the gross obligation, the asset recognized is limited to the lower of the surplus in the defined benefit plan and the asset ceiling determined using a discount rate based on government bonds.

c) Other long-term benefits:

Other long-term benefit is the five-year term bonus which also forms part of the actuarial valuation. This benefit is a cash bonus which is accrued on an annual basis and is paid out at the end of each five-year period that an employee works in the Ecopetrol S.A. The Company records in the statement of profit or loss the service cost, net liability interests and adjustments to the defined benefit plan liability.

d) Termination benefits:

Termination benefits are recognized only when a detailed plan exists for such process and there is no possibility to withdraw the offer. The Company recognizes a liability and an expense for termination benefits at the earliest date between the date when the offer of such benefits cannot be withdrawn and the date when the restructuring costs are recognized.

4.16 Revenue recognition

Revenue from crude oil and natural gas sales is recognized at the time of transfer of title to the buyer, including risks and rewards of ownership. In the case of refined and petrochemical products, revenue is recognized when products are shipped by the refinery and subsequently adjusted in accordance with the volumes actually delivered. Revenue from transportation services is recognized when products are transported and delivered to the buyer in accordance with sale terms. In other cases, revenue is recognized at the time it is earned and a true, probable and quantifiable right to demand its payment arises.

Under current regulations, *Ecopetrol* and *Refineria de Cartagena S.A.*, sell regular gasoline and diesel oil at a regulated price.

In accordance with Decree 1068 of 2015, the Ministry of Mines and Energy semi-annually calculates and settles Ecopetrol's net position to be stabilized for each fuel by the Fuel Price Stabilization Fund (FEPC, by its acronym in Spanish). The net position is calculated by adding all differentials throughout the six-month period and the result is an amount in Colombian pesos in favor of the Company or the FEPC and chargeable to the FEPC. The differential is calculated as the volume reported by the Company at the time of sale multiplied by the difference between the international parity price and the regulated price. The international parity price, the daily prices of gasoline and diesel oil of the respective month in Colombian pesos, are indexed to the United States of America Gulf market in accordance with Resolution 18 0522 of 2010 and the Producer Price reference defined by the Ministry of Mines and Energy.

4.17 Cost and expenses

Costs and expenses are presented according to their nature; they are detailed in the related disclosures in cost of sales, and administrative, operating, projects and other associated expenses. Notes 27 and 28 present the items of cost of sales and administrative, operating and project expenses, according to their function.

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5. New standards issued by the IASB

The standards and interpretations that are issued, but not yet effective up to the date of issuance of the company's consolidated financial statements, and that may have an impact on the disclosures and financial position of the company, are disclosed below. The company intends to adopt these standards and interpretations, if applicable, when they become effective.

| Standard | Description | Effective date |
|--|--|-------------------|
| IFRS 9 – Financial Instruments | <p>Includes the requirements of classification and measurement, impairment, derecognition and hedge accounting; and in relation to the impairment of financial assets, IFRS 9 requires an expected credit loss model, as opposed to an incurred credit loss model under IAS 39. Therefore, it is no longer necessary for a credit event to have occurred before credit losses are recognized.</p> <p>The Company is currently evaluating the impact of this IFRS.</p> | January 1st, 2018 |
| IFRS 15 – Revenue from Contracts with Customers | <p>Establishes a single comprehensive model for entities to use in accounting for revenue arising from customers.</p> <p>Under IFRS 15, an entity recognizes revenue when (or as) a performance obligation is met, i.e. when “control” of the goods or services underlying the particular performance obligation is transferred to the customer.</p> <p>IFRS 15 will supersede the current revenue recognition guidance including IAS 18 – Revenue, IAS 11 Construction Contracts and the related interpretations when it becomes effective.</p> <p>The Company is currently evaluating the impact of this IFRS.</p> | January 1st, 2018 |
| Amendments to IFRS 11 – Acquisition of an Interest in a Joint Operation | <p>The IASB amended IFRS 11 in order to establish guidelines regarding accounting for the acquisition of a joint operation constituting a business.</p> <p>The approval of this amendment could affect the Company in the event of an increase or decrease in its interest in an existing joint operation, or if it invests in a new joint operation.</p> <p>The adoption of this amendment could impact the company in the event it increases or decreases its ownership share in an existing joint operation or invests in a new joint operation.</p> | January 1st, 2016 |
| Amendments to IAS 16 – Property, plant and equipment, and IAS 38 – Intangible assets | <p>Amendments clarify the accepted methods of Depreciation and Amortization and do not allow entities from using a revenue-based depreciation method for items of property, plant and equipment. The amendments introduce a rebuttable presumption that revenue is not an appropriate basis for amortization of an intangible asset.</p> <p>The adoption of this amendments has no impact on the Company.</p> | January 1st, 2016 |

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| | | |
|---|--|---|
| IAS 1- Presentation of Financial Statement | The IASB issued amendments to IAS 1- Presentation of Financial Statements to clarify existing requirements related to materiality, order of notes, subtotals, accounting policies and disaggregation. The adoption of this amended standard is not expected to have a material impact on the company's disclosure. | January 1st, 2016 |
| IFRS- 16 Leases | The IASB issued IFRS- 16 Leases which replaces the existing leasing standard (IAS 17 Leases) and requires the recognition of most leases on the balance sheet. IFRS 16 effectively removes the classification of leases as either finance or operating leases and treats all leases as finance leases for lessees with exemptions for short-term leases where the term is twelve months or less and for leases of low value items. The accounting treatment for lessors remains the same, which provides the choice of classifying a lease as either a finance or operating lease. The company is currently assessing the impact of this standard. | January 1st, 2019 |
| Amendments to IFRS 10 – Consolidated Financial Statements IAS 28 - Investments in Associates and Joint Venture | These amendments establish requirements for the accounting for sales or contributions of assets between an investor and its associate or joint venture. Whether or not the assets are housed in a subsidiary, a full gain or loss will be recognized in the statement of income when the transaction involves assets that constitute a business, whereas a partial gain or loss will be recognized when the transaction involves assets that do not constitute a business. The Company is currently evaluating the impact of this IFRS. | Effective from a future date to be determined by the IASB |

6. Cash and cash equivalents

The balance of cash and cash equivalents is comprised as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|------------------------|------------------------------|------------------------------|----------------------------|
| Banks | 4,483,900 | 5,117,766 | 6,362,777 |
| Short-term investments | 2,065,731 | 2,499,685 | 2,441,845 |
| Cash | 819 | 727 | 468 |
| | 6,550,450 | 7,618,178 | 8,805,090 |

The balance for cash and cash equivalents includes resources of COP\$108,348 (COP\$120,545 and COP\$218,848 at December 31 and January 1, 2014, respectively), mainly related to resources for the exclusive payment of principal and interest on loans incurred by Oleoducto Bicentenario S.A.S and Oleoducto de los Llanos.

The credit quality of cash and short-term investments is describe in Note 31.3 – Credit risk. Company funds were invested in institutions with high credit quality.

The fair value of cash and cash equivalents approximates its carrying amount due to its short-term nature (less than a 3-month maturity) and high liquidity.

7. Trade and other receivables

The balance of trade and other receivables is comprised as follows:

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| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|--|----------------------|----------------------|--------------------|
| Current portion | | | |
| Customers | | | |
| Foreign | 1,126,511 | 1,718,507 | 2,934,134 |
| Domestic | 1,731,547 | 1,261,623 | 1,162,197 |
| Fuel Price Stabilization Fund (1) | 155,789 | 750,055 | 1,058,739 |
| Under lift | 67,931 | 202,327 | 117,186 |
| Related parties (Note 32) | 64,724 | 75,561 | 164,711 |
| Employee loans (2) | 50,667 | 50,697 | 60,138 |
| Industrial services | 34,987 | 807 | 13,004 |
| Doubtful accounts | 28,042 | 9,304 | 26,944 |
| Others | 195,256 | 227,976 | 294,386 |
| Total | 3,455,454 | 4,296,857 | 5,831,439 |
| Less – Allowance for doubtful accounts (3) | (28,042) | (9,304) | (26,944) |
| Total current | 3,427,412 | 4,287,553 | 5,804,495 |
| Non-current portion | | | |
| Customers | | | |
| Domestic | 12,478 | 11,417 | 7,314 |
| Foreign | 9,746 | 16,530 | 2,506 |
| Employee loans (2) | 432,450 | 286,466 | 244,416 |
| Doubtful accounts | 132,364 | 235,810 | 227,372 |
| Fuel Price Stabilization Fund (1) | 77,510 | 77,510 | 77,510 |
| Others | 52,387 | 43,481 | 24,627 |
| Total | 716,935 | 671,214 | 583,745 |
| Less – Allowance for doubtful accounts (3) | (132,364) | (235,810) | (227,372) |
| Total Non-current | 584,571 | 435,404 | 356,373 |

(1) Account receivable from the Ministry of Finance and Public Credit, arising from the regular motor gasoline and diesel price differentials pursuant to Resolution 180522 issued on March 29, 2010. The Ministry carries out the payment in consideration of the resolution for the net liquidation position in favor of Ecopetrol for months with pending payments. During the final quarter of 2015, the Fuel Price Stabilization Fund paid COP\$853,551 for the settlement of net positions in favor of Ecopetrol and the company recorded in favor an additional differential by COP\$259,285 during 2015.

(2) The administration, management and control of loans granted to employees by Ecopetrol were transferred to Cavipetrol, who manages the details per employee of such loans and their respective conditions.

(3) The following shows the changes in allowance for doubtful accounts related to trade and other receivables:

| | December 31, 2015 | December 31, 2014 |
|---|----------------------|----------------------|
| Opening balance | 245,114 | 254,316 |
| Recovery of allowances | (104,440) | (168) |
| Additions of allowances | 30,062 | 2,326 |
| Accounts receivable write-off | (225) | - |
| Uses and effects of exchange rate changes | (10,105) | (11,360) |
| Closing balance | 160,406 | 245,114 |

Carrying amounts of trade and other receivables approximates their fair value because of the short-term nature.

8. Inventories

The balance of Inventories is comprised as follows:

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| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|---------------------------------------|----------------------|----------------------|--------------------|
| Finished products | | | |
| Crude oil for commercialization | 701,428 | 611,250 | 1,019,618 |
| Fuels and Petrochemicals | 1,005,293 | 1,081,467 | 986,414 |
| Purchased products | | | |
| Crude oil | 143,652 | 224,106 | 296,289 |
| Fuels and Petrochemicals | 30,617 | 50,571 | 79,036 |
| Raw materials | | | |
| Crude oil for refining | 220,798 | 174,290 | 255,748 |
| Fuels and Petrochemicals for refining | 44,774 | 59,079 | 40,180 |
| Products in process | | | |
| Fuels and Petrochemicals | 500,192 | 392,768 | 496,027 |
| Materials for the production of goods | 609,743 | 488,387 | 486,764 |
| Total | 3,256,497 | 3,081,918 | 3,660,076 |
| Less – Provision for inventories (1) | (198,539) | (151,997) | (100,490) |
| Total | 3,057,958 | 2,929,921 | 3,559,586 |

(1) The following shows a breakdown of the changes in the provisions for inventories:

| | December 31, 2015 | December 31, 2014 |
|------------------------------|----------------------|----------------------|
| Opening balance | 151,997 | 100,490 |
| Additions of provision | 53,205 | 74,683 |
| Foreign currency translation | 13,670 | 6,741 |
| Uses | (20,333) | (29,917) |
| Closing balance | 198,539 | 151,997 |

The variation in the inventory provision is mainly due to the adjustment of inventory to its net realizable value due to the current fluctuations in international crude oil prices.

9. Taxes

9.1 Current tax assets and tax liabilities

The balance of current tax assets and tax liabilities is comprised as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|---|----------------------|----------------------|--------------------|
| Current tax Assets | | | |
| Income tax | 3,403,190 | 331,594 | 132,820 |
| Credit tax balance (1) | 1,098,544 | 1,687,472 | 1,412,715 |
| Total | 4,501,734 | 2,019,066 | 1,545,535 |
| Current tax Liabilities | | | |
| Income tax | 2,120,398 | 1,238,704 | 1,898,946 |
| National tax on gasoline and surtax on gasoline | 314,723 | 269,612 | 267,459 |
| Other taxes (2) | 368,438 | 388,622 | 247,138 |
| Equity tax | - | - | 552,927 |
| Total | 2,803,559 | 1,896,938 | 2,966,470 |

Income tax asset is related with prepayments made by the group companies which cannot be offset with the income tax liability because it is generated by different companies.

- (1) It mainly includes a credit VAT balance.
 (2) It mainly includes the balance of the Industry and Commerce Tax payable

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9.2 Income tax

Current tax regulations applicable to Ecopetrol establish that:

- (a) As from January 1, 2013, income tax in Colombia, is levied at a 25% rate on the concept of income tax; at a 9% rate on the concept of income tax for equality -"CREE", except for the taxpayers that by express regulation receive special rates; and at a 10% rate, income coming from occasional gains. Companies in the Free Trade Zone pay taxes at a 15% rate, and companies that do not generate net income or net income is less than the presumptive minimum taxable income, its income tax is rate of 3% of equity for tax purposes.

On December 23, 2014, Act 1739 established surtax to the income tax for equality – CREE for 2015, 2016, 2017, and 2018, and will be applicable on a taxable base higher than COP\$800 million, at 5%, 6%, 8% and 9% per year, respectively.

The Ecopetrol group has companies pay income tax using the ordinary rate of 39%, Free Trade Zone companies that are taxed at a 15% rate, companies that pay presumptive income tax in Colombia, and others with income from abroad under rates set by other countries.

- (b) Up to 2007, solely for tax purposes, taxpayers could annually adjust the cost of movable and immovable property representing fixed assets. The adjustment percentage will be as set by the Department of National Tax and Customs by means of a resolution.
- (c) At December 31, 2015 and 2014, *Bioenergy*, *Bioenergy Zona Franca* and *Refineria de Cartagena*, which are part of the group, have tax losses amounting to a value of COP\$1,524,148 and COP\$1,466,326 million, respectively, originating between 2009 and 2015. According to tax regulations in force, the tax losses generated as from taxable year 2007 may be offset, fiscally readjusted, with no percentage limitation, at any time, with the net ordinary income without prejudice to the presumptive (minimum taxable) income for the period. Losses from companies shall not be transferable to the partners.

Tax losses with no expiry date total COP\$1,524,148 (2014 - COP\$1,476,566), with a deferred tax of COP\$238,193 (2014 - COP\$527,794) attributable to *Bioenergy*, *Bioenergy Zona Franca* and *Refineria de Cartagena*.

As from 2015, in conformity with the provisions of Act 1739 of December 2014, tax losses and excesses of minimum base may be offset with future income originated in the income tax for equality - CREE, considering the same rules foreseen for income tax.

Income tax expenses

The following shows a breakdown of the income tax recognized in profit and loss for the years ended December 31:

| | 2015 | 2014 |
|---------------------------|----------------|------------------|
| Current income tax | 3,510,546 | 6,389,978 |
| Deferred tax | (2,800,193) | (955,123) |
| Income tax expense | 710,353 | 5,434,855 |

Reconciliation of the income tax expense

The reconciliation between income tax expense and the tax determined based on the legal rate applicable to the company in Colombia is as follows:

| | 2015 | | 2014 | |
|--|--------------------|----------------|------------------|--------------|
| Net income (loss) before income tax | (5,578,626) | | 11,104,428 | |
| Standard rates | 39% | | 34% | |
| Income tax at nominal rate | (2,175,664) | 39% | 3,775,506 | 34% |
| Adjustments for the calculation of income tax: | | | | |
| Exchange difference | 1,305,129 | (23.4)% | 587,897 | 5.3% |
| Differences in the tax rates and tax bases | 1,069,310 | (19.2)% | (151,244) | (1.4)% |
| Wealth tax | 253,422 | (4.5)% | - | 0.0% |
| Nondeductible expenses | 194,176 | (3.5)% | 378,218 | 3.4% |
| Valuation of investments | 48,129 | (0.9)% | 922,028 | 8.3% |
| Nontaxable income | (19,986) | 0.4% | (17,352) | (0.2)% |
| Others | 35,837 | (0.6)% | (60,198) | (0.5)% |
| Income tax calculated | 710,353 | (12.7)% | 5,434,855 | 48.9% |
| Current income tax | 3,510,546 | | 6,389,978 | |
| Deferred tax | (2,800,193) | | (955,123) | |
| | 710,353 | | 5,434,855 | |

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The effective rate at December 31, 2015 is -12.7% (2014, 48.9%). The decrease relative to the previous year is mainly due to the following: a) the consolidated loss, b) the existence in 2015 of wealth tax, which is nondeductible, c) differential tax rates regarding to free trade zone companies and d) Exchange difference recorded on companies with functional currency different than Ecopetrol S.A.

The income and supplementary tax returns for the tax years 2011-2014 and CREE returns for the tax years 2013 and 2014 are subject to acceptance and review by the tax authorities. The Group Companies' management considers that the amounts recorded as liabilities for taxes payable are sufficient and are supported by current regulations, doctrine and jurisprudence for purposes of addressing any claims that may arise with respect to such years. The Company's strategy involves not making tax decisions by adopting aggressive or risky stances that may bring its tax returns into question.

Deferred income tax

The balance of deferred taxes is comprised as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|----------------------------------|----------------------|----------------------|--------------------|
| Deferred Tax asset | 8,239,472 | 4,245,416 | 3,893,883 |
| Current | 1,173,786 | 690,665 | 928,955 |
| Non-current | 7,065,686 | 3,554,751 | 2,964,928 |
| | 8,239,472 | 4,245,416 | 3,893,883 |
| Deferred Tax liability | 6,026,050 | 4,168,144 | 4,119,815 |
| Current | 127,452 | 108,294 | 135,217 |
| Non-current | 5,898,598 | 4,059,850 | 3,984,598 |
| | 6,026,050 | 4,168,144 | 4,119,815 |
| Total deferred income tax | 2,213,422 | 77,272 | (225,932) |

Deferred income tax was calculated considering the rates applicable to the maturity date according to the tax regulations applicable to each business group company (see accounting policy in paragraph 4.14).

The detail of deferred tax assets and deferred tax liabilities is as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|--|----------------------|----------------------|--------------------|
| Deferred tax assets | | | |
| Property, plant and equipment (1) | 3,804,927 | 803,616 | 240,598 |
| Natural and environmental resources (1) | 289,323 | 203,943 | 70,170 |
| Borrowings and other financial liabilities | 986,689 | 268,210 | 96,246 |
| Accounts payable | 726,256 | 111,300 | 504,816 |
| Accrued liabilities and provisions | 1,867,461 | 1,814,433 | 1,459,483 |
| Tax losses | 238,193 | 227,078 | 202,240 |
| Employee benefits (2) | - | 352,720 | 469,633 |
| Others | 326,623 | 464,116 | 850,697 |
| Total deferred tax assets | 8,239,472 | 4,245,416 | 3,893,883 |
| | | | |
| Deferred tax liabilities | | | |
| Goodwill | 262,291 | 473,293 | 312,151 |
| Property, plant and equipment (1) | 2,607,383 | 1,830,731 | 1,093,033 |
| Natural and environmental resources (1) | 1,281,368 | 1,102,278 | 1,965,833 |
| Borrowings and other financial liabilities | 1,527,501 | 571,105 | 237,883 |
| Others | 347,507 | 190,737 | 510,915 |
| Total deferred tax liabilities | 6,026,050 | 4,168,144 | 4,119,815 |

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- (1) For tax purposes, natural resources and property, plant and equipment have specific useful lives. According to IFRS, the useful life is determined by a technical analysis. This difference will result in a difference in the depreciable basis for accounting and tax purposes.
- (2) Deferred tax generated by the difference in valuation of the actuarial liability.

The movements of deferred income tax for the years ended December 31, 2015 and 2014 is as follows:

Deferred tax assets

| | Property, plant and equipment (1) | Natural and environmental resources (1) | Borrowings and other financial liabilities | Accounts payable | Accrued liabilities and provisions | Tax losses | Employee benefits (2) | Others | Total |
|--|-----------------------------------|---|--|------------------|------------------------------------|----------------|-----------------------|----------------|------------------|
| January 1, 2014 | 240,598 | 70,170 | 96,246 | 504,816 | 1,459,483 | 202,240 | 469,633 | 850,697 | 3,893,883 |
| Recognized in deferred income tax expense | 563,018 | 133,773 | 171,964 | (393,516) | 354,950 | 24,838 | 266,253 | (268,411) | 852,869 |
| Recognized in other comprehensive income (a) | - | - | - | - | - | - | (383,166) | (118,170) | (501,336) |
| December 31, 2014 | 803,616 | 203,943 | 268,210 | 111,300 | 1,814,433 | 227,078 | 352,720 | 464,116 | 4,245,416 |
| Recognized in deferred income tax expense | 3,001,311 | 85,380 | 718,479 | 614,956 | 53,028 | 11,115 | 370,863 | (137,493) | 4,717,639 |
| Recognized in other comprehensive income (a) | - | - | - | - | - | - | (723,583) | - | (723,583) |
| December 31, 2015 | 3,804,927 | 289,323 | 986,689 | 726,256 | 1,867,461 | 238,193 | - | 326,623 | 8,239,472 |

Deferred tax liabilities

| | Goodwill | Property, plant and equipment (1) | Natural and environmental resources (1) | Borrowings and other financial liabilities | Others | Total |
|--|----------------|-----------------------------------|---|--|----------------|------------------|
| January 1, 2014 | 312,151 | 1,093,033 | 1,965,833 | 237,883 | 510,915 | 4,119,815 |
| Recognized in deferred income tax expense | 161,142 | 318,363 | (863,555) | 333,222 | (51,426) | (102,254) |
| Foreign exchange | - | 419,335 | - | - | (268,752) | 150,583 |
| Recognized in other comprehensive income (a) | - | - | - | - | - | - |
| December 31, 2014 | 473,293 | 1,830,731 | 1,102,278 | 571,105 | 190,737 | 4,168,144 |
| Recognized in deferred income tax expense | (211,002) | 895,735 | 179,090 | 788,797 | 264,826 | 1,917,446 |
| Recognized in other comprehensive income (a) | - | - | - | 167,599 | - | 167,599 |
| Foreign exchange (a) | - | (119,083) | - | - | (108,056) | (227,139) |
| December 31, 2015 | 262,291 | 2,607,383 | 1,281,368 | 1,527,501 | 347,507 | 6,026,050 |

- (a) The following is the breakdown of income tax recorded against other comprehensive income:

For the year ended December 31, 2015

| | Base | Deferred tax | Total |
|--|--------------------|----------------|--------------------|
| Actuarial valuation (1) | (2,128,184) | 723,582 | (1,404,602) |
| Derivative financial instruments (2) | 100,134 | (40,051) | 60,083 |
| Cash flow hedging for future crude oil exports (2) | 344,836 | (127,545) | 217,291 |
| Others (2) | - | 108,057 | 108,057 |
| | (1,683,214) | 664,043 | (1,019,171) |

For the year ended December 31, 2014

| | Base | Deferred tax | Total |
|-------------------------|--------------------|----------------|------------------|
| Actuarial valuation (1) | (1,126,959) | 383,166 | (743,793) |
| Others (2) | - | 268,753 | 268,753 |
| | (1,126,959) | 651,919 | (475,040) |

(1) Corresponds to deferred income tax.

(2) Corresponds to current income tax.

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Transfer pricing

Income taxpayers, who had entered into transactions with related parties abroad, and/or with residents of countries considered as tax havens, are under the obligation of determining, for income tax purposes, their ordinary and extraordinary income, costs and deductions, and assets and liabilities, taking into account the denominated market prices and profit margins for these transactions (Arm's length principle).

The Group companies presented the 2014 statement of Transfer Pricing and its corresponding corroborating documentation. There were no adjustments to income tax as a result of the 2014 transfer price analysis.

For the 2015 tax year, transactions with related parties from abroad, as well as the business conditions under which such transactions took place and the overall structure thereof, did not experience significant changes compared to the previous year. As a result, it is possible to infer that such transactions were carried out in accordance with the arm's length principle. It is estimated that no significant adjustments will be required arising from the transfer pricing analysis for 2015, which would otherwise involve changes to the income tax provision for 2015.

Wealth tax

The wealth tax was established by means of Act 1739 of 2014; its taxable event is the possession of wealth at January 1, 2015, 2016 and 2017, and it is due by income taxpayers. At January 1, 2015, the conditions for determining the wealth tax to be paid in 2015 were as follows:

| Range of equity | Rate |
|--------------------------------------|--|
| >COP\$ 0 < COP\$ 2,000,000 | (Taxable base)* 0.20% |
| >= COP\$ 2,000,000 < COP\$ 3,000,000 | (Taxable base- 2,000,000,000) *0.35%+4,000,000 |
| >= COP\$ 3,000,000 < COP\$ 5,000,000 | (Taxable base - 3,000,000,000) *0.75%+ 7,500,000 |
| >= COP\$ 5,000,000 | (Taxable base - 5,000,000,000) *1.15% + 22,500,000 |

Taxable base = Fiscal equity

During 2015, the wealth tax incurred by the Ecopetrol Business Group amounted to COP\$ 649,800, which was recognized as an expense and was paid in full in this year (note 28).

10. Equity instruments measured at fair value

The balance of equity instruments measured at fair value is comprised as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|---|----------------------|----------------------|--------------------|
| Equity instruments | | | |
| <i>Empresa de Energía de Bogotá (1)</i> | 478,618 | 1,072,867 | 968,735 |
| <i>Interconexión Eléctrica S.A (2)</i> | 434,870 | 508,599 | 536,298 |
| | 913,488 | 1,581,466 | 1,505,033 |

(1) As part of Decree 2305 of 2014, The Company obtained authorization from the National Government to start the sale of its stock ownership in *Empresa de Energía de Bogotá*.

As a result of the above, at July 27, 2015, the Company sold 352,872,414 shares in *ea* at a sales price of COP\$ 1,740 per share. The amount of the transaction was COP\$ 613,998. In order to continue the sales process, Ecopetrol will carry out up to three additional auctions in order to sale the remaining equity instruments. The gain on sale amounted COP\$72,339, of which COP\$52,931 recorded against Equity instruments assets and COP\$19,405 corresponded to realized gain accumulated in other comprehensive income.

At December 31, 2015, stock ownership is 278,225,586 shares equivalent to 3.03% of the total outstanding shares. At December 31, 2014 and January 1, 2014 the participation of the Company amounted to 631,098,000 shares equivalent to 6.87% of the total outstanding shares.

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(2) In April 13, 2015 as part of Act 226 of 1995, the National Government issued approval to start the divestiture process of the shares that Ecopetrol S.A. owns in Interconexión Eléctrica S.A. E.S.P., taking in the recommendation of Ecopetrol's Board of Directors. Ecopetrol S.A.'s stock ownership in Interconexión Eléctrica S.A. ESP amounts to a total of 58,925,480 shares (equivalent to a 5.32% of the total outstanding shares).

Resources obtained from the sale of these companies will be used to fund the Company's investment plan.

The movement of equity instruments measured at fair value at December 31, 2015 and the year ended December 31, 2014 is as follows:

| | December 31, 2015 | December 31, 2014 |
|-------------------------------|----------------------|----------------------|
| Opening balance | 1,581,466 | 1,505,033 |
| Fair value adjustments | (106,911) | 76,433 |
| Proceeds from sales of shares | (613,998) | - |
| Gain on sale of shares | 52,931 | - |
| Closing balance | 913,488 | 1,581,466 |

These equity instruments are measured at fair value through other comprehensive income. Its hierarchy level is 1, using as reference quoted prices of shares on the Bolsa de Valores de Colombia (Colombian Stock Market).

11. Other financial assets

The balance of other financial assets is comprised as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|--|----------------------|----------------------|--------------------|
| Assets measured at fair value through profit and loss | | | |
| Securities issued by: | | | |
| US Government | 895,425 | 257,697 | 271,525 |
| Financial entities | 323,939 | 610,677 | 711,418 |
| Colombian Government | 228,148 | 271,252 | 92,969 |
| Government-sponsored enterprises | 91,303 | 261,896 | 204,258 |
| Private companies or mixed economy | 36,844 | 27,138 | 62,238 |
| | 1,575,659 | 1,428,660 | 1,342,408 |
| Assets measured at amortized cost | | | |
| Securities issued or secured by the Colombian government | 3,994 | 14,080 | 568,397 |
| Other financial assets | 5,370 | 39,079 | 140,828 |
| | 9,364 | 53,159 | 709,225 |
| Hedging instruments | | | |
| | 356 | - | - |
| Total | 1,585,379 | 1,481,819 | 2,051,633 |
| Current | 329,227 | 817,977 | 1,547,133 |
| Non-current | 1,256,152 | 663,842 | 504,500 |
| | 1,585,379 | 1,481,819 | 2,051,633 |

The average yield of the Colombian pesos portfolio and U.S dollar portfolio for the year ended December 31, 2015 was 5.5% (2014 -4.2%) and 0.45%, respectively. The fair value measured is recognized against Finance result (See note 30).

The table below reflects the credit quality of issuers and counterparties in transactions involving the other financial assets:

| Credit quality of issuers | 2015 | | | 2014 | | |
|---------------------------|----------------|------------------|------------------|----------------|------------------|------------------|
| | Local Rating | Global Rating | Total | Local Rating | Global Rating | Total |
| F1+ | 200,016 | 17,477 | 217,493 | 345,810 | 135,946 | 481,756 |
| F1 | - | 48,919 | 48,919 | - | 290,520 | 290,520 |
| AAA | 132,881 | 997,335 | 1,130,216 | 47,023 | 527,276 | 574,299 |
| AA+ | - | - | - | - | 2,245 | 2,245 |
| BBB | - | 125,936 | 125,936 | - | 79,602 | 79,602 |
| Unrated | 62,815 | - | 62,815 | 53,397 | - | 53,397 |
| Total | 395,712 | 1,189,667 | 1,585,379 | 446,230 | 1,035,589 | 1,481,819 |

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The credit quality of financial assets policy is describe in Note 31.3 – Credit risk.

11.1 Restrictions

The portfolio of securities includes restricted resources made up of fixed yield investments entered into based on the court rulings linked to the Derecho Comuneros – Santiago de las Atalayas y Pueblo Viejo de Cusiana proceedings, with regard to the attachment and seizure of royalty payments that Ecopetrol had to pay pursuant to Royalty Contracts No. 15, 15A, 16 and 16A, declared null and void in due course by the State Council ruling of September 13, 1999. The breakdown is as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|------------------------------------|----------------------|----------------------|--------------------|
| Securities issued by: | | | |
| US Government | 461,566 | 148,230 | 19,175 |
| Colombian Government | 129,261 | 114,966 | 71,241 |
| Government-sponsored enterprises | 52,568 | 137,276 | 162,129 |
| Private companies or mixed economy | 28,560 | 22,603 | 52,957 |
| Financial entities | 27,877 | 125,338 | 65,889 |
| | 699,832 | 548,413 | 371,391 |

11.2 Maturity

The following are the maturities of other financial assets at December 31, 2015:

| | Non-restricted securities | Restricted securities | Total |
|--------------|------------------------------|--------------------------|------------------|
| Up to 1 year | 292,155 | 37,072 | 329,227 |
| 1 - 2 years | 358,844 | 380,493 | 739,337 |
| 2 - 5 years | 224,798 | 245,577 | 470,375 |
| > 5 years | 9,750 | 36,690 | 46,440 |
| | 885,547 | 699,832 | 1,585,379 |

11.3 Fair value

The classification of the other financial assets at fair value at December 31, 2015, December 31, 2014 and January 1, 2014 is comprised as follows:

| Fair value hierarchy | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|----------------------|----------------------|----------------------|--------------------|
| Level 1 | 975,262 | 257,697 | 149,643 |
| Level 2 | 600,397 | 1,170,963 | 1,192,765 |
| Total | 1,575,659 | 1,428,660 | 1,342,408 |

There were no transfers between hierarchy levels during the years.

The securities comprising Ecopetrol's portfolio are valued on a daily basis pursuant to the provisions issued by the Financial Superintendence of Colombia. To this end, we use the information provided by the entities authorized for this purpose, which collect data from active markets. For cases in which market data is not available, other directly or indirectly observable data is used.

For dollar-denominated investments, the information providers are as follows: JP Morgan, Bloomberg, Merrill Lynch and Infovalmer. For investments denominated in pesos, the sole information provider is Infovalmer, an entity authorized by the Financial Superintendence of Colombia for the provision of this service.

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For the process of establishing levels of the fair value for investments, in addition to the information used for valuation, other relevant aspects are also taken into account, such as the issuer rating, investment rating and issuer risk analysis performed by Ecopetrol, thus making it possible to establish the appropriate hierarchy level for investments.

12. Other assets

The balance of other assets is comprised as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|--|----------------------|----------------------|--------------------|
| Current | | | |
| Partners in joint operations (Note 33) | 431,523 | 761,703 | 383,233 |
| Advanced payments to contractors and suppliers | 370,269 | 323,370 | 330,803 |
| Prepaid expenses | 226,842 | 259,360 | 181,279 |
| Other advances and agreements | 33,022 | 31,345 | 20,010 |
| Related parties (Note 32) | 28,668 | 9,338 | 15,558 |
| Total current | 1,090,324 | 1,385,116 | 930,883 |
| Non-current | | | |
| Prepaid expenses | 282,373 | 290,592 | 176,829 |
| Judicial deposits | 146,701 | 86,485 | 59,827 |
| Trust funds (1) | 125,720 | 460,335 | 460,470 |
| Employee benefits | 91,625 | 153,862 | 142,077 |
| Goods in lieu in payment | 38,731 | 38,758 | 58,477 |
| Studies and projects | 28,894 | 18,834 | 10,756 |
| Assets retirement funds | 27,211 | 22,756 | 19,403 |
| Advances and deposits | 18,405 | 16,626 | 11,660 |
| Other assets | 6,720 | 2,468 | 1,557 |
| Total non-current | 766,380 | 1,090,716 | 941,056 |
| Total | 1,856,704 | 2,475,832 | 1,871,939 |

(1) The balance at December 31, 2015 mainly includes deposits to the Oil Savings and Stabilization Fund (from the Spanish *Fondo de Ahorro y Estabilización Petrolera - FAEP*) in Ecopetrol's favor to address the remainder of the National Royalties Fund. Its sole purpose is the payment of debts and financing development programs and projects in hydrocarbon producing and non-producing municipalities and departments. Ecopetrol will make disbursements as the Ministry of Finance issues the respective approvals.

At the close of 2015, the pension resources managed by *Fiduciaria Bancolombia* (equivalent to COP\$342,951, from the termination of the Cravo Norte Partnership agreement with Occidental de Colombia) were returned to Ecopetrol S.A., since the pension obligation arising from such agreement is supported by the pension trusts described in note 22 - Provisions for employee benefits.

13. Non-current assets held for sale and associated liabilities

During the final quarter of 2015, and as part of the business group's divestment plan, the process began regarding the sale of assets in the La Hocha and *La Cañada* fields, where Hocol S.A. holds interests. The Group intends to sell these assets over the next 12 months.

The detail of assets of these fields is as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|-------------------------------|----------------------|----------------------|--------------------|
| Plant and equipment | 201,466 | 1,318 | 1,318 |
| Pipelines, networks and lines | 34,179 | - | - |
| Buildings | 4,700 | 41 | 41 |
| Other assets | 2,400 | 3 | 3 |
| | 242,745 | 1,362 | 1,362 |

The breakdown of liabilities associated with assets held for sale amounted to COP\$17,628 and mainly correspond to asset retirement obligation and environmental commitments of such assets.

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The result associated with non-current assets held for sale during 2015 is as follows:

| | December 31, 2015 |
|-------------------------------|------------------------------|
| Revenue | 52,335 |
| Cost of sale | (97,880) |
| Gross income | (45,545) |
| Operational expenses | (120,104) |
| Finance results, net | 10,807 |
| Loss before income tax | (154,842) |
| Income tax | (8,017) |
| Net loss | (162,859) |

14. Investments in associates and joint ventures

14.1 Investments in companies information

The balance of the investments in associates and joint ventures is as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|--------------------------------------|------------------------------|------------------------------|----------------------------|
| Investments in joint ventures | | | |
| Equion Energía Limited | 1,430,206 | 1,392,895 | 1,634,602 |
| Ecodiesel Colombia S.A. | 37,161 | 29,908 | 25,343 |
| | 1,467,367 | 1,422,803 | 1,659,945 |
| Less- Impairment | | | |
| Equion Energía Limited | (172,528) | - | - |
| | 1,294,839 | 1,422,803 | 1,659,945 |
| Investments in associates | | | |
| Offshore International Group | 1,097,929 | 1,017,410 | 879,621 |
| Invercolsa S.A. | 61,503 | 56,742 | 109,664 |
| Serviport S.A. | 8,490 | 8,445 | 8,445 |
| Sociedad Portuaria Olefinas | 649 | 649 | 649 |
| | 1,168,571 | 1,083,246 | 998,379 |
| Less: Impairment: | | | |
| Offshore International Group | (530,350) | (114,734) | - |
| Serviport S.A. | (1,126) | (1,126) | (1,126) |
| | 637,095 | 967,386 | 997,253 |
| | 1,931,934 | 2,390,189 | 2,657,198 |

The details of the investments in associates and jointly controlled entities' ownership, economic activity, address, country of operations and financial information is shown in Exhibit I.

The following shows a breakdown of the changes in the investments in companies:

For the year ended December 31, 2015

| | Associates | Joint Ventures | Total |
|----------------------------------|-------------------|-----------------------|------------------|
| Opening balance | 967,386 | 1,422,803 | 2,390,189 |
| Effects of equity method through | | | |
| Profit or loss | (72,794) | 26,107 | (46,687) |
| Foreign currency translation | 199,301 | 309,667 | 508,968 |
| Dividends declared | (41,182) | (291,210) | (332,392) |
| Impairment | (415,616) | (172,528) | (588,144) |
| Closing balance | 637,095 | 1,294,839 | 1,931,934 |

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For the year ended December 31, 2014

| | Associates | Joint Ventures | Total |
|-----------------------------------|----------------|------------------|------------------|
| Opening balance | 997,253 | 1,659,945 | 2,657,198 |
| Effects of equity method through: | | | |
| Profit or loss | 30,485 | 135,585 | 166,070 |
| Foreign currency translation | 135,882 | 212,788 | 348,670 |
| Dividends declared | (81,500) | (585,515) | (667,015) |
| Impairment | (114,734) | - | (114,734) |
| Closing balance | 967,386 | 1,422,803 | 2,390,189 |

14.2 Impairment on the value of investments in companies

The group's investments in associates and joint ventures are recorded through the equity method. Once the equity method has been applied, Ecopetrol assesses whether there is any objective evidence that the value of its investment in these companies has been impaired, especially in respect of those that were acquired with goodwill, using their value-in-use as a basis, which involves the valuation thereof by discounted free cash flow.

The companies in respect of which Ecopetrol assessed the objective existence of evidence of impairment, after application of the equity method, were: *Equion Energía Limited* and *Offshore International Group*. The assumptions used to determine the value-in-use of the companies are described in Note 18 - Impairment on the value of assets for companies from the Exploration and Production Segment.

As a result, the company recognized impairment in the value of its investments in these companies, as follows (Note 29):

| Company | 2015 | 2014 |
|------------------------------|------------------|------------------|
| Equion Energia Limited | (172,528) | - |
| Offshore International Group | (415,616) | (114,734) |
| | (588,144) | (114,734) |

The impairment is due mainly to the current adverse economic context faced by the hydrocarbons sector, which results in a reduction in forecast oil prices and an increase in market and country risk that's reflected in the discount rate.

Given the current adverse economic environment faced by the hydrocarbon sector, the investments in companies associates and joint ventures are exposed to certain future risks such as a further decline in oil prices, lower profit margins, changes in cost profiles, changes in levels of capital expenditures and maintenance, a reduction in recoverable reserves amount, and an increase in market and country risk that is reflected in a higher discount rate. Any significant change in the estimates and judgments used to calculate these variables can have a material effect on the recognition or recovery of impairment on the value of investments in companies.

14.3 Restrictions over investments in associates

The number of shares held by Ecopetrol S.A. in Invercolsa has been the subject of a legal dispute with another shareholder of such company. The courts ruled in favor of Ecopetrol in a court decision in 2011, which established that 324 million shares (equivalent to 11.58% of Invercolsa's share capital) should be returned to Ecopetrol. As a result, the ownership interest in this company is 43.35%. The dividends paid in connection with the shares returned to Ecopetrol are being disputed, as is the ownership of shares representing 8.53% of Invercolsa's share capital. The resolution of these matters is still pending.

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14.4 Additional information about associated companies and joint ventures

The balance of assets, liabilities and results of material associates and joint ventures is comprised as follows

| | December 31, 2015 | | December 31, 2014 | | January 1, 2014 | |
|--|------------------------|------------------------------|------------------------|------------------------------|------------------------|------------------------------|
| | Equion Energía Limited | Offshore International Group | Equion Energía Limited | Offshore International Group | Equion Energía Limited | Offshore International Group |
| Statement of financial position | | | | | | |
| Current assets | 854,445 | 310,677 | 1,052,893 | 350,969 | 1,900,976 | 386,259 |
| Non-current assets | 2,114,689 | 2,089,841 | 1,984,484 | 1,893,416 | 1,512,282 | 1,663,224 |
| Total assets | 2,969,134 | 2,400,518 | 3,037,377 | 2,244,385 | 3,413,258 | 2,049,483 |
| Current liabilities | 549,281 | 477,611 | 815,463 | 511,918 | 793,321 | 562,447 |
| Non-current liabilities | 352,182 | 409,946 | 217,461 | 380,543 | 151,488 | 410,689 |
| Total liabilities | 901,463 | 887,557 | 1,032,924 | 892,461 | 944,809 | 973,136 |
| Equity | 2,067,671 | 1,512,961 | 2,004,453 | 1,351,924 | 2,468,449 | 1,076,347 |
| Other complementary information | | | | | | |
| Cash and cash equivalents | 340,797 | 25,760 | 470,710 | 63,858 | 155,479 | 47,112 |
| Financial obligations, short-term | 423,132 | 337,506 | 690,741 | 334,944 | 737,610 | 307,329 |
| Financial obligations, long-term | 751 | 33,025 | 447 | 35,046 | 3,817 | 115,999 |

| | For the years ended at December 31, 2015 | | 2014 | |
|------------------------------------|--|------------------------------|------------------------|------------------------------|
| | Equion Energía Limited | Offshore International Group | Equion Energía Limited | Offshore International Group |
| Statement of profit or loss | | | | |
| Revenue | 1,218,796 | 463,660 | 1,261,578 | 199,316 |
| Costs | (958,467) | (654,095) | (602,751) | (137,654) |
| Administration and other expenses | (74,258) | (128,895) | (16,323) | (51,937) |
| Financial income (expenses) | 37,970 | (8,528) | 34,115 | (815) |
| Income tax | (209,221) | 90,294 | (419,039) | (5,097) |
| Net income for the period | 14,820 | (237,564) | 257,580 | 3,813 |

Below, there is a reconciliation of equity between the most significant participations and the carrying amount of investments:

| | December 31, 2015 | | December 31, 2014 | | January 1, 2014 | |
|--------------------------------|------------------------|------------------------------|------------------------|------------------------------|------------------------|------------------------------|
| | Equion Energía Limited | Offshore International Group | Equion Energía Limited | Offshore International Group | Equion Energía Limited | Offshore International Group |
| Equity of the associate | 2,067,671 | 1,512,961 | 2,004,453 | 1,351,924 | 2,468,449 | 1,076,347 |
| Adjustment to unrealized loss | - | - | (9,940) | - | - | - |
| Adjusted equity | 2,067,671 | 1,512,961 | 1,994,513 | 1,351,924 | 2,468,449 | 1,076,347 |
| % of Ecopetrol's ownership | 51% | 50% | 51% | 50% | 51% | 50% |
| Ecopetrol's ownership | 1,054,513 | 756,482 | 1,017,202 | 675,962 | 1,258,909 | 538,173 |
| (Plus) Goodwill | 375,693 | 226,713 | 375,693 | 341,448 | 375,693 | 341,448 |
| (Less) Impairment | (172,528) | (415,616) | - | (114,734) | - | - |
| Equity of the associate | 1,257,678 | 567,579 | 1,392,895 | 902,676 | 1,634,602 | 879,621 |

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15. Property, plant and equipment

The following shows a breakdown of the changes in property, plant and equipment and its depreciation and impairment for the years ended December 31, 2015 and 2014:

| | Plant and equipment | Pipelines, networks and lines | Work in progress (1) | Buildings | Lands | Other | Total |
|---|------------------------|-------------------------------------|-------------------------|--------------------|------------------|------------------|---------------------|
| Cost | | | | | | | |
| Balance at December 31, 2014 | 16,109,035 | 19,938,115 | 24,009,694 | 5,199,417 | 3,614,237 | 3,135,873 | 72,006,371 |
| Additions | 2,720,120 | 2,213,663 | 2,446,904 | 755,565 | 112,972 | 299,709 | 8,548,933 |
| Asset retirement cost additions | 242,815 | (115,608) | 14,184 | - | - | - | 141,391 |
| Interest capitalized | - | - | 553,061 | - | - | - | 553,061 |
| Effect of exchange rate differences capitalized on borrowings | - | - | 110,485 | - | - | - | 110,485 |
| Disposals of assets | (94,227) | (187,964) | (32,842) | (5,060) | (9,786) | (70,445) | (400,324) |
| Foreign currency translation | 5,093,932 | 2,526,312 | 159,154 | 258,070 | 354,898 | 190,381 | 8,582,747 |
| Other (reclassifications) | 13,288,547 | 2,481,567 | (16,245,630) | 271,364 | (3,370) | 98,280 | (109,242) |
| Balance at December 31, 2015 | 37,360,222 | 26,856,085 | 11,015,010 | 6,479,356 | 4,068,951 | 3,653,798 | 89,433,422 |
| Accumulated depreciation and impairment | | | | | | | |
| Balance at December 31, 2014 | (7,446,991) | (6,071,305) | (1,209,229) | (1,146,453) | (70,332) | (397,054) | (16,341,364) |
| Depreciation expense | (1,168,864) | (1,300,687) | - | (329,396) | - | (124,309) | (2,923,256) |
| Impairment losses recognized in profit or loss (Note 18) | (2,787,539) | (584,736) | (509,195) | (161,431) | (13,689) | (88,164) | (4,144,754) |
| Disposals of assets | 75,305 | 90,389 | - | 4,208 | - | 64,283 | 234,185 |
| Foreign currency translation | (219,358) | (481,180) | (404,872) | (37,259) | - | (10,491) | (1,153,160) |
| Other (reclassifications) | (1,922,302) | (224,854) | 2,103,730 | (28,460) | 70,332 | 1,554 | - |
| Balance at December 31, 2015 | (13,469,749) | (8,572,373) | (19,566) | (1,698,791) | (13,689) | (554,181) | (24,328,349) |
| Net balance at December 31, 2015 | 23,890,473 | 18,283,712 | 10,995,444 | 4,780,565 | 4,055,262 | 3,099,617 | 65,105,073 |

(1) In October 2015, the *Refinería de Cartagena* project came online. Part of the investment in this project, which had been accumulated under Construction in progress (COP\$13,853,231), was reclassified to different asset classes, to begin depreciation thereof.

The balance for projects in progress at December 31, 2015, mainly includes investments for development projects in the Castilla, Rubiales and Chichimene fields, as well as projects to modernize *Refinería de Barrancabermeja* and the industrial services master plan.

| | Plant and equipment | Pipelines, networks and lines | Work in progress (1) | Buildings | Lands | Other | Total |
|---|------------------------|-------------------------------------|----------------------|--------------------|------------------|------------------|---------------------|
| Cost | | | | | | | |
| Balance at January 1, 2014 | 14,458,014 | 16,516,463 | 17,427,438 | 3,894,171 | 3,438,685 | 2,784,635 | 58,519,406 |
| Additions | 1,257,314 | 1,783,076 | 4,225,263 | 911,098 | 129,121 | 617,696 | 8,923,568 |
| Interest capitalized | - | - | 432,307 | - | - | 25,558 | 457,865 |
| Effect of exchange rate differences capitalized on borrowings | - | - | 52,755 | - | - | - | 52,755 |
| Disposals of assets | (187,009) | (70,256) | (30,907) | (18,425) | (24,001) | (228,852) | (559,450) |
| Foreign currency translation | 583,293 | 788,499 | 2,867,952 | 87,352 | 218,064 | 67,067 | 4,612,227 |
| Other (reclassifications) | (2,577) | 920,333 | (965,114) | 325,221 | (147,632) | (130,231) | - |
| Balance at December 31, 2014 | 16,109,035 | 19,938,115 | 24,009,694 | 5,199,417 | 3,614,237 | 3,135,873 | 72,006,371 |
| Accumulated depreciation and impairment | | | | | | | |
| Balance at January 1, 2014 | (6,241,195) | (4,585,338) | - | (758,753) | - | (334,703) | (11,919,989) |
| Depreciation expense | (1,027,774) | (1,191,217) | - | (368,919) | - | (111,700) | (2,699,610) |
| Impairment losses recognized in profit or loss (Note 18) | (78,946) | (85,483) | (1,209,229) | (11,684) | (70,332) | (36,135) | (1,491,809) |
| Disposals of assets | 160,868 | 28,193 | - | 4,047 | - | 66,627 | 259,735 |
| Foreign currency translation | (262,762) | (196,566) | - | (21,007) | - | (9,356) | (489,691) |
| Other (reclassifications) | 2,818 | (40,894) | - | 9,863 | - | 28,213 | - |
| Balance at December 31, 2014 | (7,446,991) | (6,071,305) | (1,209,229) | (1,146,453) | (70,332) | (397,054) | (16,341,364) |
| Net balance at December 31, 2014 | 8,662,044 | 13,866,810 | 22,800,465 | 4,052,964 | 3,543,905 | 2,738,819 | 55,665,007 |

(1) Mainly includes investments in the modernization of the *Refinería de Cartagena* plant in the amount of COP\$16,888,232 (January 1, 2014 - COP\$10,322,246) and projects from the drilling plan in Ecopetrol in the amount of COP\$5,736,860 (January 1, 2014 - COP\$4,943,214).

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16. Natural and environmental resources

The following shows a breakdown of the changes in Natural and environmental resources and its depletion and impairment for the years ended December 31, 2015 and 2014:

| <u>Cost</u> | <u>Oil and Gas investments</u> | <u>Asset Retirement Obligation</u> | <u>Exploration and Evaluation (1)</u> | <u>Total</u> |
|---|--------------------------------|------------------------------------|---------------------------------------|---------------------|
| Balance at December 31, 2014 | 37,168,922 | 1,895,149 | 6,114,019 | 45,178,090 |
| Additions | 5,776,253 | 9,520 | 1,070,988 | 6,856,761 |
| Asset retirement cost additions | - | (139,670) | - | (139,670) |
| Disposals | (13,475) | - | (56,962) | (70,437) |
| Dry wells (2) | - | - | (1,266,440) | (1,266,440) |
| Interest capitalized | - | - | 191,365 | 191,365 |
| Effect of exchange rate differences capitalized on borrowings | - | - | 39,416 | 39,416 |
| Foreign currency translation | 1,031,595 | 6,299 | 272,890 | 1,310,784 |
| Other (reclassifications) | 185,058 | (8,924) | (176,134) | - |
| Balance at December 31, 2015 | 44,148,353 | 1,762,374 | 6,189,142 | 52,099,869 |
| Accumulated depletion and Impairment | | | | |
| Balance at December 31, 2014 | (20,223,671) | (833,755) | - | (21,057,426) |
| Depletion expense | (3,424,212) | (300,650) | - | (3,724,862) |
| Impairment losses recognized in profit or loss | (2,865,077) | - | - | (2,865,077) |
| Disposals of assets | 9,040 | - | - | 9,040 |
| Foreign currency translation | (356,815) | (61,432) | - | (418,247) |
| Other (reclassifications) | (14,039) | 14,039 | - | - |
| Balance at December 31, 2015 | (26,874,774) | (1,181,798) | - | (28,056,572) |
| Net balance at December 31, 2015 | 17,273,579 | 580,576 | 6,189,142 | 24,043,297 |

- (1) The balance for Exploration and evaluation primarily includes investments in production projects (direct operation) in Castilla, Chichimene, Apiay, Tibu and Piedemonte. It also includes exploration projects: Kronos, unconventional hydrocarbons and Tayrona
- (2) It mainly includes dry wells in Ecopetrol S.A. operations for COP\$ 912,695, Ecopetrol America Inc. for COP\$131,447, Hocol S.A. for COP\$139,362 and Ecopetrol Germany for COP\$82,936.

| <u>Cost</u> | <u>Oil and Gas investments</u> | <u>Asset Retirement Obligation</u> | <u>Exploration and Evaluation</u> | <u>Total</u> |
|---|--------------------------------|------------------------------------|-----------------------------------|---------------------|
| Balance at January 1, 2014 | 31,277,932 | 1,227,664 | 5,575,489 | 38,081,085 |
| Additions (1) | 4,687,423 | - | 1,914,257 | 6,601,680 |
| Asset retirement cost additions | - | 647,441 | - | 647,441 |
| Disposals | (11) | - | (120,506) | (120,517) |
| Dry wells (2) | - | - | (1,563,384) | (1,563,384) |
| Interest capitalized | - | - | 182,833 | 182,833 |
| Effect of exchange rate differences capitalized on borrowings | - | - | 33,416 | 33,416 |
| Foreign currency translation | 944,723 | 20,044 | 350,769 | 1,315,536 |
| Other (reclassifications) | 258,855 | - | (258,855) | - |
| Balance at December 31, 2014 | 37,168,922 | 1,895,149 | 6,114,019 | 45,178,090 |
| Accumulated depletion and Impairment | | | | |
| Balance at January 1, 2014 | (15,707,554) | (648,052) | - | (16,355,606) |
| Depletion expense | (3,466,284) | (160,106) | - | (3,626,390) |
| Impairment losses recognized in profit or loss | (694,720) | - | - | (694,720) |
| Disposals of assets | 11 | - | - | 11 |
| Foreign currency translation | (368,513) | (12,208) | - | (380,721) |
| Other (reclassifications) | 13,389 | (13,389) | - | - |
| Balance at December 31, 2014 | (20,223,671) | (833,755) | - | (21,057,426) |
| Net balance at December 31, 2014 | 16,945,251 | 1,061,394 | 6,114,019 | 24,120,664 |

- (1) Additions are mainly represented in the following fields: Castilla, Casabe, Chichimene, Rubiales, Pauto, Caño Sur Este, Quifa, Cusiana, Nare y Akacías.

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- (2) It mainly includes dry wells in Ecopetrol S.A. operations for COP\$527,670, Ecopetrol America Inc. for COP\$462,060, Ecopetrol Brazil for COP\$116,608, Ecopetrol Germany for COP\$ 285,548 and Hocol S.A. for COP\$171,467.

The depletion method used is the units-of-production method.

Accounting For Suspended Exploratory Wells

The following table represents a classification by ages for constructions in progress based on the drilling completion date and the number of projects that are in ongoing drilling for a period exceeding one year as from the completion date.

| | 2015 | 2014 |
|-----------------------------------|----------------|----------------|
| Between 1 and 3 years (a) | 490,184 | 416,687 |
| Between 3 and 5 years (b) | 100,316 | 25,703 |
| More than 5 years (c) | 161,392 | 41,622 |
| Total suspended exploratory Wells | 751,892 | 484,011 |
| No. of projects exceeding 1 year | 59 | 42 |
| Wells under 1 year of suspended | 280,801 | 259,932 |

- (a) Corresponds to 25 Ecopetrol's exploratory wells, 3 wells of Ecopetrol America Inc. and 3 of Offshore International Group.
 (b) Corresponds to 13 Ecopetrol's exploratory wells two of them stratigraphic, 3 wells of Ecopetrol America Inc. and 3 of Offshore International Group.
 (c) Corresponds to 9 Ecopetrol's exploratory wells six of them stratigraphic, 1 well of Ecopetrol America Inc. and 7 of Offshore International Group.

17. Intangibles

The following shows a breakdown of the changes in Intangibles and their amortization for the years ended December 31, 2015 and 2014:

| | Licenses and software | Other intangibles (1) | Total |
|---|--------------------------|--------------------------|------------------|
| Cost | | | |
| Balance at December 31, 2014 | 575,535 | 127,519 | 703,054 |
| Additions | 107,815 | 4,440 | 112,255 |
| Disposals | (615) | - | (615) |
| Foreign currency translation | 53,242 | - | 53,242 |
| Reclassifications | (2,862) | 112,104 | 109,242 |
| Balance at December 31, 2015 | 733,115 | 244,063 | 977,178 |
| Accumulated amortization | | | |
| Balance at December 31, 2014 | (425,357) | (32,545) | (457,902) |
| Amortization expense | (66,043) | (24,196) | (90,239) |
| Disposals | 309 | 23 | 332 |
| Foreign currency translation | (41,318) | - | (41,318) |
| Reclassifications | (1,375) | 1,375 | - |
| Balance at December 31, 2015 | (533,784) | (55,343) | (589,127) |
| Net balance at December 31, 2015 | 199,331 | 188,720 | 388,051 |
| Useful life | <5years | <7years | |

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| | Licenses and software | Other intangibles (1) | Total |
|--|--------------------------|--------------------------|------------------|
| Cost | | | |
| Balance at January 1, 2014 | 534,789 | 504,946 | 1,039,735 |
| Additions | 29,082 | 82,936 | 112,018 |
| Disposals | (24,774) | (367,910) | (392,684) |
| Foreign currency translation | 32,552 | - | 32,552 |
| Reclassifications | 3,886 | (92,453) | (88,567) |
| Balance at December 31, 2014 | 575,535 | 127,519 | 703,054 |
| Accumulated amortization | | | |
| Balance at January 1, 2014 | (363,912) | (403,753) | (767,665) |
| Amortization expense | (59,828) | (16,409) | (76,237) |
| Impairment losses recognized in profit or loss | (3,304) | - | (3,304) |
| Disposals | 23,745 | 367,910 | 391,655 |
| Foreign currency translation | (2,351) | - | (2,351) |
| Reclassifications | (19,707) | 19,707 | - |
| Balance at December 31, 2014 | (425,357) | (32,545) | (457,902) |
| Net balance at December 31, 2015 | 150,178 | 94,974 | 245,152 |
| Useful life | <5years | <7years | |

(1) It includes mainly easements and rights to use the pipeline Caño Limón - Coveñas.

18. Impairment of Property, plant and equipment, Natural resources and Intangibles

As mentioned in section 4.12, each year the Company assesses whether there is evidence of impairment regarding its assets or cash generating units. This is taking into account the first-time application of International Accounting Standards (IFRS), which unlike US GAAP, require the discounting of future cash flows generated by the asset.

Given the current adverse economic environment faced by the hydrocarbon sector, the Company is exposed to certain future risks such as a further decline in oil prices, lower refining margins, lower profit margins, changes in cost profiles, changes in levels of capital expenditures and maintenance, a reduction in recoverable reserves amount, and an increase in market and country risk that is reflected in a higher discount rate. Any significant change in the estimates and judgments used to calculate these variables can have a material effect on the recognition or recovery of impairment charges. Different variables have different impact on segments. For example, the Exploration and Production segment is highly sensitive to the price of hydrocarbons, while the Refining segment is highly sensitive to the discount rate and refining margins given the leverage in that segment.

At December 31, 2015 and 2014, based on impairment tests performed by the Company, the carrying value of certain assets exceeds their recoverable value, which led to recognizing impairment in the income statement of COP\$7,009,831 (2014, COP\$2,189,833) (Note 29). Information on impairment is detailed by segment below:

| Impairment | 2015 | 2014 |
|---|------------------|------------------|
| Exploration and Production | 3,649,451 | 853,179 |
| Refining and Petrochemicals | 3,278,993 | 1,336,158 |
| Transportation and Logistics | 81,387 | 496 |
| | 7,009,831 | 2,189,833 |
| Recognized in: | | |
| Property, plant and equipment (Note 15) | 4,144,754 | 1,491,809 |
| Natural and environmental resources (Note 16) | 2,865,077 | 694,720 |
| Intangibles (Note 17) | - | 3,304 |
| | 7,009,831 | 2,189,833 |

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18.1 Exploration and Production segment

The impairment presented during 2015 in the Exploration and Production segment was COP\$3,649,451 (2014 – COP\$853,179), is as follows:

| UGE's with impairment 2015 | Carrying amount | Recoverable amount | Impairment loss |
|-------------------------------|-------------------|-----------------------|--------------------|
| Operated fields in Colombia | 10,323,500 | 7,645,665 | 2,430,923 |
| Fields operated abroad | 1,242,979 | 24,451 | 1,218,528 |
| | 11,566,479 | 7,670,116 | 3,649,451 |

| UGE's with impairment 2014 | Carrying amount | Recoverable amount | Impairment loss |
|-------------------------------|------------------|-----------------------|--------------------|
| Operated fields in Colombia | 41,186,400 | 5,581,870 | 841,937 |
| Fields operated abroad | 477,484 | 466,242 | 11,242 |
| | 4,663,884 | 6,048,112 | 853,179 |

The impairment in this segment is due mainly to the current adverse economic context faced by the hydrocarbons sector, which results in a reduction in forecast oil prices and an increase in market and country risk that's reflected in the discount rate, as well as a reduction in the recoverable reserves amount. The most significant cash generation units impacted by the above factors were the oilfields operated at the national level: Chichimene, Tibú, CP09, Apiay, Llanito and La Hocha, as well as the fields located in the Gulf of Mexico: K2 and Dalmatian.

The recoverable amount was calculated based on value-in-use, which relates to the discounted future cash flows for projected hydrocarbon reserves during the economic limit of the production fields. The assumptions used in the model to determine the recoverable values include:

- Discount rate of 8.4% (2014, 8.0%), determined as the weighted average cost of capital (WACC) for the Exploration and Production segment.
- Oil price - Brent, starting at COP\$40/barrel in 2016, and reaching USD 60 in the medium and long term. Prices are based on the compilation of forecasts prepared by independent industry analysts (Wood Mackenzie, Bloomberg, PIRA, among others), published indexes, and analyses by management.
- Balance of crude oil and gas reserves (see note 36)

The aggregation of assets for identifying the CGUs is consistent with the previous period.

18.2 Refining and Petrochemicals segment

The impairment presented during 2015 in the Refining and Petrochemicals segment was COP\$ 3,278,993 (2014 - 1,336,158), is as follows:

| UGE's with impairment 2015 | Carrying amount | Recoverable amount | Impairment loss |
|-------------------------------|-------------------|-----------------------|------------------|
| <i>Refinería de Cartagena</i> | 26,561,335 | 23,335,096 | 3,226,240 |
| Others | 642,139 | 589,386 | 52,753 |
| | 27,203,474 | 23,924,482 | 3,278,993 |

| UGE's with impairment 2014 | Carrying amount | Recoverable amount | Impairment loss |
|-------------------------------|-------------------|-----------------------|------------------|
| <i>Refinería de Cartagena</i> | 18,794,568 | 17,469,140 | 1,325,428 |
| Others | 100,311 | 89,581 | 10,730 |
| | 18,894,879 | 17,558,721 | 1,336,158 |

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The impairment for *Refinería de Cartagena* is due mainly to the current adverse economic environment faced by the hydrocarbons sector, which results in a reduction in expected refining margins for the coming years, and an increase in market and country risk that's reflected in the discount rate. Additionally, there were higher levels of investment for the commissioning of the Refinery in the final quarter of 2015.

The recoverable amount was calculated based on value-in-use, which relates to discounted future cash flows. The assumptions used in the model to determine the recoverable value include an average utilization factor for the Refinery of 94% in the short term and 92% in the long term, a discount rate of 7.2% (2014, 7.1%) and refining margins calculated based on a price study carried out for Reficar.

The recoverable amount of *Refinería de Cartagena* is highly sensitive to changes in future refining margins and the discount rate. Therefore, variations on an individual or grouped basis of these two factors could result in a material adjustment to the impairment recognized.

18.3 Transportation and Logistics segment

The impairment for the transportation and logistics segment in 2015 was COP\$81,387 (2014 - COP\$496), which relates mainly to the update to the country's hydrocarbon production curves, based on the new price environment and pipeline transportation rates. The discount rate used was 5.9%. (2014, 7.2%).

19. Goodwill

The balance of Goodwill through the acquisition of controlled companies is comprised as follows

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|-------------------------------------|----------------------|----------------------|--------------------|
| Transportation and Logistics | | | |
| Oleoducto Central SA. | 683,496 | 683,496 | 683,496 |
| Exploration and Production | | | |
| Hocol Petroleum Limited | 537,598 | 537,598 | 537,598 |
| Refining and Petrochemicals | | | |
| Andean Chemical Limited | 127,812 | 127,812 | 127,812 |
| Propilco S.A. | 108,137 | 108,137 | 108,137 |
| | 1,457,043 | 1,457,043 | 1,457,043 |
| Less: Impairment losses | | | |
| Hocol Petroleum Limited (Note 29) | (297,121) | (30,221) | (30,221) |
| Total | 1,159,922 | 1,426,822 | 1,426,822 |

Given the current adverse economic environment faced by the hydrocarbon sector, the Company is exposed to certain future risks such as a further decline in oil prices, lower refining margins, lower profit margins, changes in cost profiles, changes in levels of capital expenditures and maintenance, a reduction in recoverable reserves amount, and an increase in market and country risk that is reflected in a higher discount rate. Any significant change in the estimates and judgments used to calculate these variables can have a material effect on the recognition of goodwill impairment charges. Different variables have different impact on segments. For example, the Exploration and Production segment is highly sensitive to the price of hydrocarbons, while the Refining segment is highly sensitive to the discount rate given the leverage in that segment.

At December 31, 2015, the Company assessed the recoverability of the carrying value relating to the goodwill generated in the acquisition of controlled companies, using their value-in-use as a basis, which implies valuation by free cash flow.

The main assumptions used for determining the value-in-use of these controlled companies acquired with goodwill, include:

- The financial projections for companies in the Exploration and Production Segment were performed through to the economic limit of the fields, or cut to the reversion of the partnership agreements, E&P agreements or others that the companies have entered into, whichever comes first. In the case of companies from the Transportation Segment, the projected time horizon relates to the period in which the concession ends, and for companies from the Refining segment a term of 10 years was used, considering a terminal value.

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- The company based its projections for revenue from the production segment based on a Brent price starting at USD 40/barrel in 2016, and reaching USD 60 in the medium and long term. Production profiles were estimated based on the views of third parties, which drew on the views of the companies. Projections for revenues and costs for the refining and petrochemicals segment were based on the views of management, as well as reports from third parties. Projections of future cash flows for Ocesa S.A. were created based on the transport rates approved by the resolution from the Ministry of Mines and Energy and production curves updated to reflect the new price environment, as well as existing contracts.
- The rates used to discount cash flows reflect the specific risk for each business, as follows: Hocol - 8.4% (2014 – 8.3%). Andean y Propilco - 6.5% (2014 – 6.9%) Oleoducto Central - 4.9% (2014 – 4.5%).

As a result, the company recognized an additional goodwill impairment of COP\$266,900 in Hocol Petroleum Limited in 2015, brought about mainly by the current adverse economic context faced by the hydrocarbon sector. Regarding companies from the Transportation and Logistics Segment, and the Refining and Petrochemicals Segment, Ecopetrol did not identify the need to recognize goodwill impairment.

At December 31, 2014, the Company assessed the recoverability of the carrying value of goodwill and there was no necessary to recognized impairment in this year.

20. Loans and borrowings

20.1 Composition of loans and borrowings

| | Weighted average effective interest rate at December 31, 2015 -2014 | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|--|---|----------------------|----------------------|--------------------|
| Local-currency | | | | |
| Bonds | 9.8% - 8.9% | 1,960,695 | 1,931,140 | 1,927,467 |
| Syndicated loans | 7.7% - 7.9% | 4,226,454 | 4,446,529 | 4,597,181 |
| Commercial loans and other | 7.9% - 8.2% | 945,331 | 820,700 | 906,804 |
| Total local-currency | | 7,132,480 | 7,198,369 | 7,431,452 |
| Foreign currency | | | | |
| Bonds | 6.1% - 6.1% | 29,121,535 | 18,527,409 | 7,821,818 |
| Commercial loan – Modernization plan at the Cartagena Refinery | 4.1% - 4.1% | 9,107,938 | 7,480,719 | 5,831,549 |
| Other commercial loans | 2.1% - 2.0% | 7,101,195 | 1,125,480 | 835,935 |
| Other | 1.4% - 1.2% | 760,190 | 709,651 | 772,509 |
| Total foreign-currency | | 46,090,858 | 27,843,259 | 15,261,811 |
| Total financial obligations | | 53,223,338 | 35,041,628 | 22,693,263 |
| Less – short-term | | 4,573,620 | 3,517,522 | 3,121,068 |
| Total long-term | | 48,649,718 | 31,524,106 | 19,572,195 |

20.2 New borrowings

The main financing operations during 2015 and 2014 were as follows:

a. Bonds

- At June 2015, Ecopetrol S.A. issued USD 1,500 million of bonds in the international market with the following characteristics:

| | |
|--------------------|-------------------------|
| Period: | 11 years |
| Maturity date: | June 26, 2026 |
| Price: | 99.328 |
| Return rate: | 5.457% |
| USA Bond yield: | 305 points |
| Interest rate: | 5.375% |
| Interest pay date: | June 26 and December 26 |

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- In May and September 2014, Ecopetrol S.A. issued bonds for an amount of USD 2,000 million and USD 1,200 million, respectively. The first-issuance maturity date is May 2045 and its coupon rate is of 5.875%. The second-issuance maturity date is January 2025 and its coupon rate is of 4.125%.
- In May, 2014, Oleoducto Central S.A. issued international bonds (Reg/144A) for the amount of USD500 million with a 4% coupon rate, maturing in May 2021.

b. Other commercial loans

In February 2015, Ecopetrol S.A. entered into a commercial loan of USD 1,925 million. The operation was conducted with the participation 8 international banks. The loan maturity date is in February 2020, payable at maturity and semiannual interest payments of Libor + 140 basis points.

c. Other

Ecopetrol carried out short-term remittances financed in dollars with domestic banks for the payment of imports in the amount of USD 222 (2014, USD 196), with a financing rate of Libor plus 65 basis points.

The following table details the main characteristics of the most significant Group's loans:

| Type | Company | Starting date | Initial amount at original currency (millions) | Balance at December 31, 2015 | Balance at December 31, 2014 | Maturity | Interest Rate | Principal payment | Interest payment | | |
|---------------------------|----------------|-----------------------------------|--|------------------------------|------------------------------|-----------------|-----------------|-------------------|------------------|---------------|---------------|
| Bonds in local-currency | Ecopetrol S.A. | Dec/2010 | COP\$ 97,000 | - | COP\$ 97,000 | Dec/2015 | Floating | Bullet* | Semi-annually | | |
| | | Dec/2010 | COP\$ 138,700 | COP\$ 138,700 | COP\$ 138,700 | Dec/2017 | Floating | Bullet | Semi-annually | | |
| | | Dec/2010 | COP\$ 479,900 | COP\$ 479,900 | COP\$ 479,900 | Dec/2020 | Floating | Bullet | Semi-annually | | |
| | | Dec/2010 | COP\$ 284,300 | COP\$ 284,300 | COP\$ 284,300 | Dec/2040 | Floating | Bullet | Semi-annually | | |
| | | Dec/2010 | COP\$ 120,950 | COP\$ 120,950 | COP\$ 120,950 | Aug/2018 | Floating | Bullet | Semi-annually | | |
| | | Aug/2013 | COP\$ 168,600 | COP\$ 168,600 | COP\$ 168,600 | Aug/2023 | Floating | Bullet | Semi-annually | | |
| | | Aug/2013 | COP\$ 347,500 | COP\$ 347,500 | COP\$ 347,500 | Aug/2028 | Floating | Bullet | Semi-annually | | |
| | | Aug/2013 | COP\$ 262,950 | COP\$ 262,950 | COP\$ 262,950 | Aug/2043 | Floating | Bullet | Semi-annually | | |
| | | Syndicated loan in local-currency | Ecopetrol S.A. Oleoducto Bicentenario | May/2013 | COP\$ 1,839,000 | COP\$ 1,839,000 | COP\$ 1,839,000 | May/2025 | Floating | Semi-annually | Semi-annually |
| | | | | Jul/2012 | COP\$ 2,100,000 | COP\$ 1,717,625 | COP\$ 1,717,625 | July/2024 | Floating | Quarterly | Quarterly |
| Ago/2013 | COP\$ 647,029 | | | COP\$ 608,000 | COP\$ 608,000 | Aug/2020 | Floating | Quarterly | Quarterly | | |
| Bonds in foreign currency | Ecopetrol S.A. | Jul/2009 | USD \$ 1,500 | USD \$ 1,500** | USD \$ 1,500** | Jul/2019 | Fixed | Bullet | Semi-annually | | |
| | | Sep/2013 | USD \$ 350 | USD \$ 350** | USD \$ 350** | Sep/2018 | Fixed | Bullet | Semi-annually | | |
| | | Sep/2013 | USD \$ 1,300 | USD \$ 1,300** | USD \$ 1,300** | Sep/2023 | Fixed | Bullet | Semi-annually | | |
| | | Sep/2013 | USD \$ 850 | USD \$ 850 | USD \$ 850 | Sep/2043 | Fixed | Bullet | Semi-annually | | |
| | | May/2014 | USD \$ 2,000 | USD \$ 2,000 | USD \$ 2,000 | May/2045 | Fixed | Bullet | Semi-annually | | |
| | | Sep/2014 | USD \$ 1,200 | USD \$ 1,200 | USD \$ 1,200 | May/2025 | Fixed | Bullet | Semi-annually | | |
| | | Jun/2015 | USD \$ 1,500 | USD \$ 1,500 | - | June/2026 | Fixed | Bullet | Semi-annually | | |
| | | May/2014 | USD \$ 500 | USD \$ 500 | USD \$ 500 | May/2021 | Fixed | Bullet | Semi-annually | | |
| | | International commercial loans | Refineria de Cartagena S.A. Ecopetrol S.A. | Dec/2011 | USD \$ 2,747 | USD \$ 2,394 | USD \$ 2,627 | Dec/2027 | Fixed | Semi-annually | Semi-annually |
| | | | | Dec/2011 | USD \$ 310 | USD \$ 270 | USD \$ 297 | Dec/2027 | Floating | Semi-annually | Semi-annually |
| Dec/2011 | USD \$ 440 | | | USD \$ 402 | USD \$ 428 | Dec/2025 | Floating | Semi-annually | Semi-annually | | |
| Feb/2015 | USD \$ 1,925 | | | USD \$ 1,925** | - | Feb/2020 | Floating | Bullet | Semi-annually | | |
| Mar/2013 | USD \$ 245 | | | USD \$ 196** | USD \$ 196** | July/2023 | Floating | Semi-annually | Semi-annually | | |
| Mar/2013 | USD \$ 151 | USD \$ 105** | USD \$ 105** | July/2019 | Floating | Semi-annually | Semi-annually | | | | |

* Bullet - Face value is fully paid on the maturity date.
 ** Loans designated as hedging instrument (see note 31)

20.3 Maturity of loans and borrowings

The following is the maturity profile, under amortized cost of loans, as of December 31, 2015:

| | Up to 1 year | 1 - 5 years | 5-10 years | > 10 years | Total |
|-------------------------------|------------------|-------------------|-------------------|------------------|-------------------|
| Local currency | | | | | |
| Bonds | 186,026 | 1,079,088 | 347,752 | 347,829 | 1,960,695 |
| Syndicated credit | 591,870 | 2,195,275 | 1,439,309 | - | 4,226,454 |
| Commercial loans and others | 170,034 | 229,465 | 323,031 | 222,801 | 945,331 |
| Total local currency | 947,930 | 3,503,828 | 2,110,092 | 570,630 | 7,132,480 |
| Foreign currency | | | | | |
| Bonds | 1,639,597 | 9,919,064 | 10,019,228 | 7,543,646 | 29,121,535 |
| Credit of Cartagena Refinery | 901,813 | 3,324,039 | 4,345,978 | 536,108 | 9,107,938 |
| Commercial loans | 428,475 | 6,475,621 | 197,099 | - | 7,101,195 |
| Other | 655,805 | 104,385 | - | - | 760,190 |
| Total foreign currency | 3,625,690 | 19,823,109 | 14,562,305 | 8,079,754 | 46,090,858 |
| Total | 4,573,620 | 23,326,937 | 16,672,397 | 8,650,384 | 53,223,338 |

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20.4 Breakdown by type of interest rate

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|-----------------------------------|----------------------|----------------------|--------------------|
| Local-currency | | | |
| Fixed interest rate | 19,410 | 940 | 3,571 |
| Floating interest rate | 7,113,070 | 7,197,429 | 7,427,881 |
| | 7,132,480 | 7,198,369 | 7,431,452 |
| Foreign-currency | | | |
| Fixed interest rate | 36,994,095 | 25,311,898 | 12,895,126 |
| Floating interest rate | 9,096,763 | 2,531,361 | 2,366,685 |
| | 46,090,858 | 27,843,259 | 15,261,811 |
| Total loans and borrowings | 53,223,338 | 35,041,628 | 22,693,263 |

Local currency loans and borrowings at floating rates are mainly indexed to the CPI (Consumer Price Index) and DTF (Fixed Term Deposit). The foreign currency loans and borrowings at floating rates are indexed mainly to the Libor plus a spread.

20.5 Loan designated as hedging instruments

At October 1, 2015, the Board of directors designated foreign currency debt of Ecopetrol S.A as a hedge of expected highly probable U.S. dollar nominated export revenue (see Note 31 - Risk Management) for details.

20.6 Guarantees and Covenants

Financing obtained by Ecopetrol S.A. through capital markets, which correspond to issuance of local and foreign bonds, are not guaranteed.

Refineria de Cartagena (Reficar) entered into an international commercial loan for USD 3,497 million to finance the expansion project of the refinery in Cartagena in 2011. This operation imposes restrictions on the Reficar's debt ratio, except for certain conditions expressly set out in contracts about working capital needs. Regarding financial covenants, Reficar is required to maintain a coverage ratio of minimum debt service of 1.35: 1 at certain times of the loan's life.

Under the same transaction, Reficar entered into a commercial trust and Security and Depositary Agreement to receive the resources of the new refinery to meet specific purposes such as operating expenses, interest and others.

For the case of the financing obtained by Oleoducto Bicentenario S.A.S. for the construction of the project and startup of the pipeline, the creation of a main fund was established to manage the funds for the payment of the syndicated loan.

20.7 Fair value of loans

The following shows the loan's fair value:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|------------|----------------------|----------------------|--------------------|
| Fair value | 49,668,119 | 33,564,765 | 21,755,619 |

The Business Group's financial obligations are recognized in the Financial Statements at their amortized cost, which correspond to the present value of cash flows, discounted at the effective interest rate.

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For the measurement at fair value, bonds and securities in local currency were valued using Infovalmer reference prices, while for the bonds in US dollars the source taken was Bloomberg. Regarding the other financial obligations for which there is no market benchmark, a present value discounting technique was used. Some of the rates used were those established in the credits as they are considered aligned with the market. These rates add market risk through certain benchmarks (Libor, DTF) and the credit risk (spread) of the Company.

21. Trade and other payables

The balance of trade and other payables is comprised as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|--------------------------------------|----------------------|----------------------|--------------------|
| Suppliers | 4,979,932 | 6,229,428 | 6,391,644 |
| Dividends payable | 693,878 | 3,704 | 1,313,596 |
| Partners' advances | 675,527 | 1,440,947 | 849,933 |
| Deposits received from third parties | 571,577 | 312,787 | 613,812 |
| Withholding tax | 346,578 | 385,903 | 400,982 |
| Related parties | 87,463 | 107,820 | 127,093 |
| Various creditors | 402,328 | 348,815 | 306,945 |
| | 7,757,283 | 8,829,404 | 10,004,005 |
| Current | 7,757,277 | 8,798,965 | 9,966,622 |
| Non-current | 6 | 30,439 | 37,383 |
| Total | 7,757,283 | 8,829,404 | 10,004,005 |

Carrying amount of trade and other payables approximates their fair value due to the short-term nature.

22. Provision for employees benefits

The balance of provisions for employees benefits are comprised as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|---------------------------------------|----------------------|----------------------|--------------------|
| Post-employment benefits | | | |
| Healthcare | 3,593,428 | 4,787,793 | 5,127,275 |
| Education | 535,356 | 679,890 | 512,800 |
| Pension | (262,182) | 154,383 | 730,865 |
| Bonds | (483,876) | (252,994) | 13,183 |
| Other | 41,263 | 48,126 | 34,537 |
| | 3,423,989 | 5,417,198 | 6,418,660 |
| Welfare benefits and salaries payable | 353,285 | 308,512 | 266,420 |
| Other post-employment benefits | 74,841 | 73,983 | 66,544 |
| Total | 3,852,115 | 5,799,693 | 6,751,624 |
| Current | 1,392,266 | 1,379,706 | 1,337,616 |
| Non-current | 2,459,849 | 4,419,987 | 5,414,008 |
| | 3,852,115 | 5,799,693 | 6,751,624 |

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22.1 Post-employment benefits liability (asset)

The following shows a breakdown of the changes in assets and liabilities of post-employment benefits:

| | Pension and pension bonds (1) | | Healthcare, Education and Others | | Total | |
|---|-------------------------------|-------------------|----------------------------------|-------------------|-------------------|-------------------|
| | December 31, 2015 | December 31, 2014 | December 31, 2015 | December 31, 2014 | December 31, 2015 | December 31, 2014 |
| Employee benefits liability | | | | | | |
| Opening liabilities balance | 11,559,018 | 12,193,924 | 5,515,809 | 5,674,612 | 17,074,827 | 17,868,536 |
| Current service cost | - | - | 53,095 | 64,020 | 53,095 | 64,020 |
| Past service cost | - | - | - | (87,811) | - | (87,811) |
| Interest expense | 839,716 | 821,783 | 395,977 | 385,400 | 1,235,693 | 1,207,183 |
| Actuarial losses | (1,252,017) | (771,717) | (1,490,315) | (232,315) | (2,742,332) | (1,004,032) |
| Paid benefits | (711,171) | (684,972) | (304,519) | (288,097) | (1,015,690) | (973,069) |
| Closing liabilities balance | 10,435,546 | 11,559,018 | 4,170,047 | 5,515,809 | 14,605,593 | 17,074,827 |
| Plan assets | | | | | | |
| Opening plan assets balance | 11,657,629 | 11,449,876 | - | - | 11,657,629 | 11,449,876 |
| Return on assets | 849,556 | 773,292 | - | - | 849,556 | 773,292 |
| Change in the effect of the asset ceiling | (329,825) | (50,059) | - | - | (329,825) | (50,059) |
| Benefits paid | (711,432) | (688,466) | - | - | (711,432) | (688,466) |
| Actuarial gains (losses) | (284,324) | 172,986 | - | - | (284,324) | 172,986 |
| Closing plan assets balance | 11,181,604 | 11,657,629 | - | - | 11,181,604 | 11,657,629 |
| Net post-employment benefits liability (asset) | (746,058) | (98,611) | 4,170,047 | 5,515,809 | 3,423,989 | 5,417,198 |

(1) There is no service cost for pension and pension plans because the beneficiaries were all retired from July 31, 2010.

The following shows a breakdown of the changes in profit and loss and other comprehensive income for the years ended December 31, 2015 and 2014:

| | 2015 | 2014 |
|--|------------------|------------------|
| Recognized in profit and loss | | |
| Service cost | 53,095 | (23,791) |
| Interest cost, net | 386,137 | 433,891 |
| | 439,232 | 410,100 |
| Recognized in other comprehensive income before taxes | | |
| Healthcare | 1,359,631 | 474,994 |
| Pension and pension bonds | 967,693 | 944,703 |
| Education and severance | 130,684 | (242,679) |
| Change in the effect of the asset ceiling | (329,824) | (50,059) |
| | 2,128,184 | 1,126,959 |

22.2 Plan assets

Plan assets are represented in the resources provided to Pension Trusts, for payment of the pension liabilities relating to the obligations for monthly pension payments and bonds; that pertaining to health and education is under the responsibility of Ecopetrol. The allocation of trust resources and its yields cannot be changed or returned to the Company until all pension obligations have been fulfilled.

The composition by investment type is comprised as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|--|-------------------|-------------------|-------------------|
| Bonds issued by the Colombian Government | 4,099,067 | 4,298,278 | 4,311,575 |
| Bonds of private entities | 3,405,440 | 3,591,046 | 3,567,065 |
| Other bonds of public entities | 790,601 | 825,970 | 864,917 |
| Bonds of foreign entities | 300,181 | 230,772 | 196,404 |
| Other local currency | 2,257,655 | 2,070,405 | 2,037,551 |
| Other foreign currency | 429,828 | 480,712 | 389,416 |
| Variable yield | 278,716 | 210,505 | 82,948 |
| Fair value of plan assets | 11,561,488 | 11,707,688 | 11,449,876 |
| Less asset ceiling | (379,884) | (50,059) | - |
| | 11,181,604 | 11,657,629 | 11,449,876 |

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The table below reflects the credit quality of issuers and counterparties in transactions involving the plan assets:

| Credit quality of issuers | 2015 | | | 2014 | | |
|---------------------------|-------------------|----------------|-------------------|-------------------|----------------|-------------------|
| | Local Rating | Global Rating | 2015 | Local Rating | Global Rating | Total |
| AAA | 7,566,394 | 31,068 | 7,597,462 | 9,034,715 | 79,131 | 9,113,846 |
| AA+ | 627,045 | 34,559 | 661,604 | 887,319 | 26,190 | 913,509 |
| AA | 68,481 | - | 68,481 | 54,121 | - | 54,121 |
| AA- | 18,316 | 36,761 | 55,077 | 18,038 | 15,509 | 33,547 |
| A | 4,682 | - | 4,682 | 6,347 | 2,609 | 8,956 |
| A- | - | - | - | 10,206 | - | 10,206 |
| BBB+ | 31,164 | 165,651 | 196,815 | - | 155,420 | 155,420 |
| BBB | 59,224 | 329,362 | 388,586 | - | 281,699 | 281,699 |
| BBB- | 1,371,957 | 197,893 | 1,569,850 | - | 257,076 | 257,076 |
| BB+ | 5,199 | 23,800 | 28,999 | 1,407 | - | 1,407 |
| BB | - | 22,572 | 22,572 | - | - | - |
| B+ | - | - | - | 2,751 | - | 2,751 |
| CCC | 1,035 | - | 1,035 | 1,052 | - | 1,052 |
| BRC1 | - | - | - | 2,007 | - | 2,007 |
| BRC1+ | 221,257 | - | 221,257 | 213,007 | - | 213,007 |
| F1+ | 43,351 | - | 43,351 | 63,364 | - | 63,364 |
| Unrated | 701,717 | - | 701,717 | 595,720 | - | 595,720 |
| | 10,719,822 | 841,666 | 11,561,488 | 10,890,054 | 817,634 | 11,707,688 |

The fair value hierarchy of plan assets is comprised as follows:

| Fair value | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|------------|-------------------|-------------------|-------------------|
| Level 1 | 3,876,386 | 4,504,887 | 4,815,213 |
| Level 2 | 7,685,102 | 7,202,801 | 6,634,663 |
| | 11,561,488 | 11,707,688 | 11,449,876 |

The fair value of the plan assets is calculated using prices quoted in the relevant assets' market. The Company obtains these prices through reliable financial data suppliers recognized in Colombia or abroad, depending on the investment.

For the securities issued in local currency, the fair value of the plan assets is calculated using information published by Infovalmer, a supplier of prices authorized by the Superintendency of Finance. According to its methodology, prices may be calculated based on market information at the valuation date or estimated based on historic inputs in accordance with the criteria established for the calculation of each of the prices.

The fair value is calculated based on the most representative market of the transactions carried out through electronic platforms approved and supervised by the regulator.

The estimated fair value is calculated for the investments that do not have sufficient information to estimate an average market price, by replicating the prices quoted for similar assets or prices obtained through quotations from stock brokers. This estimated price is also given by INFOVALMER as a result of the application of robust methodologies approved by the financial regulator and widely used by the financial sector.

22.3 Actuarial assumptions

The following are the actuarial assumptions used in determining the present value of defined employee benefit obligations at December 31, 2015 and 2014 and January 1, 2014:

| December 31, 2015 | Pension | Pension bonds | Medical | Education | Other benefits |
|-------------------------|---------|---------------|---------|-----------|----------------|
| Discount rate | 8.50% | 8.50% | 8.50% | 7.75% | 8.00% |
| Salary growth rate | 4.25% | N/A | N/A | N/A | 4.25% |
| Expected inflation rate | 3.00% | 3.00% | 3.00% | 3.00% | 3.00% |
| Pension growth rate | 3.00% | N/A | N/A | N/A | N/A |
| Cost trend | | | | | |
| Short-term rate | N/A | N/A | 3.50% | 4.00% | N/A |
| Long-term rate | N/A | N/A | 4.00% | 4.00% | N/A |

| December 31, 2014 | Pension | Pension bonds | Medical | Education | Other benefits |
|-------------------------|---------|---------------|---------|-----------|----------------|
| Discount rate | 7.50% | 7.00% | 7.50% | 6.75% | 7.50% |
| Salary growth rate | 4.25% | N/A | N/A | N/A | 4.25% |
| Expected inflation rate | 3.00% | 3.00% | 3.00% | 3.00% | 3.00% |
| Pension growth rate | 3.00% | N/A | N/A | N/A | N/A |
| Cost trend | | | | | |
| Short-term rate | N/A | N/A | 9.60% | 9.40% | N/A |
| Long-term rate | N/A | N/A | 4.00% | 4.00% | N/A |

| January 1, 2014 | Pension | Pension bonds | Medical | Education | Other benefits |
|-------------------------|---------|---------------|---------|-----------|----------------|
| Discount rate | 7.00% | 6.25% | 7.00% | 6.50% | 6.75% |
| Salary growth rate | 4.50% | N/A | N/A | N/A | 4.50% |
| Expected inflation rate | 3.00% | 3.00% | 3.00% | 3.00% | 3.00% |
| Cost trend | N/A | N/A | 10.40% | 7.50% | N/A |

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The cost trend is the projected increase for the initial year and the rate include the expected inflation rate.

The mortality table used for all calculations was "Valid Annuitants" for men and women based on the experience gained for the period 2005-2008, of the Colombian Social Security Institute – ISS.

22.4 Maturity of benefit obligation

The cash flow required for post-employment benefits liability is comprised as follows:

| Period | Pension and Pension bonds | Other benefits | Total |
|-----------|------------------------------|----------------|-----------|
| 2016 | 752,287 | 318,469 | 1,070,756 |
| 2017 | 794,341 | 316,343 | 1,110,684 |
| 2018 | 813,537 | 319,015 | 1,132,552 |
| 2019 | 829,656 | 320,929 | 1,150,585 |
| 2020 | 847,469 | 325,153 | 1,172,622 |
| 2021-2025 | 4,528,090 | 1,707,415 | 6,235,505 |

22.5 Sensitivity analysis

The sensitivity analysis on the Employee benefits liability below has been determined based on reasonably possible changes of the respective assumptions occurring at the end of the reporting period, while keeping all other assumptions as constant at December 31, 2015:

| | Pension | Pension bonds | Medical | Education | Other benefits |
|---------------------------|------------|------------------|-----------|-----------|-------------------|
| Discount rate | | | | | |
| -50 basis points | 10,473,815 | 503,162 | 3,818,771 | 552,049 | 43,458 |
| +50 basis points | 9,469,073 | 466,168 | 3,390,058 | 527,183 | 40,761 |
| Inflation rate | | | | | |
| -50 basis points | 9,462,879 | 484,597 | - | - | - |
| +50 basis points | 10,477,600 | 483,633 | - | - | - |
| Salary growth rate | | | | | |
| -50 basis points | - | - | - | - | 40,530 |
| +50 basis points | - | - | - | - | 43,693 |
| Cost trend | | | | | |
| -50 basis points | - | - | 3,390,370 | 527,966 | - |
| +50 basis points | - | - | 3,817,007 | 551,131 | - |

The Company performed a sensitivity analysis related to the interest rate variation on plan assets. See section 31 – Risk management.

23. Accrued liabilities and provisions

The following shows a breakdown of the changes in the different categories of accrued liabilities and provisions for the years ended December 31, 2015 and 2014:

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| | Asset retirement obligation | Litigations | Comuneros provisions | Environmental contingencies and others | Total |
|-------------------------------------|-----------------------------------|----------------|-------------------------|--|------------------|
| Balance at December 31, 2014 | 4,281,107 | 299,551 | 551,497 | 705,916 | 5,838,071 |
| Additions (recoveries) | (60,813) | (188,962) | 150,989 | 188,701 | 89,915 |
| Uses | (84,333) | (10,791) | - | (74,876) | (170,000) |
| Financial cost | 238,876 | - | - | 2,417 | 241,293 |
| Foreign currency translation | 89,793 | - | - | 5,905 | 95,698 |
| Transfers to assets held for sale | (12,261) | - | - | (5,369) | (17,630) |
| Balance at December 31, 2015 | 4,452,369 | 99,798 | 702,486 | 822,694 | 6,077,347 |
| Current | 195,858 | 85,364 | - | 372,275 | 653,497 |
| Non-current | 4,256,511 | 14,434 | 702,486 | 450,419 | 5,423,850 |
| Total | 4,452,369 | 99,798 | 702,486 | 822,694 | 6,077,347 |

| | Asset retirement obligation | Litigations | Comuneros provisions | Environmental contingencies and others | Total |
|-------------------------------------|-----------------------------------|----------------|-------------------------|--|------------------|
| Balance at January 1, 2014 | 3,456,184 | 537,440 | 445,364 | 479,358 | 4,918,346 |
| Additions (recoveries) | 657,024 | (210,153) | 106,133 | 234,539 | 787,543 |
| Uses | (97,661) | (27,736) | - | (15,083) | (140,480) |
| Financial cost | 217,164 | - | - | - | 217,164 |
| Foreign currency translation | 48,396 | - | - | 7,102 | 55,498 |
| Balance at December 31, 2014 | 4,281,107 | 299,551 | 551,497 | 705,916 | 5,838,071 |
| Current | 174,022 | 284,680 | - | 384,255 | 842,957 |
| Non-current | 4,107,085 | 14,871 | 551,497 | 321,661 | 4,995,114 |
| Total | 4,281,107 | 299,551 | 551,497 | 705,916 | 5,838,071 |

23.1 Asset Retirement Obligation

The Asset Retirement Obligation represents the Company's future obligation to restore environmental conditions to a level similar to that existing before the start of projects or activities, in accordance with that described in section 4.13. As these relate to long-term obligations, this liability projects expected future payments and is discounted to present value at a rate indexed to the Company's financial obligations, taking into account the timing and risks relating to this obligation. Compared with the previous year, there was an increase in the discount rate, which resulted in a recovery of the provision for Asset Retirement Obligation. The most significant asset retirement corresponds to Exploration and Production assets. The interest rate used for these assets was 7.28% in 2015 (2014 – 5.66%).

23.2 Litigations

The following is a summary of the main legal proceedings, for which allowances have been recognized in the Consolidated Financial Statements due to a probable outflow of resources:

| Lawsuit | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|---|----------------------|----------------------|--------------------|
| Compensation for damages for hydrocarbon easement in property near the <i>Refineria de Cartagena</i> . | 11,019 | 11,019 | - |
| Labor proceeding of 2007 for the reassessment of salaries and social benefits to 232 Ecopetrol contractors. In the last quarter of 2015, the demanding files request for conciliation with a new amount of COP\$9,338. | 9,338 | 10,060 | - |
| Proceeding to reassess social, legal and extralegal benefit payments and monthly pension payments made under the saving incentive heading. | 5,632 | 4,731 | 18,689 |
| Contributions to the solidarity and electric-power-generation income redistribution fund, pursuant to Act 142 of 1994. | | | |
| In order to protect their constitutional right of defense, Ecopetrol filed a proceeding (tutela) before the Consejo de Estado that ruled in favor of the company based on denial to the justice administration, therefore the court pronounced the annulment of all the all proceedings in the case. As a result the company considers that is unlikely a future outlay due to this process, and made a change in the accounting recognition for this year. | - | 141,505 | 283,010 |
| By extension of the Garcero Association Contract, in defense of the public heritage and free economic competition. | | | |
| This process was favorable to Ecopetrol on second instance, generating a remote probability of future outflow of resources and the reversal of the provision in this respect. | - | 77,592 | 155,184 |

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23.3 Comuneros Provisions – Santiago de las Atalayas

It includes the injunctive relief ordered by the State Council in its decree of 1994 in the annulment action brought by the Ministry of Mines and Energy against Comuneros (community members) of Santiago de las Atalayas and Pueblo Viejo de Cusiana, corresponding to the attachment and seizure of the payments to be made by Ecopetrol for royalties, based on Royalty contracts declared null and void by the State Council in its ruling of 1999, in which it was ordered that such injunctive relief should be cancelled and that the attached and seized amounts should be handed over to the State – the Ministry of Mines. Ecopetrol has capacity as receiver. From such amount, COP\$ 90,752 corresponds to the value initially recognized by Ecopetrol, as well as the valuation of the fund containing the resources; COP\$611,734 corresponds to net interest income generated. In a ruling on December 12, 2012, notified by an edict on January 21, 2013, the State Council declared that the special plea for reconsideration filed by the Comuneros was dismissed. In November 2014 and December 2015, a new application was filed whereby Ecopetrol reiterated its request that the amounts seized in these proceedings be handed over, as the Company has paid the Nation and the beneficiary territorial entities the amount of total royalties incurred during the enforcement of the injunctive relief, and subsequently, these resources belong to Ecopetrol. It has not been obtained pronouncements to date. The amount of these resources are invested in cash and equivalents COP\$2,654 (2014 - COP\$3,085) and other financial assets for COP\$699,832 (2014 - COP\$548,413).

23.4 Environmental contingencies and others

Relates mainly to obligations regarding environmental compensation for the use, harnessing or impact on natural resources in the context of environmental authorizations, as well as the mandatory 1% investment for water withdrawn directly from natural sources in accordance with the provisions of Law 99 of 1993 (Article 43) and Decree 1900 of 2006, in connection with the projects that Ecopetrol carries out in the regions.

23.5 Legal proceedings not recognized

The following is a summary of the main contingent liabilities that have not been recognized in the Statement of Financial Position, since, according to evaluations performed by Company's internal and external advisors, their occurrence is not probable:

| Lawsuit | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|---|------------------------------|------------------------------|----------------------------|
| Contributions to electric-power-generation pursuant to Act 142 of 1994. | 219,944 | 219,944 | 219,944 |
| Compensation to third parties due to damage made by hydrocarbon spills | 43,333 | 14,245 | 14,245 |
| Proceeding to reassess social, legal and extralegal benefit payments made under the saving incentive heading. | 16,562 | 16,562 | 16,562 |

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23.6 Detail of contingent assets

Below, there is a detail of the major assets contingencies, of which occurrence is possible:

| Claims | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|---|------------------------------|------------------------------|----------------------------|
| Nullity of Resolution No. 113 of 1971 from the Presidency of the Republic, in respect of the ownership of the subsoil to private parties known with the name of Santiago de Las Atalayas and Pueblo Viejo de Cusiana. | 175,000 | 175,000 | 175,000 |
| Failure of the pipeline purchase order. | 21,232 | 21,232 | 21,232 |
| Nullity of the administrative act that established a special contribution for public works contracts. | 14,956 | 14,956 | - |
| Nullity of the administrative act that established a special contribution for public works contracts | 13,214 | 13,214 | - |
| Breach of the contract for delivery of hydrotreatment units. During the last quarter of 2015 a conciliation agreement was presented which caused the process end with a balance in favor of Ecopetrol S.A. for an amount of COP\$17,000 | - | 142,715 | 142,715 |
| Arbitration court formed to settle the differences between Offshore LLC against Ecopetrol and KNOC. During the last quarter of 2015, the Federal Court of Appeals in New York ruled in favor of Ecopetrol and KNOC process in relation to claims for post-closing contingencies related to the acquisition of Savia Peru. | 176,885 | 176,885 | - |

24. Derivative financial instruments

The following is a summary of the Derivative financial instruments and the hedging elements at December 31, 2015 and 2014 as well as the gain (losses) recognized in this period:

| Cash flow hedges - Instruments | Face value | Unit | Average price agreed (COP\$/USD) | Fair value | | |
|--|-------------------|-------------|---|------------------------------|------------------------------|-------|
| | | | | December 31, 2015 | December 31, 2014 | |
| Forward - Exchange rate - purchase | 14,880,659 | USD | COP\$2,623 Pesos/USD | | | |
| Forward - Exchange rate – sell | 191,205,145 | USD | COP\$2,433 | 101,319 | 136,017 | |
| Derivatives | | | | | | |
| Options - Exchange rate Collar | 20,000,000 | USD/month | Min: COP\$ 2,050 Max:COP\$2,678 | Pesos/USD | - | 4,038 |
| Total liabilities for hedging instruments | | | | 101,319 | 140,055 | |

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| | Gain (losses) recognized in profit or loss | | Gain (losses) recognized in equity | |
|---|--|------------------|------------------------------------|----------|
| | 2015 | 2014 | 2015 | 2014 |
| Derivative financial instruments | | | | |
| Commodities – Oil (Note 31.1) | (4,141) | - | 212 | |
| Exchange rate | (108,486) | (138,631) | (60,295) | - |
| | <u>(112,627)</u> | <u>(138,631)</u> | <u>(60,083)</u> | <u>-</u> |

At December 31, 2015, Oleoducto Central S.A. entered into derivative contracts, which purpose is to mitigate the exchange rate volatility in the cash flow required for short-term operations. The mitigation of these risks is made through the purchase/sale of US Dollars in non-delivery forward contracts.

The hierarchy of fair value of these instruments is level 2 which was calculated based on observable inputs, using the forward rate methodology.

25. Equity

The main components of equity are comprised as follows:

25.1 Subscribed and paid-in capital

Ecopetrol's authorized capital amounts to COP\$36,540,000, and is comprised of 60,000,000,000 ordinary shares, 41,116,694,690 of such shares have been subscribed represented by 11.51% (4,731,905,873 shares) of natural and non-government entities and 88.49% (36,384,788,817 shares) held by Government entities. The value of unsubscribed capital shares amounts to COP\$11,499,933 comprised by 18,883,305,310 shares. At December 31, 2015, subscribed and paid-in capital amounts to COP\$25,040,068 (December 31 and January 1, 2014 COP\$ 10,279,175). There are no potentially dilutive instruments.

On March 26, 2015, the General Stockholders' Meeting approved the capitalization of occasional reserves of Ecopetrol S.A. for COP\$14,760,893 through the mechanism of increasing the face value. This capitalization of reserves did not modify materially the number of ordinary shares registered.

25.2 Additional paid-in capital

It mainly corresponds to: (i) surplus with respect to its nominal value derived from the sale of shares upon capitalization in 2007, in the amount of COP\$4,457,701, (ii) COP\$31,351, the value generated by the process of placing the shares on the secondary market, arising from the calling of guarantees from debtors in arrears, according to the provisions of Article 397 of the Code of Commerce, (iii) to the surplus over nominal value arising from the sale of shares awarded in the second round, which took place in September 2011, in the amount of COP\$2,118,492, and (iv) additional paid-in capital receivable for COP\$155.

25.3 Equity reserves

The balance of equity reserves is comprised as follows:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|----------------------------|-------------------------|--------------------------|--------------------------|
| Legal reserve | 5,227,726 | 5,271,104 | 5,033,539 |
| Occasional reserve | 488,090 | 12,938,996 | 9,956,268 |
| Tax and mandatory reserves | 780,228 | 231,698 | 397,873 |
| Total | <u>6,496,044</u> | <u>18,441,798</u> | <u>15,387,680</u> |

The following shows the balance and a breakdown of the changes in equity reserves according to the General Stockholders Meeting approved in 2015 and 2014:

| | December 31, 2015 | December 31, 2014 |
|--------------------------------|-------------------------|--------------------------|
| Opening balance | 18,441,798 | 15,387,680 |
| Release of occasional reserves | (12,823,783) | (10,161,138) |
| Appropriation of reserves | 15,638,922 | 13,215,256 |
| Capitalization of reserves | (14,760,893) | - |
| Closing balance | <u>6,496,044</u> | <u>18,441,798</u> |

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Legal reserve

The Code of Commerce establishes the appropriation obligation of 10% of net income to the legal reserves until the legal reserves are equal to 50% of the subscribed capital. The legal reserve can be used to offset losses or for distribution in the event of a Company's liquidation.

Occasional reserves

This corresponds to the appropriation of earnings ordered by the Stockholders' meeting to carry out new explorations and future investments, as well as unrealized profits between group companies. On March 26, 2015, The Ecopetrol Stockholders' Meeting approved the release of occasional reserves of COP\$12,823,873, the appropriation of the occasional reserves of COP\$15,167,878 and the capitalization of occasional reserves for COP\$14,760,893, through the mechanism of face value increase. The appropriation of occasional reserves by the subsidiaries was COP\$471,044 in 2015.

On March 26, 2014, The Ecopetrol Stockholders' Meeting approved the release of occasional reserves of COP\$10,161,138, the appropriation of the occasional reserves of COP\$12,802,791. The appropriation of occasional reserves by the subsidiaries was COP\$412,465 in 2014.

Tax and mandatory reserves

The Colombian tax regime contemplates the appropriation of the period's profits equivalent to 70% when the value of the depreciation claimed for tax purposes exceeds the accounting depreciation. This reserve may be released to the extent that the depreciations subsequently accounted exceed those annually claimed for tax purposes, or the assets that generated the higher value deducted are sold.

In addition, Decree 2336 of 1995 set out the obligation to establish a reserve for valuation of investments. The profits generated at the closing of the accounting period as a consequence of the application of special valuation systems at market prices and that have not been made on behalf of the Company, will be taken to a reserve.

25.4 Retained earnings and payment of dividends

The following shows the balance and a breakdown of the changes in retained earnings:

| | December 31, 2015 | December 31, 2014 |
|---|------------------------------|------------------------------|
| Opening balance | 7,713,612 | 16,411,555 |
| Income (loss) attributable to owners of Ecopetrol | (7,193,859) | 5,046,517 |
| Appropriation of reserves | (2,815,139) | (3,054,118) |
| Dividends declared | (5,468,521) | (10,690,342) |
| Closing balance | (7,763,907) | 7,713,612 |

The company distributes dividends based on its separate financial statements prepared under Colombian GAAP.

On the results of the 2014 year end, the General Stockholders Meeting approved the distribution of an ordinary dividend per share of COP\$133 attributable to the owners of Ecopetrol. In June, 2015, The Company paid to the minority stockholders COP\$629,344 and COP\$4,149,000 to the majority of stockholders. Dividends declared to the majority shareholder in 2015 payable at December 31, 2015 amounted to COP\$690,177. The dividends paid attributable to non-controlling interest amounted to COP\$715,053 in 2015 and COP\$516,332 in 2014.

In 2014, ordinary dividends of COP\$227 per share were paid and extraordinary dividends for COP\$33 per share, for a total dividend of COP\$260 per share, which were paid in their entirety at December 31, 2014.

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25.5 Other comprehensive income attributable to owners of the Company

The following is a breakdown of other comprehensive income attributable to owners of the Company:

| | December 31, 2015 | December 31, 2014 |
|--|------------------------------|------------------------------|
| Gain of defined benefit obligation (Note 22) | 2,148,395 | 743,793 |
| Gain (loss) on equity instruments measured at fair value (1) | (49,881) | 76,435 |
| Cash flow hedging - Future crude oil exports (Note 31) | (217,291) | - |
| Cash flow hedging – Derivative financial instruments - Exchange rate | (43,590) | - |
| Foreign currency translation | 8,949,728 | 3,160,521 |
| Others | 58,643 | - |
| | <u>10,846,004</u> | <u>3,980,749</u> |

(1) During the third quarter of 2015, it was classified to profit or loss COP\$19,405 proceeds from the realization of valuations at market prices accumulated in equity from assets held for sale - Empresa de Energía de Bogotá (Note 10).

26. Sales revenue

The following is a breakdown of sales revenue for the years ended December 31:

| | 2015 | 2014 |
|--|--------------------------|--------------------------|
| National sales | | |
| Mid-distillates | 10,215,224 | 11,983,455 |
| Gasoline | 6,128,208 | 6,394,422 |
| Services | 4,435,274 | 3,778,073 |
| Natural gas | 1,845,345 | 1,346,625 |
| Plastic and rubber | 724,392 | 667,563 |
| Crude | 491,279 | 1,213,718 |
| Asphalts | 461,188 | 459,072 |
| L.P.G. and propane | 335,494 | 426,450 |
| Other products | 988,346 | 1,001,321 |
| | <u>25,624,750</u> | <u>27,270,699</u> |
| Recognition of price differential (1) | 441,871 | 485,409 |
| | <u>26,066,621</u> | <u>27,756,108</u> |
| Foreign sales | | |
| Crude | 21,181,265 | 30,835,510 |
| Fuel oil | 2,166,469 | 3,921,703 |
| Trading of crude | 1,309,196 | 1,486,060 |
| Plastic and rubber | 1,096,730 | 975,282 |
| Natural gas | 182,950 | 423,461 |
| Gasoline and turbo fuel | 93,125 | 127,090 |
| Diesel | 81,982 | 179,738 |
| Cash flow hedging – Reclassification to profit or loss (Note 31) | 7,646 | - |
| Others | 161,287 | 266,936 |
| | <u>26,280,650</u> | <u>38,215,780</u> |
| Total sales revenue | <u>52,347,271</u> | <u>65,971,888</u> |

1) Corresponds to the application of Decree 1880 of September 2014 and Resolution 180522 of 2010, which defined the procedure for price differentials (value generated by the difference between the parity price and the regulated price, which can be positive or negative). See section 4.16 – Revenue recognition, for more details.

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27. Cost of sales before impairment of non-current assets

The following is the detail of cost of sales according to their function, for the years ended December 31:

| | <u>2015</u> | <u>2014</u> |
|--|-------------------|-------------------|
| Variable costs | | |
| Imported products (1) | 12,935,878 | 13,264,700 |
| Depreciation, depletion and amortization | 5,166,455 | 5,114,053 |
| Hydrocarbon purchases - ANH (2) | 3,741,010 | 6,630,309 |
| Purchases of crude in association and concession | 1,928,938 | 3,293,594 |
| Hydrocarbons transportation services | 1,380,733 | 1,548,115 |
| Purchases of other products and gas | 703,163 | 1,021,327 |
| Services contracted in associations | 563,032 | 612,013 |
| Gas royalties in cash (3) | 481,029 | 399,752 |
| Electric power | 424,920 | 408,248 |
| Processing materials | 366,454 | 349,953 |
| Others | (322,547) | 98,904 |
| | <u>27,369,065</u> | <u>32,740,968</u> |
| Fixed costs | | |
| Maintenance | 2,334,130 | 2,646,832 |
| Labor cost | 1,542,701 | 1,369,654 |
| Depreciation and amortization | 1,433,263 | 1,144,437 |
| Services contracted in associations | 1,415,422 | 1,674,322 |
| Services contracted | 1,301,094 | 1,578,918 |
| Taxes and contributions | 461,624 | 607,494 |
| General costs | 461,994 | 441,718 |
| Materials and operating supplies | 435,238 | 500,934 |
| Hydrocarbons transportation services | 147,733 | 74,976 |
| Non-capitalized project costs | 92,252 | 194,875 |
| | <u>9,625,451</u> | <u>10,234,160</u> |
| | <u>36,994,516</u> | <u>42,975,128</u> |

- (1) Mainly corresponds to purchases of diesel and diluent agents to facilitate the transportation of heavy crude oil.
- (2) Corresponds mainly to the purchases of crude royalties that Ecopetrol makes from the National Hydrocarbons Agency (*Agencia Nacional de Hidrocarburos* or ANH by its acronym in Spanish) derived from national production, by both the Company in direct operation and third parties.
- (3) By means of Resolution 877 of September 2013, the National Hydrocarbons Agency established that, as from January 1, 2014, it will collect payment in cash, not in kind, for royalties generated by gas production.

28. Administration, operation and project expenses

The following is the detail of administration, operation and project expenses, according to their function, for the years ended December 31:

| | <u>2015</u> | <u>2014</u> |
|--|------------------|------------------|
| Administration expenses | | |
| Taxes (1) | 730,841 | 102,028 |
| Labor expenses | 491,748 | 463,836 |
| General expenses and other | 393,971 | 410,288 |
| Depreciation and amortization | 84,425 | 54,883 |
| | <u>1,700,985</u> | <u>1,031,035</u> |
| Operation and project expenses | | |
| Exploration expenses | 1,584,249 | 2,576,294 |
| Commissions, fees, freights and services | 878,259 | 1,244,045 |
| Corporate projects | 456,159 | 269,495 |
| Taxes | 348,871 | 449,824 |
| Labor expenses | 309,021 | 266,362 |
| Maintenance | 181,630 | 241,313 |
| Fee for regulatory entities | 77,909 | 108,263 |
| Depreciation and amortization | 86,215 | 103,834 |
| Various | 111,955 | 260,895 |
| | <u>4,034,268</u> | <u>5,520,325</u> |

- (1) It mainly includes the recognition of wealth tax. See Note 9 – Current tax assets and liabilities.

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29. Impairment of non-current assets and other operating income and (expenses)

The following is the detail of impairment of non-current assets and other operating income and expenses, for the years ended December 31:

Impairment of non-current assets details:

| | 2015 | 2014 |
|--|--------------------|--------------------|
| Investments in associates and joint ventures (Note 14) | (588,144) | (114,734) |
| Goodwill (Note 19) | (266,900) | - |
| Property, plant and equipment (Notes 15-18) | (4,144,754) | (1,491,809) |
| Natural and environmental resources (Notes 16-18) | (2,865,077) | (694,720) |
| Intangibles (Note 17-18) | - | (3,304) |
| | (7,864,875) | (2,304,567) |

Other operating income and (expenses) detail:

| | 2015 | 2014 |
|---|----------------|----------------|
| Deferred BOMT's income (1) | 193,197 | 140,372 |
| Compensation received | 29,848 | 24,648 |
| Earnings from the sale of materials and property, plant and equipment | 50,116 | 8,426 |
| Loss on fixed assets and natural resources disposals | (43,372) | (119,804) |
| Recovery of legal processes accrual (Note 23) | 205,879 | 203,688 |
| Current Assets Impairment expenses | (2,858) | (24,784) |
| Gas pipeline availability under BOMT's contracts | (124,957) | (102,916) |
| Other income (expenses), net | 70,685 | 178,564 |
| | 378,538 | 308,194 |

(1) BOMT = Build, Operate, Maintain and Transfer contracts

30. Finance result, net

The following is the detail of finance results, net for the years ended December 31:

| | 2015 | 2014 |
|--|--------------------|--------------------|
| Finance Income | | |
| Yield and interest | 293,507 | 286,527 |
| Valuation of financial assets (1) | 164,614 | 57,807 |
| Gain on sale of investments | 72,339 | - |
| Dividends | 91,464 | 53,202 |
| Gain from hedging transactions | - | 2,282 |
| | 621,924 | 399,818 |
| Finance costs | | |
| Interest (2) | (1,768,618) | (754,276) |
| Other liabilities financial costs (3) | (627,827) | (651,055) |
| Finance expense from financial assets | (167,869) | (57,640) |
| Loss from hedging transactions | (108,486) | (140,913) |
| Other finance expenses | (45,614) | (36,410) |
| | (2,718,414) | (1,640,294) |
| Foreign exchange loss gain, net (2) | (5,566,614) | (2,270,193) |
| Finance result, net | (7,663,104) | (3,510,669) |

(1) Includes fair value measured of other financial assets.

(2) Interest was capitalized during the period to natural resources and property, plant and equipment for COP\$744,426 (2014 – COP\$640,698). Foreign exchange gain was COP\$21,813,720 in 2015 (2014 - COP\$27,380,334) and Foreign exchange loss was COP\$7,360,782 in 2015 (2014 - COP\$9,630,975)

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(3) Includes finance cost of asset retirement obligations and Post-employment benefits liabilities.

31. Risk management

31.1 Commodity price risk

Ecopetrol's business depends substantially on international prices for crude oil and refined products. The prices for these products are volatile; and drastic changes could adversely affect the Company business prospects and results of operations.

A large proportion of Ecopetrol's revenues come from sales of crude oil, natural gas and refined products. These products are indexed to international reference prices such as the ICE Brent Index. Consequently, fluctuations in those international indexes have a direct effect on the financial condition and Company's results of operations.

Prices of crude oil, natural gas and refined products have historically fluctuated as a result of a variety of factors including, among others, competition within the oil and natural gas industry; changes in international prices of natural gas and refined products; long-term changes in the demand for crude oil, natural gas and refined products; regulatory changes; changes in the cost of capital; adverse economic conditions; transactions in derivative financial instruments related to oil and gas and development or availability of alternative fuels.

The Ecopetrol Business Group has a policy approved by the Board of Directors that allows it to use derivative financial instruments in the organized market or over the counter (OTC) to cover itself from the risk of price fluctuations of crude oil and refined products associated to physical transactions. The Company has established appropriate process to handle risk that include constant monitoring of physical and financial market to identify risks in order to subsequently prepare and execute hedging strategies.

During June 2015, the Company entered into a short-term derivative transaction with the purpose of mitigating in a 1-million Castilla crude oil barrels export, the exposure to the risk of price index different from the benchmark of the Company's international trade strategy. This transaction was settled in July 2015 with a loss of COP\$4,141.

As of December 31, 2015, there is an open position regarding a price hedging transaction for the export of Napo Crude up to 225,000 barrels, with settlement in January 2016. As of December 31, it was recognized in other comprehensive income, net of taxes COP\$212.

31.2 Exchange rate risk

The group mainly operates in Colombia and makes sales in the local and international markets. We are exposed to the exchange rate risk that arises from various foreign currency exposures due to commercial transactions and assets and liabilities held in foreign currency. The impact of fluctuations in exchange rates, especially the Pesos/USD rate, on operations has been material.

The USD /pesos exchange rate has fluctuated during the last several years. The peso depreciated 37.3% on average in 2015 and 7.1% in 2014. The exchange rates were COP\$3,149.47, COP\$2,392.46 and COP\$ 1,926.83 at December 31, 2015, 2014 and 2013, respectively.

When the Colombian peso appreciates in comparison with U.S. dollar, export revenues decrease when translated into Pesos. However, imported goods, oil services and interest on external debt denominated in U.S. dollars become less expensive for us. Conversely, when the Colombian peso depreciates in comparison with the U.S. dollar, revenues from exports, when translated into Pesos, increase, and imports and external debt service become more expensive.

The following table sets out the carrying values for financial assets and liabilities denominated in foreign currencies at the consolidated level:

| USD COP\$ Million | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|-------------------------------------|----------------------|----------------------|--------------------|
| Cash and cash equivalents | 970 | 1,905 | 1,528 |
| Other financial assets | 381 | 438 | 1,009 |
| Trade receivables and payables, net | (546) | (463) | (439) |
| Loans and borrowings | (14,634) | (11,638) | (7,921) |
| Net liability position | (13,829) | (9,758) | (5,823) |

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Of the total net liability position, approximately 31% relates to financial assets and liabilities for companies that have the Colombian peso as their functional currency, whose value has affected results for the financial year. 69% of the net position relates to monetary assets and liabilities for group companies that have the dollar as their functional currency and non-derivate hedging instruments from Ecopetrol S.A., whose value is recognized in other comprehensive income.

The Company's risk management strategy involves the use of non-derivative financial instruments related to cash flow hedges for future exports, in order to minimize exposure to currency rate risk.

31.2.1 Cash Flow Hedge for Future Company Exports

Ecopetrol S.A. is exposed to foreign exchange risk given that a high percentage of its crude export revenues are denominated in U.S. dollars. In recent years, the company has acquired long-term debt for investment activities in the same currency that projects receiving the cash flow of its export revenues. This situation creates a natural hedge relationship due to the fact that the risks generated by the foreign exchange difference of export revenues to Ecopetrol's functional currency (Colombian pesos) are naturally hedged with the foreign exchange valuation risks of the long-term debt in U.S. dollars, aligned with the company's risk management strategy.

With the objective of presenting in the Financial Statements the effect of the mentioned natural hedge between exports and debt, understanding that the exchange rate risk materializes when the exports are made, on October 1°, 2015, the Board of Directors designated USD 5,440 million of Ecopetrol S.A.'s debt as hedge instrument of its future export sales for the period 2015- 2023, in accordance with IAS 39 – Financial instruments: recognition and measurement.

Hedge accounting records the impact of foreign exchange gains/losses on the hedging instrument on statement of profit and loss effectively at the time of realization of the hedged risk. For this to happen, every month when the foreign currency debt is translated to Colombian pesos at the closing exchange rate, the effects on foreign exchange differences are recognized as part of the other comprehensive income. Once the hedged operation occurs and revenue is recognized, the cumulative exchange differences held within in other comprehensive income is reclassified to profit or loss statement, impacting operating income and EBITDA.

The following shows the movement of these non-financial hedging instruments:

| | USD (millions) |
|--|-----------------------|
| Hedging instruments designated at October 1°, 2015 | 5,376 |
| Reassignment of hedging instruments | 277 |
| Realized exports | (277) |
| Hedging instruments at December 31, 2015 | 5,376 |

The expected reclassification of the exchange differences accumulated in other comprehensive income to profit and loss state is as follows:

| | Amount | Income tax (Average 37%) | Net |
|------|----------------|-------------------------------------|----------------|
| 2016 | 73,404 | (27,150) | 46,254 |
| 2017 | 72,856 | (26,947) | 45,909 |
| 2018 | 70,694 | (26,148) | 44,546 |
| 2019 | 55,511 | (20,532) | 34,979 |
| 2020 | 21,223 | (7,850) | 13,373 |
| 2021 | 17,125 | (6,334) | 10,791 |
| 2022 | 17,125 | (6,334) | 10,791 |
| 2023 | 16,898 | (6,250) | 10,648 |
| | 344,836 | (127,545) | 217,291 |

This has been effective since the start date of the hedge for future exports, according to the effectiveness tests performed.

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31.2.2 Sensitivity analysis for exchange rate risk

The following table shows the impact that a variation of 1% and 5% in the exchange rate of the Colombian peso vs the United States of America dollar would have on the assets and liabilities held in such currency at December 31, 2015:

| Variation in the exchange rate | Effect in income before taxes (+/-) | Effect in other comprehensive income (+/-) |
|--------------------------------|-------------------------------------|--|
| 1% | 136,215 | 299,326 |
| 5% | 681,073 | 1,496,628 |

Sensitivity analysis includes only monetary assets and monetary liabilities held in foreign currency at the closing date and the effect of the Cash Flow Hedge for Future Company Exports.

31.3 Credit risk

Credit risk is the risk that the Company may suffer losses as a consequence of the breach of contracts for purchase and sale of crude oil, gas, refined and petrochemical products and transportation services, in addition to the financial institutions in which it keeps investments or the counterparties with which it has contracted derivative financial instruments.

In performance of the sale process of crude oil, gas, refined and petrochemical products and transportation services, the Company may be exposed to credit risk in the event that customers fail to comply with their payment obligations. Risk management has designed mechanisms and procedures that have permitted the Company to minimize the probability of materialization, thus safeguarding the Company's cash flow.

The Company performs a continuous analysis of the financial strength of its counterparties, which implies their classification according to their risk level and financial supports in the event of a cessation of payments. In addition, a constant monitoring is made of the national and international market conditions in order to establish early alerts of major changes that may have an impact on the timely payment of obligations from customers of the Company.

For the bad debts, an individual analysis is performed that allow us analyzing individually the situation of each customer and thus define the applicable allowance to be established, such as age of receivables. The group carries out the administrative and legal actions necessary to recover past due accounts receivable, as well as the collection of interest from customers who do not comply with payment policies.

Credit quality of financial assets

Following the promulgation of Decree 1525 of 2008, which provides general rules on investments for public entities, Ecopetrol S.A.'s management established guidelines for our investment portfolios. These guidelines determine that investments in Ecopetrol S.A.'s U.S. dollar portfolio are generally limited to investments of our excess cash in fixed-income securities issued by entities rated A or higher in the long term and A1/P1/F1 or higher in the short term (international scale) by Standard & Poor's Ratings Services, Moody's Investors Service or Fitch Ratings. In addition, Ecopetrol S.A. may also invest in securities issued or guaranteed by the U.S. government or Colombian government, without regard to the ratings assigned to such securities. In Ecopetrol S.A.'s Peso portfolio, it must invest our excess cash in fixed-income securities of issuers rated AAA in the long term, and F1+/BRC1+ in the short term (local scale) by Fitch Ratings Colombia or BRC Standard & Poor's. In addition, Ecopetrol S.A. may also invest in securities issued or guaranteed by the Colombian government without rating restrictions.

In order to diversify risk in our Peso portfolio, Ecopetrol S.A. does not invest more than 10% of the excess of cash in one specific issuer. In the case of our U.S. dollar portfolio, it does not invest more than 5% of the excess of cash in one specific issuer in the short term (up to 1 year), or 1% in the long term. The Company complied with this policy.

At December 31, 2015, the business group does not have significant concentrations of credit risk. The following is the analysis of aging of customer portfolio in arrears but not impaired, at December 31, 2015:

| | December 31, 2015 |
|-------------------------|--------------------------|
| Less than 3-month | 71,791 |
| Between 3- and 6- month | 4,862 |
| More than 6-month | 116,849 |
| Total | 193,502 |

31.4 Interest rate risk

Interest rate risk arises from Ecopetrol's exposure to changes in interest rates, as we have fixed floating-rate instruments in Ecopetrol's investment portfolio and issuances of floating rate debt linked to LIBOR, DTF and IPC rates. Thus, volatility in interest rates may affect the fair value and cash flows related to Company's investments and floating rate debt.

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At December 31, 2015, approximately 31% of Company total indebtedness consisted of floating rate debt. If market interest rates rise, financing expenses will increase and could have an adverse effect on results of operations and financial condition.

Ecopetrol S.A. controls the exposure to interest rate risk by establishing limits to its effective duration, Value at Risk and Tracking Error.

The trust funds linked to Ecopetrol S.A.'s pension obligations (PAP) are also exposed to changes in interest rates, as they include fixed- and floating-rate instruments that are marked to market. Colombian regulation for pension funds, as stipulated in the Decree 941 of 2002 and Decree 1861 of 2012, indicates that they have to follow the same regime as the regular obligatory pension funds in their moderate portfolio.

The following table provides information about the sensitivity of Company's results and other comprehensive income, for the next 12 months, to variations in interest rate of 100 basis points:

| Variation in interest rate | Financial liabilities (Financial result) | Financial assets (Financial result) | Plan assets (Other comprehensive income) |
|----------------------------|---|--|---|
| + 100 basis points | (159,051) | (24,742) | (281,926) |
| - 100 basis points | 148,408 | 24,742 | 281,926 |

Sensitivity analysis of discount rates on pension plans is shown in its corresponding note of Labor and pension plan obligations.

31.5 Liquidity risk

The ability to access the capital necessary to finance the Company's investment plans on terms acceptable to us, can be limited due to deterioration in market conditions. A new financial crisis could worsen the risk perception in the emerging markets.

Risks related to Colombia's political and regional environment could also make it more difficult to access international capital markets. These conditions, along with significant write-offs in the financial services sector and the re-pricing of credit risk, can make it difficult for us to obtain funding for capital needs on favorable terms. As a result, we may be forced to revise the timing and scope of these projects as necessary to adapt to existing market and economic conditions, or access the financial markets on terms less favorable, therefore negatively affecting the Company's results of operations and financial condition.

Liquidity risk is managed in accordance with The Company's policies aimed at ensuring that there are sufficient net funds to meet the Company's financial commitments within its maturity schedules, with no additional costs. The main method for the measurement and monitoring of liquidity is cash flow forecasting.

The following is a summary of the maturity of financial liabilities at December 31, 2015. The amounts disclosed in the table are the contractual undiscounted cash flows. The payments in foreign currency were restated taking a constant exchange rate of COP\$ 3,149.47 Colombian pesos per dollar. Consequently, these amounts may not reconcile with the amounts disclosed on the consolidated statement of financial position.

| | Up to 1 year | 1 - 5 years | 5-10 years | > 10 years | Total |
|-----------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Loans (Principal and Interests) | 4,888,992 | 27,408,454 | 23,396,829 | 25,878,137 | 81,572,412 |
| Trade and other accounts payables | 7,757,277 | 500,714 | - | 3 | 8,257,994 |
| Derivative financial instruments | 101,319 | - | - | - | 101,319 |
| Total | 12,747,588 | 27,909,168 | 23,396,829 | 25,878,140 | 89,931,725 |

31.6 Capital management

The main objective of Ecopetrol's Capital Management is to ensure a financial structure that will optimize the Company's cost of capital, maximizes the returns to its shareholders and allows access to financial markets at a competitive cost to cover its financing needs.

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The leverage index at the relevant periods is comprised as follow:

| | December 31, 2015 | December 31, 2014 | January 1, 2014 |
|---|----------------------|----------------------|--------------------|
| Loans and borrowings (Note 20) | 53,223,338 | 35,041,628 | 22,693,263 |
| Cash and cash equivalents (Note 6) | (6,550,450) | (7,618,178) | (8,805,090) |
| Other financial assets not restricted (Note 11) | (885,547) | (933,406) | (1,680,242) |
| Net financial debt | 45,787,341 | 26,490,044 | 12,207,931 |
| Equity (Note 25) | 43,100,963 | 48,534,228 | 49,864,569 |
| Leverage (1) | 51.51% | 35.31% | 19.67% |

(1) Net financial debt / (Net financial debt + Equity)

32. Related parties

Balances with associated companies and joint ventures as of December 31, 2015, December 31 and January 1, 2014 are as follows:

| | Accounts receivables | Other assets | Accounts payable | Loans |
|-------------------------------------|-------------------------|---------------|------------------|---------------|
| Joint ventures | | | | |
| Equion Energía Limited | 64,583 | 28,668 | 62,861 | 45,913 |
| Ecodiesel Colombia S.A. | - | - | 22,243 | - |
| Associates | | | | |
| Serviport S.A. | 141 | - | 2,359 | - |
| Balance at December 31, 2015 | 64,724 | 28,668 | 87,463 | 45,913 |

| | Accounts receivables | Other assets | Accounts payable | Loans |
|-------------------------------------|-------------------------|--------------|------------------|---------------|
| Joint ventures | | | | |
| Equion Energía Limited | 75,561 | 9,338 | 84,006 | 36,728 |
| Ecodiesel Colombia S.A. | - | - | 20,308 | - |
| Associates | | | | |
| Serviport S.A. | - | - | 3,506 | - |
| Balance at December 31, 2014 | 75,561 | 9,338 | 107,820 | 36,728 |

| | Accounts receivables | Other assets | Accounts payable | Loans |
|-----------------------------------|-------------------------|---------------|------------------|----------------|
| Joint ventures | | | | |
| Equion Energía Limited | 164,711 | 15,558 | 102,529 | 578,423 |
| Ecodiesel Colombia S.A. | - | - | 22,890 | - |
| Associates | | | | |
| Serviport S.A. | - | - | 1,674 | - |
| Balance at January 1, 2014 | 164,711 | 15,558 | 127,093 | 578,423 |

Outstanding amounts are not guaranteed and will be settled in cash. No guarantees have been granted or received. No expense has been recognized in the current period or in previous periods in respect to uncollectable or doubtful accounts related to amounts due by related parties.

The most significant transactions with related parties for the years ended December 31, 2015 and 2014 are comprised as follows:

| | 2015 | | 2014 | |
|---------------------------|----------------|----------------|----------------|----------------|
| Joint ventures | | | | |
| Equion Energía Limited | 515,968 | 190,158 | 908,357 | 79,264 |
| Ecodiesel Colombia S.A. | 7,245 | 267,647 | 3,840 | 220,834 |
| Total transactions | 523,213 | 457,805 | 912,197 | 300,098 |

32.1 Key Executives Management

Based on a resolution adopted at the annual shareholders' meeting in 2012, compensation to directors is the equivalent of four to six minimum monthly wage salaries, which totals approximately COP\$3,700 for 2014 and COP\$3,900 for 2015. Fees for attendance at virtual meetings are set at 50% of the face-to-face meeting fee. The Board of Directors is not subject to any variable remuneration.

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The total compensation paid to Directors, executive officers and senior management during the year ended in December 31, 2015 amounted to COP\$6,690 (2014 - COP\$9,058). The Directors are not eligible to receive pension and retirement benefits from us. The total amount set aside to provide pension and retirement benefits to our eligible executive officers amounted to COP\$10,341 (COP\$13,958).

As of December 31, 2015, the following Key management Executives owned less than 1% of the outstanding shares of Ecopetrol S.A., as follows:

| <u>Key management executive</u> | <u>% Shareholding</u> |
|---------------------------------|---------------------------|
| Joaquín Moreno Uribe | <1% of outstanding shares |
| Roberto Steiner Sampedro | <1% of outstanding shares |
| Mauricio Cárdenas S | <1% of outstanding shares |
| Hector Manosalva Rojas | <1% of outstanding shares |
| Juan Carlos Echeverry | <1% of outstanding shares |

32.2 Government related parties

Colombian Government holds control of Ecopetrol S.A. with a stock ownership of 88.49%. The most significant transactions with governmental entities are comprised as follows:

a) Purchases of crude oil from the National Hydrocarbons Agency (*Agencia Nacional de Hidrocarburos – ANH*)

Because of the business nature, the company has a direct relationship with ANH, an entity which operates under the Ministry of Mines and Energy rules, of which objective is to manage the oil and gas reserves and resources owned by the Nation.

Ecopetrol S.A. purchases the crude oil that the ANH receives from all producers in Colombia at the prices set in accordance with a jointly established formula, which reflects the export sale prices (crude oils and products), adjustment to the API gravity quality, sulfur content, transportation rates from the wellhead to the ports of Coveñas and Tumaco, refining process cost and a commercialization rate. This contract was extended to June 30, 2016.

At December 2013, the Company commercialized, on behalf of the ANH, the natural gas received by the latter in kind from the producers. Since January 2014 the ANH receives the royalties in cash for the production of natural gas.

The purchase value of oil and gas from the ANH is detailed in Note 27-Cost of sales.

Additionally Ecopetrol, like other oil companies, takes part in "rounds" for the allocation of exploration blocks in Colombia, without implying special treatment for Ecopetrol on account of it being an entity whose majority shareholder is the Ministry of Finance.

b) Price differential

Regular gasoline and diesel sale prices are regulated by the National Government. In this case, there are differentials between the volume reported by the Companies at the time of the sale and the difference between the parity price and the benchmark price, where the parity price is that corresponding to the daily motor gasoline and diesel prices observed during the month. These differentials may be in favor or against the producers. The value of this differential is detailed in Note 26 - Revenue.

c) Department of National Tax and Customs

Ecopetrol, just like any other company in Colombia, has tax obligations that it must comply with in respect of this entity, and Ecopetrol does not have any other kind of association or commercial relationship with it. For more information see Note 9 - Tax.

d) Comptroller General of the Republic

Ecopetrol, just like any other state entity in Colombia, is obliged to comply with the requirements set out by this control entity and make an annual payment to this entity on account of a maintenance fee. Ecopetrol does not have any other kind of association or commercial relationship with this entity.

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33. Joint Operations

The Company carries out exploration and production operations through Exploration and Production (E&P) Contracts, Technical Evaluation (TEA) Contracts and Agreements signed with the National Hydrocarbons Agency or ANH, as well as through Partnership Contracts and other types of contracts. The main joint operations in 2015 are as follows:

Contracts in which Ecopetrol is not the operator:

| Partners | Contract | Type | Geographic area of Operations | % Participation |
|--------------------------|---|-------------|-------------------------------|-----------------|
| ANADARKO | K2 | Production | US | 9% |
| | BM-C-29. | Exploration | Brazil | 50% |
| | Fuerte Norte, Fuerte Sur, Purple Angel, Col-5 y | Exploration | Offshore South | |
| | URA-4 | | Caribbean | 50% |
| APACHE | Parmer | Exploration | US | 30% |
| EQUION ENERGIA LIMITED | Niscota | Exploration | Colombia | 20% |
| | Piedemonte | Production | Colombia | 50% |
| MURPHY OIL | Dalmatian North | Production | US | 30% |
| | Dalmatian South | Exploration | US | 30% |
| | Sea Eagle | Exploration | US | 50% |
| NOBLE ENERGY | Gunflint | Exploration | US | 32% |
| PERENCO COLOMBIA LIMITED | Casanare | Production | Colombia | 64% |
| | Corocora | Production | Colombia | 28% |
| | Estero | Production | Colombia | 7% |
| | Garcero | Production | Colombia | 15% |
| | Orocué | Production | Colombia | 23% |
| REPSOL | Leon | Exploration | US | 40% |
| | BM-ES-29. | Exploration | Brazil | 30% |
| | Ronda Caribe RC-11 Y RC-12 | Exploration | Offshore North | |
| SHELL | Deep Rydberg/Aleatico | Exploration | Caribbean | 50% |
| | | Exploration | US | 29% |
| OCCIDENTAL ANDINA LLC | SIN OFF - 7 | | Offshore South | |
| | Chipiron | Production | Caribbean | 35% |
| | Cosecha | Production | Colombia | 30% |
| | Cravo norte | Production | Colombia | 50% |
| | Rondon | Production | Colombia | 50% |

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| Partners | Contract | Type | Geographic area of Operations | % Participation |
|---------------------------------------|-------------------------|---------------------------|-------------------------------|-----------------|
| CHEVRONTEXACO PETROLEUM COMPANY | Guajira CE-M-715_R11 | Production Exploration | Colombia Brazil | 57% 50% |
| MANSAROVAR ENERGY COLOMBIA LTD | Nare | Production | Colombia | 50% |
| META PETROLEUM CORP | Quifa | Production | Colombia | 30% |
| SUCURSAL (1) | Rubiales | Production | Colombia | 58% |
| LEWIS ENERGY COLOMBIA INC | SSJN1 | Exploration | Colombia | 50% |
| PETROBRAS | PAMA-M-187. | Exploration | Brazil | 30% |
| | PAMA-M-188. | Exploration | Brazil | 30% |
| | PAMA-M-222. | Exploration | Brazil | 30% |
| | PAMA-M-223. | Exploration | Brazil | 30% |
| | BM-C-44. | Exploration | Brazil | 38% |
| | BM-S-74. | Exploration | Brazil | 13% |
| HESS | BM-ES-30. | Exploration | Brazil | 30% |
| ONGC | BM-S-73. | Exploration | Brazil | 13% |
| VANCO | BM-S-63. | Exploration | Brazil | 30% |
| | BM-S-71. | Exploration | Brazil | 30% |
| | BM-S-72. | Exploration | Brazil | 30% |
| ONGC VIDESH LIMITED SUCURSAL COLOMBIA | Ronda Caribe RC-10 | Exploration | Offshore North Caribbean | 50% |
| PETROBRAS, REPSOL & STATOIL | Tayrona | Exploration | Offshore North Caribbean | 30% |
| REPSOL & STATOIL | TEA GUA OFF-1 | Exploration | Offshore North Caribbean | 50% |

(1) In March, 2015, Ecopetrol and Pacific Rubiales Energy announced that they have agreed not to extend the Rubiales risk participation and Piriri joint venture contracts that expire in 2016. As a result, Ecopetrol will obtain a 100% interest in both fields as of June, 2016 and will operate directly.

Contracts in which Ecopetrol is the operator:

| Partners | Contract | Type | Geographic area of Operations | % Participation |
|---------------------------------------|------------------------|-------------|-------------------------------|-----------------|
| EXXONMOBIL EXPLORATION COLOMBIA | VMM29 | Exploration | Colombia | 50% |
| MAUREL & PROM COLOMBIA | CPO-17 | Exploration | Colombia | 50% |
| TALISMAN COLOMBIA OIL & GAS LTD | CPO9 | Exploration | Colombia | 55% |
| OCCIDENTAL ANDINA LLC | CPO9 - AKACIAS | Production | Colombia | 55% |
| ONGC VIDESH LIMITED SUCURSAL COLOMBIA | La Cira Infantas | Production | Colombia | 56% |
| PERENCO COLOMBIA LIMITED | RONDA CARIBE NUEVE | Exploration | Colombia | 50% |
| | San Jacinto y Rio Paez | Exploration | Colombia | 36% |
| | | Production | Colombia | 18% |
| LEWIS ENERGY COLOMBIA INC | Clarinero | Exploration | Colombia | 50% |

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34. Segment information

34.1 Basis of classification

The Group operates under three segments: 1) Exploration and Production, 2) Transportation and Logistics and 3) Refining, petrochemicals and biofuels.

- 1) Exploration and Production - this segment includes the Company's oil and gas exploration and production activities. Revenue is derived from the sale of crude oil, regulated fuels, unregulated fuels and natural gas to inter-company segments, at market prices, and to third parties (local and foreign distributors). Costs include those costs incurred in production. Expenses include all exploration costs that are not capitalized.
- 2) Transportation and Logistics - this segment includes the Company's sales and costs associated with the transportation and distributors of crude oil, motor fuels, fuel oil and other refined products.
- 3) Refining and Petrochemicals - this segment includes the Company's refining activities performed in the Barrancabermeja and Cartagena refineries, where crude oil from locations is transformed into products. Revenue is derived from the sale of goods sold, both locally and to third parties (local and foreign), including refined products such as motor fuels, fuel oils and petrochemicals at market prices, as well as some regulated fuels. This segment also includes sales of industrial services to third parties.

These functions have been defined as the operating segments of the Group since these are the segments (a) that engage in business activities from which revenues are earned and expenses are incurred; (b) whose operating results are regularly reviewed by the Group's chief operating decision maker to allocate resources to the segments and assess their performance; and (c) for which discrete financial information is available. Internal transfers represent sales to intercompany segments and are recorded and presented at market prices.

34.2 Financial information by segments

The following segment information is reported based on the information used by the Board, as the top body to make strategic and operational decisions of these business segments. The performance of the segments are based primarily on an analysis of income, costs, expenses and results for the period generated by each segment, which are regularly monitored.

The information disclosed in each segment is presented net of transactions between the Group companies.

The following presents the consolidated statement of profit and loss and other comprehensive income for the years ended December 31, 2015 and 2014:

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| For the year ended December 31, 2015 | | | | | |
|--|-------------------------------|--------------------------------|---------------------------------|---------------------|--------------------|
| | Exploration and production | Refining and petrochemicals | Transportation and logistics | Eliminations | Total |
| Third-party sales | 25,669,213 | 22,456,866 | 4,221,192 | - | 52,347,271 |
| Inter-segment sales | 6,063,398 | 788,810 | 6,623,358 | (13,475,566) | - |
| Total Revenue | 31,732,611 | 23,245,676 | 10,844,550 | (13,475,566) | 52,347,271 |
| Fixed costs | 7,208,632 | 1,902,797 | 3,304,815 | (2,790,793) | 9,625,451 |
| Variable costs | 18,500,240 | 18,856,011 | 439,607 | (10,426,793) | 27,369,065 |
| Cost of sales | 25,708,872 | 20,758,808 | 3,744,422 | (13,217,586) | 36,994,516 |
| Gross income | 6,023,739 | 2,486,868 | 7,100,128 | (257,980) | 15,352,755 |
| Administration expenses | 731,626 | 451,250 | 518,109 | - | 1,700,985 |
| Operation and projects expenses | 2,969,723 | 1,155,301 | 157,596 | (248,352) | 4,034,268 |
| Impairment of non-current assets | 4,504,497 | 3,278,993 | 81,388 | - | 7,864,878 |
| Other operating income and expenses, net | (399,954) | 122,595 | (101,182) | - | (378,541) |
| Operating income | (1,782,153) | (2,521,271) | 6,444,217 | (9,628) | 2,131,165 |
| Finance results, net | | | | | |
| Financial income | 536,121 | 135,622 | 86,568 | (136,387) | 621,924 |
| Financial expenses | (1,774,090) | (451,906) | (492,485) | 67 | (2,718,414) |
| Foreign exchange gain (loss), net | (4,798,741) | (949,176) | 181,303 | - | (5,566,614) |
| | (6,036,710) | (1,265,460) | (224,614) | (136,320) | (7,663,104) |
| Share of profit of companies | (70,407) | 23,187 | 533 | - | (46,687) |
| Income before tax | (7,889,270) | (3,763,544) | 6,220,136 | (145,948) | (5,578,626) |
| Income tax | 2,037,650 | (257,256) | (2,490,747) | - | (710,353) |
| Net income (loss) for the period | (5,851,620) | (4,020,800) | 3,729,389 | (145,948) | (6,288,979) |
| Income attributable to: | | | | | |
| Owners of the Company | (5,851,620) | (4,016,050) | 2,819,759 | (145,948) | (7,193,859) |
| Non-controlling interests | - | (4,750) | 909,630 | - | 904,880 |
| | (5,851,620) | (4,020,800) | 3,729,389 | (145,948) | (6,288,979) |
| Supplementary information | | | | | |
| Depreciation, depletion and amortization | 5,318,587 | 570,033 | 881,738 | - | 6,770,358 |

| For the year ended December 31, 2014 | | | | | |
|--|-------------------------------|--------------------------------|---------------------------------|---------------------|--------------------|
| | Exploration and production | Refining and petrochemicals | Transportation and logistics | Eliminations | Total |
| Third-party sales | 35,903,045 | 26,612,204 | 3,456,639 | - | 65,971,888 |
| Inter-segment sales | 9,252,146 | 560,096 | 4,887,295 | (14,699,537) | - |
| Total Revenue | 45,155,191 | 27,172,300 | 8,343,934 | (14,699,537) | 65,971,888 |
| Fixed costs | 6,788,549 | 1,888,558 | 3,538,797 | (1,981,744) | 10,234,160 |
| Variable costs | 21,139,234 | 23,648,670 | 402,255 | (12,449,191) | 32,740,968 |
| Cost of sales | 27,927,783 | 25,537,228 | 3,941,052 | (14,430,935) | 42,975,128 |
| Gross income | 17,227,408 | 1,635,072 | 4,402,882 | (268,602) | 22,996,760 |
| Administration expenses | 335,432 | 354,221 | 341,523 | (141) | 1,031,035 |
| Operation and projects expenses | 4,288,108 | 1,039,695 | 380,940 | (188,418) | 5,520,325 |
| Impairment of non-current assets | 965,607 | 1,340,086 | (1,121) | - | 2,304,572 |
| Other operating income and expenses, net | (285,821) | 12,490 | (36,643) | 1,775 | (308,199) |
| Operating income | 11,924,082 | (1,111,420) | 3,718,183 | (81,818) | 14,449,027 |
| Finance results, net | | | | | |
| Financial income | 251,902 | 113,237 | 127,262 | (92,583) | 399,818 |
| Financial expenses | (837,510) | (306,174) | (496,615) | 5 | (1,640,294) |
| Foreign exchange gain (loss), net | (2,243,938) | (309,449) | 283,194 | - | (2,270,193) |
| | (2,829,546) | (502,386) | (86,159) | (92,578) | (3,510,669) |
| Share of profit of companies | 154,816 | 11,254 | - | - | 166,070 |
| Income before tax | 9,249,352 | (1,602,552) | 3,632,024 | (174,396) | 11,104,428 |
| Income tax | (4,159,511) | (29,251) | (1,246,093) | - | (5,434,855) |
| Net income for the period | 5,089,841 | (1,631,803) | 2,385,931 | (174,396) | 5,669,573 |
| Income attributable to: | | | | | |
| Owners of the Company | 5,089,841 | (1,627,705) | 1,758,777 | (174,396) | 5,046,517 |
| Non-controlling interests | - | (4,098) | 627,154 | - | 623,056 |
| | 5,089,841 | (1,631,803) | 2,385,931 | (174,396) | 5,669,573 |
| Supplementary information | | | | | |
| Depreciation, depletion and amortization | 5,172,743 | 548,539 | 695,925 | - | 6,417,207 |

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34.3 Sales of products by segment, geographic areas, customers and investments

The following is the detail of sales of products by segment for the years ended December 31, 2015 and 2014:

| | Exploration and production | Refining and petrochemicals | Transportation and logistics | Eliminations | Total |
|--|-------------------------------|--------------------------------|---------------------------------|---------------------|-------------------|
| Local sales | | | | | |
| Med-distillates | 25,782 | 10,206,599 | - | (17,157) | 10,215,224 |
| Gasoline | - | 6,464,661 | - | (336,453) | 6,128,208 |
| Services | 118,812 | 198,369 | 10,822,078 | (6,703,985) | 4,435,274 |
| Natural gas | 2,198,284 | - | - | (352,939) | 1,845,345 |
| Crude oil | 5,847,368 | - | - | (5,356,089) | 491,279 |
| Diesel and asphalts | 49,583 | 411,605 | - | - | 461,188 |
| Plastic and rubber | - | 724,392 | - | - | 724,392 |
| L.P.G. and propane | 154,201 | 190,346 | - | (9,053) | 335,494 |
| Other products | 262,906 | 1,070,725 | 22,472 | (367,757) | 988,346 |
| | 8,656,936 | 19,266,697 | 10,844,550 | (13,143,433) | 25,624,750 |
| Recognition of price differential | - | 441,871 | - | - | 441,871 |
| | 8,656,936 | 19,708,568 | 10,844,550 | (13,143,433) | 26,066,621 |
| Foreign sales | | | | | |
| Crude | 21,495,762 | - | - | (314,497) | 21,181,265 |
| Fuel oil | - | 2,166,469 | - | - | 2,166,469 |
| Trading of crude | 1,309,196 | - | - | - | 1,309,196 |
| Natural gas | 233,500 | - | - | (50,550) | 182,950 |
| Gasoline and turbo fuel | 27,756 | 65,369 | - | - | 93,125 |
| Diesel | - | 81,982 | - | - | 81,982 |
| Plastic and rubber | - | 1,096,730 | - | - | 1,096,730 |
| Cash flow hedging – Reclassification to profit or loss | 7,646 | - | - | - | 7,646 |
| Other products and services | 1,815 | 126,558 | - | 32,914 | 161,287 |
| | 23,075,675 | 3,537,108 | - | (332,133) | 26,280,650 |
| Total revenue | 31,732,611 | 23,245,676 | 10,844,550 | (13,475,566) | 52,347,271 |

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| | Exploration and production | Refining and petrochemicals | Transportation and logistics | Eliminations | Total |
|-----------------------------------|-------------------------------|--------------------------------|---------------------------------|---------------------|-------------------|
| Local sales | | | | | |
| Med-distillates | 1,241 | 11,982,214 | - | - | 11,983,455 |
| Gasoline | - | 6,979,197 | - | (584,775) | 6,394,422 |
| Services | 245,798 | 152,267 | 8,324,753 | (4,944,745) | 3,778,073 |
| Natural gas | 1,580,941 | - | - | (234,316) | 1,346,625 |
| Crude oil | 9,487,864 | - | - | (8,274,146) | 1,213,718 |
| Diesel and asphalts | 46,336 | 412,736 | - | - | 459,072 |
| Plastic and rubber | - | 667,563 | - | - | 667,563 |
| L.P.G. and propane | 181,806 | 248,578 | - | (3,934) | 426,450 |
| Other products | 102,696 | 812,510 | 19,181 | 66,934 | 1,001,321 |
| | 11,646,682 | 21,255,065 | 8,343,934 | (13,974,982) | 27,270,699 |
| Recognition of price differential | - | 485,409 | - | - | 485,409 |
| | 11,646,682 | 21,740,474 | 8,343,934 | (13,974,982) | 27,756,108 |
| Foreign sales | | | | | |
| Crude | 31,524,915 | - | - | (689,405) | 30,835,510 |
| Fuel oil | - | 3,921,703 | - | - | 3,921,703 |
| Trading of crude | 1,486,060 | - | - | - | 1,486,060 |
| Natural gas | 439,076 | - | - | (15,615) | 423,461 |
| Gasoline and turbo fuel | - | 127,090 | - | - | 127,090 |
| Diesel | - | 179,738 | - | - | 179,738 |
| Plastic and rubber | - | 975,282 | - | - | 975,282 |
| Other products and services | 58,458 | 228,013 | - | (19,535) | 266,936 |
| | 33,508,509 | 5,431,826 | - | (724,555) | 38,215,780 |
| Total revenue | 45,155,191 | 27,172,300 | 8,343,934 | (14,699,537) | 65,971,888 |

Sales by geographic areas

Operating revenue by geographic areas is comprised as follows:

| Zona | 2015 | Participation | 2014 | Participation |
|-------------------------------|-------------------|---------------|-------------------|---------------|
| Colombia | 26,066,621 | 49.8% | 27,756,108 | 42.1% |
| United States of America | 11,921,720 | 22.8% | 14,977,109 | 22.7% |
| Asia | 6,123,593 | 11.7% | 13,416,506 | 20.3% |
| Europe | 3,981,926 | 7.6% | 5,915,190 | 9.0% |
| Central America and Caribbean | 3,366,978 | 6.4% | 3,049,688 | 4.6% |
| South America and Others | 886,433 | 1.7% | 857,287 | 1.3% |
| Total | 52,347,271 | 100.0% | 65,971,888 | 100.0% |

Concentration of customers

For the year ended December 31, 2015 one customer of the refining segment accounted 14.4% (2014 – 13.7%) of total sales. No other customers accounted more than 10% of total sales. There was no exposure that affects the financial position of Ecopetrol if the company lost the client.

Non-current assets distribution by geographic area

The majority of the Company's assets and activities are located in Colombia. The financial position and results of operations of those subsidiaries located outside of Colombia are not material to the Group.

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34.4 Capital expenditures by Segment

The following table shows a breakdown of the changes of capital expenditures for years ended December 31, 2015 and 2014:

| 2015 | Exploration and production | Refining and petrochemicals | Transportation and logistics | Total |
|-------------------------------------|-------------------------------|--------------------------------|---------------------------------|-------------------|
| Property, plant and Equipment | 2,460,975 | 3,590,279 | 2,497,679 | 8,548,933 |
| Natural and environmental resources | 5,590,321 | - | - | 5,590,321 |
| Intangibles | 69,126 | 18,494 | 24,635 | 112,255 |
| | 8,120,422 | 3,608,773 | 2,522,314 | 14,251,509 |

| 2014 | Exploration and production | Refining and petrochemicals | Transportation and logistics | Total |
|-------------------------------------|-------------------------------|--------------------------------|---------------------------------|-------------------|
| Property, plant and Equipment | 3,556,536 | 3,730,289 | 1,636,743 | 8,923,568 |
| Natural and environmental resources | 5,038,296 | - | - | 5,038,296 |
| Intangibles | 26,610 | 10,636 | 74,772 | 112,018 |
| | 8,621,442 | 3,740,925 | 1,711,515 | 14,073,882 |

35. First-time adoption of International Financial Reporting Standards - IFRS

As part of the implementation process of International Financial Reporting Standards (hereinafter "IFRS") in conformity with the provisions of Act 1314 of 2009, Regulatory Decree 2784 of December 2012, Decrees 3023 and 3024 of 2013 and Decrees 2420 and 2496 of 2015 in Colombia, Ecopetrol S.A. and its subsidiaries belongs to Group 1 of preparers of financial information and therefore, these represent the first financial statements issued under International Financial Reporting Standards (at December 31, 2015 and an opening balance sheet at January 1, 2014, with 2014 being the transition period). The accounting policies set out in note 4 have been applied consistently since the opening balance sheet.

In preparing these financial statements, the Company has adjusted the figures previously reported in prior financial statements prepared in accordance with generally accepted accounting principles (previous GAAP), applying the following optional and mandatory exemptions for the retrospective application of IFRS.

35.1 Exemptions to the retrospective application chosen by the company

- (a) *Business combinations* – IFRS 1 includes an optional exception for business combinations as an alternative to applying IFRS 3 retrospectively (business combinations that occurred before the date of transition to IFRS). However, the entity may choose restating business combinations from any date prior to the date of transition. If any business combination is restated, then all later business combinations must also be restated and IFRS 10 is also applicable.

Ecopetrol applied the exemption set out above for all business combinations that occurred up to the date of transition. Therefore, it has not restated any business combination that took place before January 1, 2014, which were recorded at cost attributed in the opening statement.

- (b) *Fair value used as deemed cost of property, plant and equipment* – The exemption to IFRS 1 allows fair value, at the date of the transition to IFRS, to be used as deemed cost of property, plant and equipment, intangible assets and investment properties. IFRS 1 establishes that a revaluation under previous GAAP (RCP), at the date of transition or prior, may be used as deemed cost, at the date of the revaluation, if it is broadly comparable to:

- Fair value; or
- Depreciated cost under IFRS.

Ecopetrol chose to measure certain land properties at fair value as at the transition date and use such amount as its deemed cost in the opening IFRS statement of financial position. Fair value was measured on the basis of a valuation performed by external, independent experts. For other Property, plant and equipment items, useful lives were established according to appraisals and technical support from the Company's operating areas. Accumulated depreciation was recalculated based on these new useful lives and adjustments were recognized in the opening IFRS statement of financial position. For minor property, plant and equipment items such as office equipment, computer equipment and vehicles, the Company has considered depreciated or revaluated cost under RCP as deemed cost at the transition date, since it is comparable to its depreciated cost in accordance with IFRS.

- (c) *Leases* – The exemption on IFRS 1 establishes that a company may determine whether arrangements in force on the date of the transition to IFRS are leases on the basis of the facts and circumstances existing at the date of transition.

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Ecopetrol chose to apply this exemption and therefore has considered the facts and circumstances existing at the date of transition to determine the existence of implied leases in its contracts and agreements.

(d) *Decommissioning liabilities included in the cost of property, plant and equipment* – A first-time adopter may choose not to comply with requirements of IFRIC 1 for changes in decommissioning, restoration and similar liabilities. Therefore the Company can:

- i. Measure the liability as at the date of transition in accordance with IAS 37;
- ii. To the extent that the liability is within the scope of IFRIC 1, estimate the amount that would have been included in the cost of a related asset when the liability arose, by discounting the liability to that date using its best estimation of the historical risk-adjusted discount rate that would have applied for that liability over the corresponding period and;
- iii. Calculate the accumulated depreciation on that amount, as at the date of transition to IFRS, on the basis of the current estimation of the useful life of the asset, using the depreciation policy adopted by the entity under IFRS.

Ecopetrol decided to apply this exemption and to measure, at the transition date, the asset retirement obligation and for the corresponding asset, to estimate the initial cost thereof and depreciate it on the transition date.

(e) *Borrowing costs* – IFRS 1 allows an entity to either capitalize borrowing costs incurred related to the construction of any qualifying assets; or designate a date before the date of transition and apply the standard to borrowing costs related to qualifying assets for which the commencement date for capitalization is on or after that designated date.

The Company chose to apply such exemption and adopted as a policy to capitalize borrowing costs under IAS 23 starting on the transition date.

(f) *Classification of financial instruments* – IFRS 1 includes a number of optional exemptions for first-time adopters, applying IFRS 9, in relation to the designation of previously recognized financial instruments. Ecopetrol chose to apply the following exemptions:

- a. A first-time adopter may designate a financial asset as measured at a fair value through profit or loss provided that the asset meets the criteria for such classification as at the date of transition to IFRS.
- b. An entity may designate an equity instrument as measured at a fair value through other comprehensive income provided that the asset meets the criteria for such classification as at the date of transition to IFRS.

(g) *Fair value measurement of financial assets or financial liabilities at initial recognition* – Ecopetrol applied measurement of financial assets and liabilities at fair value prospectively at the date of transition.

(h) *Financial assets and intangible assets from service concession arrangements* – Ecopetrol recognized financial assets and intangible assets at carrying amounts at the date of transition to IFRS.

(i) *Effects of Changes in Foreign Exchange Rates* – IFRS 1 allows the entity to not determine the cumulative translation differences recognized in other comprehensive income that existed at the date of transition to IFRS. If this exemption is applied, the cumulative translation differences for all foreign operations are deemed to be zero at the date of transition to IFRS.

35.2 Reconciliation of financial position

The following reconciliations reflect the impact of the transition to IFRS on the financial position previously reported by Ecopetrol:

Equity reconciliation at December 31 and January 1, 2014:

| | Note | December 31, 2014 | January 1, 2014 |
|--|------|----------------------|--------------------|
| Consolidated shareholders' equity under previous GAAP | | 68,545,972 | 71,119,203 |
| Property, plant and equipment and natural resources | (1) | (26,832,400) | (21,964,970) |
| Non-controlling interest in Equion | (2) | (1,017,201) | (1,222,118) |
| Deferred tax | (3) | 438,157 | (194,681) |
| Deferred charges | (4) | (206,292) | (717,582) |
| Non-controlling interests | (5) | 4,195,935 | 4,573,748 |
| Foreign currency translation | (6) | 1,990,252 | - |
| Equity method and Investments in associates and joint ventures | (7) | 760,965 | (378,344) |
| Liabilities and assets at amortized cost, and others | (8) | 612,271 | 38,882 |
| Employee benefits liability | (9) | 46,569 | (1,389,569) |
| Consolidated equity under IFRS | | 48,534,228 | 49,864,569 |

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(1) The detail of adjustments related to property, plant and equipment and natural resources, is as follows:

| | Note | December 31, 2014 | January 1, 2014 |
|---|-------|----------------------------|----------------------------|
| Reversal of revaluation and provisions recognized under previous GAAP | (i) | (21,589,810) | (22,488,754) |
| Non-capitalized borrowing costs, and others | (ii) | (3,544,809) | (610,087) |
| Assets impairment | (iii) | (2,589,823) | (553,506) |
| Asset retirement obligation | (iv) | (594,501) | (679,238) |
| Depreciation and elimination of inflation adjustments | (v) | 1,486,543 | 2,366,615 |
| Total property, plant and equipment adjustments | | <u>(26,832,400)</u> | <u>(21,964,970)</u> |

- i. Reversal of revaluations and provisions recognized under previous GAAP were made since the Company chose recognizing its property, plant and equipment, other than lands, at their cost.
- ii. It mainly includes:
 - Non-capitalized borrowing costs under IFRS in the amount of COP\$3,201,531 in Ecopetrol S.A. and Reficar. Due to the exemption adopted by the Company which is described in Note 35.1 there is no value for this adjustment at the opening statement of financial position. Under previous GAAP, the Company capitalized a higher value of expense for exchange differences related to capital expenditures in foreign currency, while under IFRS the exchange difference is limited to a hypothetical debt expense in the functional currency of the company.
 - Sales of oil production for assets under extensive tests in exploration and evaluation phase are recorded as a lower value of assets under IFRS of COP\$157,420 (January 1, 2014 - COP\$146,985). Under previous GAAP these sales were recognized as income.
 - Adjustment for assets related to incorporated institutional equity in the amount of COP\$41,203 (January 1, 2014 – COP\$43,033)
 - Effect generated by the analysis of the recognition criteria of assets under IFRS and others minor adjustments of COP\$582,122 (January 1, 2014 - COP\$636,369).
 - The factors mentioned above were partially offset by adjustment of COP\$438,188 for capitalized maintenance (January 1, 2014 – COP\$216,302).
- iii. Recognition of the asset impairment loss, pursuant to the criteria established under IAS 36 – Impairment of assets, taking into account that the Company determined as Cash Generating Units –CGU the oil and gas producing fields, the refineries and the pipelines or polducts. This differs from the previous GAAP, which only recognized obsolescence loss.
- iv. Effect for recognition, at present value, of the dismantlement and asset retirement costs and their associated depreciation. Under the previous GAAP, this obligation was recognized at face value and it was estimated mainly for Exploration and Production assets. Under IFRS, the Company recognized an asset retirement obligation for its Transport and Logistics assets.
- v. Effect generated by the change in useful lives and depreciation method of assets. Under previous GAAP useful lives of property, plant and equipment were established under tax criteria. Under IFRS useful lives are established based on technical and economic criteria. In addition, we eliminated the inflation adjustments due to they are not allowed under IFRS; therefore, the company uses the cost method under IFRS.

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- (2) As a result of the evaluation of control over companies, it was determined under IFRS that *Equion* will be recognized as a joint venture valued by the equity method. Under the previous GAAP, the Company consolidated this investment.
- (3) Variation in deferred tax generated by measurement of assets and liabilities under IFRS. Main variations are: increase in carrying amount of property, plant and equipment generating a higher deferred tax liability, presumptive income tax excesses and tax loss carry forwards generating a higher deferred tax asset. Under previous GAAP, deferred taxes were not calculated on these concepts.
- (4) A decrease is presented in deferred charges due to that under IFRS certain items, such as tax on equity, do not meet the criteria for recognition as assets.
- (5) Under IFRS, non-controlling interest should be presented as part of the equity. Under previous GAAP, non-controlling interest were presented as a higher value of liabilities.
- (6) It corresponds to the adjustments in foreign currency translation, for consolidation purposes, of those companies under the Ecopetrol Business Group with a functional currency different to the Colombian peso. Under previous GAAP, all Companies in Colombia had the Colombian peso as their functional currency, but for IFRS, some of them adopted US dollar as their functional currency.
- (7) Recalculation in the equity method for investments made in associates and joint ventures amounting. This adjustment is generated after the recognition of *Equion* as a joint venture and the change of the accounting bases of the associates and joint ventures under IFRS (including goodwill adjustments).
- (8) It includes the following adjustments:
 - With the adoption of IFRS, loans are valued using the amortized cost methodology, using the effective interest rate. Under previous GAAP, loans were recognized at their face value, registering the respective interest. The effect amounts to COP\$736,515 (January 1, 2014, COP\$38,257).
 - Other minor adjustments for the amount of COP\$(124,244) (January 1, 2014 - COP\$625).
- (9) With the adoption of IFRS, the assets that support the pension liability (pension-related autonomous equities – PAP, by its acronym in Spanish) are part of the statement of financial position as well as the liabilities corresponding to labor obligations subject to actuarial estimation (pensions, pension bonds, five-year period bonus, healthcare and education). Such estimation is made under IFRS guidelines using the projected unit credit method, which differ from estimations performed under previous GAAP, mainly in the rate used in the actuarial calculations (under IFRS corresponds to a long-term rate, while under previous GAAP, this rate is fixed by law).

35.3 Reconciliation of net income

Reconciliation of net income for the year ended December 31, 2014:

| | 2014 |
|--|------------------|
| Consolidated net income under previous GAAP | 8,285,679 |
| Foreign currency exchange and borrowing cost | (a) (3,201,531) |
| Property, plant and equipment, and natural resources | (b) (2,564,842) |
| Deferred charges | (c) 511,290 |
| Labor liability | (d) 427,241 |
| Deferred taxes | (e) 632,838 |
| Consolidation, inventories, equity method and others | (f) 1,731,251 |
| Non-controlling interest | (g) (152,353) |
| Consolidated net income under IFRS | 5,669,573 |
| Accumulated foreign currency translation | (h) 3,398,374 |
| Net fair value gain on available-for-sale financial assets | (i) 76,435 |
| Update of defined benefit obligation | (d) 743,793 |
| Total comprehensive income under IFRS | 9,888,175 |

- (a) Net income under IFRS decreased as a result of the exchange difference on foreign currency loans and interest on loans, which under previous GAAP were recorded as value of investment projects, without limitation. Under IFRS, the exchange difference on foreign currency loans and related interest are limited to costs incurred on a hypothetical scenario of debt in the functional currency of the Company.

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- (b) Adjustments made to the property, plant and equipment and natural resources are given by: i) a lower depreciable base that generates a lower depreciation expense due to the use of useful lives that consider the expected use of the asset and their estimated cost of dismantling and removing, which are discounted to the present value. Under previous GAAP, the useful lives used correspond to higher useful lives used for tax purposes and the costs of dismantling were not discounted to the present value; ii) higher impairment expense generated by different accounting bases in the annual evaluation of the recoverable amount of the Cash Generating Units.
- (c) Adjustments generated mainly due to the reversal for IFRS spending generated equity tax, which, for the opening statement of financial position, was completely recognized. According to previous GAAP, Equity tax was recorded gradually in the statement of income for a 4-year period (2010-2014).
- (d) There is an increase in net income under IFRS because actuarial gains or losses regarding pension assets and liabilities for retired employees are recognized directly in equity, in other comprehensive income. Under previous GAAP, these updates were carried directly as a result for the financial year. In addition, under IFRS, a financial cost component is recognized in respect of labor liabilities subject to actuarial calculation, with an impact on the results for the financial year. Under previous GAAP, the monetary correction component is not recognized.
- (e) Differences in deferred taxes under IFRS and previous GAAP are generated due to variations in the measurement of assets and liabilities applying IFRS, which have resulted in temporary differences in assets (liabilities), among which are: a) a higher value of deferred tax assets caused by change in the accounting methodology in capitalized interest and exchange difference, b) changes in the accounting basis of property, plant and equipment, which were caused by the first-time IFRS adoption, which generates a lower depreciation, c) difference in the Asset Retirement Obligation compared to previous GAAP that generate higher deferred tax expense.
- (f) Consolidation adjustments for differences between IFRS and previous GAAP, mainly in unrealized profits and application of the equity method in associates and non-controlling interest recalculation effects.
- (g) Non-controlling interest recalculation effects under IFRS.
- (h) It corresponds to the foreign currency translation, for consolidation purposes, of those companies under the Ecopetrol Business Group with a functional currency different to the Colombian peso.
- (i) The gain in the valuation of assets held for sale relates to the fair-value recognition of the equity interest held by Ecopetrol S.A. in Interconexión Eléctrica S.A and Empresa de Energía de Bogotá, where under IFRS, gains and losses arising from the measurement of these assets' fair value are recorded in Other comprehensive income. Under previous GAAP, these investments were measured at historical cost.

35.4 Reconciliation of cash flow

At December 31, 2014, cash and cash equivalents under previous GAAP amounted COP\$7,951,201 and under IFRS amounted to COP\$7,618,178. The difference between IFRS and previous GAAP of COP\$333,023 is explained by:

- a) An increase of COP\$131,388 due to changes in the presentation criteria of financial resources, which under the previous accounting principles were recognized as other financial assets.
- b) A decrease of COP\$464,411 in cash due to the non-consolidation of Equion Energy Limited.

The transition from Colombian GAAP to IFRS did not materially change the underlying cash flows of the Company.

The main changes in operating activities are justified by the impact explained in section 35.3 and reclassifications of financial interest paid and receipts, which for previous GAAP regulations were recorded under operating cash flows. The change in investment activities is generated by the presentation of interest received under investing activities and the difference in the criteria for capitalization of maintenance of fixed assets; and the change in financing activities is for the presentation of interest paid under financing activities which were presented within operating activities under previous GAAP.

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36. Subsequent events

- On January 28, 2016, Ecopetrol's Board of Directors approved commencement of the process for sale of its shareholding in the company Polipropileno del Caribe S.A. – Propilco S.A., in order to obtain funds to strengthen the Exploration and Production business. This process means that Ecopetrol S.A. must apply for and obtain the relevant approval from the National Government.
- In January 2016, Ecopetrol acquired a bilateral commercial loan in the amount of USD 175 million (equivalent to COP\$578 billion). The transaction was performed with The Bank of Tokyo-Mitsubishi UFJ, Ltd. comprising a 5-year term, repayable with a 2.5 year grace period on the principal and with interest payable semiannually at the Libor rate + 145 basis points. Also, in February 2016, the company acquired a commercial loan in national currency with Bancolombia S.A. in the amount of COP\$990,000, over an 8-year term, repayable with a 2 year grace period on the principal, and interest at the DTF rate (Colombia's benchmark 90-day time deposit rate) + 560 basis points, payable semiannually.
- The Board of Directors of Ecopetrol made the decision to withdraw the company's ADRs from the Toronto Stock Exchange. This decision is based on the analysis performed by the Board (and others), the low volume of ADRs traded in Canada, and the existence of a liquid market for the ADRs on the New York Stock Exchange, and for ordinary shares in the Colombian domestic market on the Colombian Stock Exchange (*Bolsa de Valores de Colombia* in Spanish).
- Ecopetrol decided to suspend production and development activities in the Caño Sur Este field, located in Puerto Gaitán (Meta), south of the Rubiales field, because despite the efficiencies applied, the field is not able to achieve profitability in the current context
- Between 2008 and 2015 *Refinería de Cartagena S.A.* undertook a process to modernize its refinery. As of the close of December 2015, the refinery plant represents an approximate cost of USD 7,610. In January, 2016 the Comptroller General of the Republic issued a report called "*Refinería de Cartagena: Lessons learned and not learned for a megaproject,*" which does not contain any administrative, tax, criminal or disciplinary findings. The Comptroller General of the Republic initiated Special Action in order to evaluate Reficar's management of the modernization and expansion of the Cartagena refinery, in order to determine whether public funds were managed properly, based on an analysis of Reficar's institutional and financial model. To date, this action is in progress. In turn, the Attorney General's Office has announced the start of investigation, and the State Prosecutor General's Office, in addition to the investigation it has been conducting since 2012, has announced another, within the scope of its respective functions. Ecopetrol and Reficar have provided the information requested and continue to provide support to all control bodies for review of the facts pertaining to these inquiries.

Meanwhile, Ecopetrol S.A. and *Refinería de Cartagena S.A.* (its subsidiary) have enabled the protocol for evaluation and review of the matters raised by the Comptroller General of the Republic, among others. On March 8, 2016, Refinería de Cartagena S.A. filed a Request for Arbitration with the International Chamber of Commerce (the "ICC") against Chicago Bridge & Iron Company N.V., CB&I (UK) Limited, and CBI Colombiana S.A. (collectively, "CB&I") with respect to the Engineering, Procurement, and Construction Contract (the "EPC Contract") entered into by and between Reficar and CB&I for the expansion of the Cartagena refinery in Cartagena, Colombia. Reficar is the Claimant in the ICC arbitration proceeding and seeks no less than USD 2,000 million from CB&I.
- Board of Directors approved a 2016-2020 road map for the Barrancabermeja Refinery, with the objective of maximizing its long-term competitiveness and sustainability, as established in the Ecopetrol's strategic plan announced in May 2015. The crude oversupply in the international oil and gas markets has deteriorated oil prices. Under this environment, Ecopetrol, in line with industry trends, has focused on making its operations profitable by optimizing costs and implementing strict austerity measures, in addition to adjusting its investment plan, only approving projects that create the highest value and generate the most cash flows in the short-term.

In this challenging scenario, and in an effort to ensure the financial sustainability of the Ecopetrol group, Ecopetrol has decided that it is necessary to suspend the Barrancabermeja Refinery Modernization Plan (PMRB) until the oil price environment allows investments to be made in such a major project.
- Through of the Colombian Stock Exchange (Bolsa de Valores de Colombia S.A.), the second auction was held for the second stage of the program to divest and sell 58,925,480 of Ecopetrol's shares of the company *Interconexión Eléctrica S.A. E.S.P.* The amount of the transaction was COP\$377,081.

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Supplemental information on Oil and Gas producing activities (unaudited)

In accordance with the requirements of the United States Securities and Exchange Commission (SEC), Release 33-8879, Accounting Standards Codification 932 and the ASU- 2010-03 "Oil and Gas reserve Estimation and Disclosures" rule, this section provides supplemental information on oil and gas exploration and producing activities of the Company. The information included in sections 36.1 to 36.3 provides historical cost information pertaining to costs incurred in exploration, property acquisitions and development, capitalized costs and results of operations. The information included in sections d) and e) presents information on Ecopetrol's estimated net proved reserve quantities, standardized measure of estimated discounted future net cash flows related to proved reserves, and changes in estimated discounted future net cash flows.

The following information corresponds to Ecopetrol's oil and gas producing activities at December 31 2015, 2014 and January 1, 2014 in direct and joint operations.

Under the SEC final rule, optional disclosure of possible and probable reserves is allowed. But, the Company opted not to do so. Ecopetrol estimated its reserves without considering non-traditional resources.

a) Capitalized costs relating to oil and gas producing activities

| | December 31, | | January 1, |
|---|-------------------|-------------------|-------------------|
| | 2015 | 2014 | 2014 |
| Natural and environmental properties | 45,789,713 | 40,356,524 | 34,130,988 |
| Wells, equipment and facilities – property, plant and equipment | 21,822,897 | 17,839,350 | 15,088,154 |
| Construction in progress | 9,145,198 | 8,110,401 | 8,426,066 |
| Accumulated depreciation, depletion and amortization | (39,743,147) | (32,003,657) | (25,681,664) |
| Net capitalized costs | 37,014,661 | 34,302,618 | 31,963,544 |

It includes information of the exploration and production segment subsidiaries.

In accordance with IAS 37, these natural and environmental costs include the asset retirement obligations amounting COP\$580,575, COP\$1,061,392, and COP\$579,611, during 2015, 2014 and January 1, 2014, respectively

b) Costs incurred in oil and gas exploration and developed activities

Costs incurred are summarized below and include both amounts expensed and capitalized in the corresponding period.

| | Year ended December 31 | |
|--|------------------------|-------------------|
| | 2015 | 2014 |
| Acquisition of proved properties (1) | - | 16,747 |
| Acquisition of unproved properties (2) | 357,772 | 263,057 |
| Exploration costs | 1,012,264 | 2,036,526 |
| Development costs | 8,018,131 | 8,189,239 |
| Total costs incurred | 9,388,167 | 10,505,569 |

(1) Represents the scheduled buy-in costs paid to Murphy Oil (Operator) to participate in the Dalmatian and Gunflint projects.

(2) It relates to drilling for the Leon 2 exploratory project, operated by Repsol as well as acquisition of the Lease Sales 235 and 246 (unproven lands), in 2015. For 2014, it corresponds to drilling for the Ridberg/Aleatico and Leon 1 exploratory projects, operated by Shell and Repsol, respectively, as well as acquisition of the Lease Sale 231 (unproven lands).

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c) Results of operations for oil and gas producing activities

| | 2015 | 2014 |
|--|---------------------------|-------------------------|
| Net revenues | | |
| Sales | 26,039,708 | 36,678,579 |
| Transfers | 5,692,902 | 8,476,612 |
| Total | <u>31,732,610</u> | <u>45,155,191</u> |
| Production cost (1) | 6,006,563 | 6,457,013 |
| Depreciation, depletion and amortization (2) | 9,887,331 | 6,129,538 |
| Other production costs (3) | 14,457,836 | 16,406,789 |
| Exploration expenses (4) | 1,586,940 | 2,590,778 |
| Other expenses (5) | 2,711,274 | 2,478,563 |
| Total | <u>34,649,943</u> | <u>34,062,681</u> |
| Income before income tax | (2,917,333) | 11,092,510 |
| Income tax expenses | (371,376) | (5,428,674) |
| Results of operations for producing activities | <u><u>(3,288,710)</u></u> | <u><u>5,663,836</u></u> |

- (1) Production costs are lifting costs incurred to operate and maintain productive wells and related equipment and facilities, including costs such as operating labor, materials, supplies, and fuel consumed in operations and the costs of operating natural gas liquids plants. In addition, it includes accretion expense related to the asset retirement obligations that were recognized during 2015 and 2014, amounting approximately COP\$206,570 and COP\$184,648, respectively. The Company's results of operations from oil and gas producing activities for the years ending December 31, 2015 and 2014 are shown above.
- (2) In accordance with IAS 37, the expense related to asset retirement obligations that were recognized during 2015 and 2014 in depreciation, depletion and amortization, amounted approximately to COP\$294,849 and COP\$160,106, respectively.
- (3) Corresponds to transportation costs and naphtha that are not part of the Company's lifting cost.
- (4) Exploration expenses include the costs of geological and geophysical activities as well as the non-productive exploratory wells.
- (5) Corresponds to administration and marketing expenses.

During 2015 and 2014, respectively, the Company transferred approximately 18% and 19% of its crude oil and gas production; (percentages based on the value sales in Colombian pesos) to intercompany business units. Base on volume, those transfers were 37% and 39%, respectively (including Reficar). The intercompany transfers were recorded at values equal to the Company's market prices.

d) Reserve information

Ecopetrol follows international standards for estimating, classifying and reporting reserves, framed under SEC definitions. The process is led by the Reserves Department, which submits the report to the Board of Directors for approval.

The reserves were audited at a level of 99% by 2 specialized auditing companies: DeGolyer and MacNaughton, and Ryder Scott Company. According to these certifications, the reserves report complies with the content and guidelines set forth in Rule 4-10 of Regulation S-X issued by the United States SEC.

The following information relates to the net proven reserves owned by the Business group in 2015, 2014 and 2013, and corresponds to the official reserves statements prepared by the Company:

| | 2015 | | | 2014 | | | 2013 | | |
|---------------------------------|------------------------|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|------------------------|-----------------------|-----------------------|
| | Oil million barrels | Gas billion cf | Total million boe | Oil million barrels | Gas billion cf | Total Million boe | Oil Million barrels | Gas billion cf | Total million boe |
| Proved Reserves: | | | | | | | | | |
| Beginning of year | 1,465.2 | 3,529.0 | 2,084.3 | 1,433.6 | 3,068.4 | 1,971.9 | 1,370.3 | 2,886.4 | 1,876.7 |
| Revisions of previous estimates | (64.2) | 224.8 | (24.7) | 153.7 | 665.1 | 270.4 | 172.7 | 337.5 | 231.9 |
| Improved recovery | 15.3 | 2.9 | 15.8 | 34.0 | 0.4 | 34.1 | 23.2 | 19.9 | 26.7 |
| Purchases of minerals in place | - | - | - | - | - | - | 7.5 | 11.0 | 9.4 |
| Extensions and discoveries | 24.4 | 0.4 | 24.4 | 40.6 | 59.0 | 50.9 | 66.2 | 49.3 | 74.9 |
| Sales of minerals in place | - | - | - | - | - | - | (0.6) | (12.3) | (2.8) |
| Production | (202.0) | (277.8) | (250.7) | (196.8) | (263.8) | (243.0) | (205.7) | (223.5) | (244.9) |
| End of year | <u><u>1,238.8</u></u> | <u><u>3,479.2</u></u> | <u><u>1,849.2</u></u> | <u><u>1,465.2</u></u> | <u><u>3,529.0</u></u> | <u><u>2,084.3</u></u> | <u><u>1,433.6</u></u> | <u><u>3,068.4</u></u> | <u><u>1,971.9</u></u> |
| Proved developed reserves: | | | | | | | | | |
| Beginning of year | 1,042.3 | 3,284.0 | 1,618.5 | 933.0 | 2,663.3 | 1,400.2 | 933.3 | 2,535.9 | 1,378.2 |
| End of year | <u><u>912.8</u></u> | <u><u>3,176.0</u></u> | <u><u>1,470.0</u></u> | <u><u>1,042.3</u></u> | <u><u>3,284.0</u></u> | <u><u>1,618.5</u></u> | <u><u>933.0</u></u> | <u><u>2,663.3</u></u> | <u><u>1,400.3</u></u> |
| Proved undeveloped reserves: | | | | | | | | | |
| Beginning of year | 422.9 | 244.9 | 465.9 | 500.6 | 405.0 | 571.7 | 437.0 | 350.6 | 498.5 |
| End of year | <u><u>326.0</u></u> | <u><u>303.3</u></u> | <u><u>379.2</u></u> | <u><u>422.9</u></u> | <u><u>244.9</u></u> | <u><u>465.9</u></u> | <u><u>500.6</u></u> | <u><u>405.0</u></u> | <u><u>571.7</u></u> |

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The section *Overview Business – Exploration and Production – Reserves* contains additional information of the process of estimating reserves and main explanations about the changes in Proved Reserves.

e) **Standardized measure of discounted future net cash flows relating to proved oil and gas quantities and changes therein**

The standardized measure of discounted future net cash flows, related to the above proved crude oil and natural gas reserves, is calculated in accordance with the requirements of ASU 2010-03. Estimated future cash inflows from production under SEC requirements are computed by applying unweighted arithmetic average of the first-day-of-the-month for oil and gas price to year-end quantities of estimated net proved reserves.

| | <u>2015</u> | <u>2014</u> |
|--|--------------------------|--------------------------|
| Future cash inflows | 176,865,586 | 310,138,127 |
| Future costs | | |
| Production | (76,363,169) | (107,629,865) |
| Development | (16,498,118) | (23,504,455) |
| Income tax expenses | (30,052,830) | (60,366,272) |
| Future net cash flow | 53,951,469 | 118,637,535 |
| 10% annual discount for estimated timing of cash flows | (19,117,422) | (43,604,395) |
| Standardized measure of discounted future net cash flows | <u>34,834,047</u> | <u>75,033,140</u> |

The following are the principal sources of change in the standardized measure of discounted net cash flows:

| | <u>2015</u> | <u>2014</u> |
|---|----------------------------|-------------------------|
| Net change in sales and transfer prices and in production (lifting) cost related to future production | (50,472,025) | 12,924,167 |
| Changes in estimated future development costs | 592,529 | (10,987,031) |
| Sales and transfer of oil and gas produced during the period | (25,726,047) | (38,698,178) |
| Net change due to extensions and discoveries | (93,190) | (902,356) |
| Net change due to purchase and (sales) of minerals in place | - | - |
| Net change due to revisions in quantity estimates | (985,217) | 18,866,518 |
| Previously estimated development costs incurred during the period | 10,769,369 | 8,702,964 |
| Accretion of discount | 11,321,221 | 11,018,459 |
| Timing and other | (4,381,037) | 2,103,078 |
| Net change in income taxes | 18,775,304 | (1,254,706) |
| Aggregate change in the Standardized measure of discounted future net cash flows for the year | <u>(40,199,093)</u> | <u>1,772,915</u> |

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Exhibit 1 - Consolidated companies, associates and joint ventures

The following tables summarizes the information for subsidiaries, associates and Joint Ventures as of December 31, 2015

Consolidated subsidiaries

| Company | Ownership Interest Ecopetrol | Activity | Shared interest | Country/ Domicile | Geographic area of operations | Net Equity | Income (loss) for the period |
|---|---------------------------------|--|--|--------------------------|----------------------------------|------------|---------------------------------|
| Ecopetrol Global Energy | 100% | Investment vehicle. | Ecopetrol America Inc., Ecopetrol oleo & Gas do Brasil Ltda, Ecopetrol del Perú S. A., Ecopetrol Germany GmbH, Refineria de Cartagena S. A., Bioenergy S. A. | Spain | Spain | 2,995,805 | (1,693,311) |
| Ecopetrol Oleo é Gas do Brasil Ltda. | 100% | Hydrocarbon exploration and exploitation. | Sociedad portuaria de oleofinas y derivados, Propileno del Caribe S. A | Brazil | Brazil | 23,489 | (64,654) |
| Ecopetrol del Perú S. A. | 100% | Hydrocarbon exploration and exploitation. | Propileno del Caribe S.A | Peru | Peru | 57,037 | (28,177) |
| Ecopetrol América Inc. | 100% | Hydrocarbon exploration and exploitation. | Ecopetrol Perú S.A, Ecopetrol Oleo é Gas do Brasil Ltda, Propileno del Caribe S. A, Sociedad portuaria de oleofinas y derivados | United States of America | United States of America | 2,895,667 | (1,530,457) |
| Black Gold Re Ltd. | 100% | Reinsurer of Ecopetrol and its subsidiaries. | - | Bermuda | Bermuda | 572,662 | 32,932) |
| Ecopetrol Germany GmbH | 100% | Hydrocarbon exploration and exploitation. | - | Germany | Angola | 19,506 | (69,529) |
| Hocol Petroleum Limited | 100% | Investment vehicle. | Hocol S. A. | Bermuda | Bermuda | 4,276,727 | (240,467) |
| Hocol S.A | 100% | Hydrocarbon exploration, exploitation and production. | Oleoducto de Colombia S.A. y Oleoducto Bicentenario OBC | Cayman Islands | Colombia | 2,238,221 | (261,729) |
| Andean Chemicals Ltd. | 100% | Investment vehicle. | Bioenergy S. A., Refineria de Cartagena, Propileno del Caribe S. A, Comai S.A Sociedad Portuaria Olefinas y derivados. | Bermuda | Bermuda | 5,964,361 | (1,744,606) |
| Refineria de Cartagena S. A. | 100% | Hydrocarbons refining, marketing and distribution. | - | Colombia | Colombia | 7,810,190 | (4,234,388) |
| Propileno del Caribe Propilco S. A. | 100% | Production and marketing of polypropylene resin. | Comai S. A., Refineria de Cartagena., Bioenergy del Caribe S. A, Sociedad Portuaria Olefinas y Derivados | Colombia | Colombia | 1,202,652 | 103,851 |
| COMAI - Compounding and Masterbatching Industry | 100% | Manufacturing of polypropylene compounds and master batches for a wide range of uses. | Refineria de Cartagena., Bioenergy S. A., Zona franca de cartagena S.A , Sociedad Portuaria del Dique | Colombia | Colombia | 112,567 | 51,666 |
| Bioenergy S. A. | 93.47% | Biofuels production. | Bioenergy Zona Franca S. A., Amandine Holdings Corp. y Los Arces Group Corp. | Colombia | Colombia | 286,680 | (108,422) |
| Bioenergy Zona Franca S. A. S. | 93.47% | Biofuels production. | - | Colombia | Colombia | 259,080 | (91,211) |
| Amandine Holdings Corp. | 93.47% | In a winding-up process. | - | Panama | Panama | 6,657 | - |
| Los Arces Group Corp. | 93.47% | In a winding-up process. | - | Panama | Panama | 5,100 | - |
| Cenit S.A.S. | 100% | Storage and transportation through hydrocarbon pipelines | Oleoducto Bicentenario, Ocesa, ODC, ODL, Serviport | Colombia | Colombia | 11,584,811 | 3,110,127 |
| Oleoducto Central S. A. – Ocesa | 72,65% | Pipeline transportation of crude oil. | - | Colombia | Colombia | 2,768,287 | 1,954,128 |
| Oleoducto de los Llanos Orientales S. A. - ODL | 65% | Pipeline transportation of crude oil. | - | Panamá | Colombia | 1,202,479 | 303,710 |
| Oleoducto de Colombia S. A. – ODC | 73% | Pipeline transportation of crude oil. | - | Colombia | Colombia | 378,739 | 243,996 |
| Oleoducto Bicentenario de Colombia SAS | 55.97% | Pipeline transportation of crude oil. | - | Colombia | Colombia | 938,158 | 334,798 |
| Ecopetrol Capital AG | 100% | Financing, liquidation of funding for companies, groups or any business or related activity. | - | Switzerland | Switzerland | 1,004,996 | 118,474 |
| Ecopetrol Global Capital S.L.U | 100% | Investment vehicle. | - | Spain | Spain | 87 | (204) |

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Associates and joint ventures

| Associates | | | | | | |
|--|--------|---|--------------------------|----------|-----------|-----------|
| Invercolsa S.A. | 43,35% | Investment in companies of transport and distribution of Natural Gas and L.P.G. in Colombia | Colombia | Colombia | 141,875 | 89,525 |
| Offshore International Group Inc. | 50% | Hydrocarbon exploration, development, production and processing | United States of America | Peru | 1,512,961 | (237,564) |
| Serviport S.A. | 49% | Services for oil-vessel loading and unloading support; supply of equipment for the same purpose; technical inspections and loading measurements | Colombia | Colombia | 12,704 | 8,083 |
| Sociedad Portuaria Olefinas y Derivados S.A. | 50% | Construction, use, maintenance, adaptation and administration of ports and private or public docks facilities | Colombia | Colombia | 1,050 | (202) |
| Joint ventures | | | | | | |
| Equion Energía Limited | 51% | Hydrocarbon exploration, exploitation and production | United Kingdom | Colombia | 2,067,671 | 14,820 |
| Ecodiesel Colombia S.A. | 50% | Hydrocarbon exploration, exploitation and production | Colombia | Colombia | 74,322 | 26,989 |

9. **Signature Page**

SIGNATURES

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.

Ecopetrol S.A.

By: /s/ María Fernanda Suárez

Name: María Fernanda Suárez
Title: Chief Financial Officer

By: /s/ Juan Carlos Echeverry

Name: Juan Carlos Echeverry
Title: Chief Executive Officer

Dated: April 28, 2016

10. Exhibits

| <u>Exhibit No.</u> | <u>Description</u> |
|--------------------|---|
| 1.1 | Amended and Restated Bylaws of Ecopetrol S.A., dated March 26, 2015, as recorded under Public Deed No. 1049 of May 19, 2015 (incorporated by reference to Exhibit 3.1 on Form 6-K of the Company, furnished to the U.S. Securities and Exchange Commission on November 27, 2015 (File No. 001-34175)) (English Translation). |
| 4.1 | Transportation Agreement between Ecopetrol S.A. and Oleoducto Central S.A., dated March 31, 1995 (incorporated by reference to Exhibit 4.1 on Form 20-F filed with the U.S. Securities and Exchange Commission on September 12, 2008 (File No. 001-34175)) (English Translation). |
| 4.2 | Supplementary Agreement to Transportation Agreement between Ecopetrol S.A. and Oleoducto Central S.A., dated January 17, 2013 (incorporated by reference to Exhibit 4.2 on Form 20-F filed with the U.S. Securities and Exchange Commission on April 29, 2013 (File No. 001-34175)) (English Translation). |
| 4.3 | Natural Gas Transportation Agreement between Ecopetrol S.A. and Transportadora de Gas del Interior S.A. ESP, dated October 1, 2008 (incorporated by reference to Exhibit 4.3 on Form 20-F filed with the U.S. Securities and Exchange Commission on April 29, 2013 (File No. 001-34175)) (English Translation). |
| 4.4 | Supplementary Agreement No. 1, dated December 5, 2008, to the Natural Gas Transportation Agreement between Ecopetrol S.A. and Transportadora de Gas del Interior S.A. ESP, dated October 1, 2008 (incorporated by reference to Exhibit 4.4 on Form 20-F filed with the U.S. Securities and Exchange Commission on April 29, 2013 (File No. 001-34175)) (English Translation). |
| 4.5 | Supplementary Agreement No. 2, dated April 11, 2012, to the Natural Gas Transportation Agreement between Ecopetrol S.A. and Transportadora de Gas Internacional S.A. E.S.P., dated October 1, 2008 (incorporated by reference to Exhibit 4.5 on Form 20-F filed with the U.S. Securities and Exchange Commission on April 29, 2013 (File No. 001-34175)) (English Translation). |
| 4.6 | Crude Oil Transportation Services Agreement between Ecopetrol S.A. and Cenit Transporte y Logística de Hidrocarburos S.A.S., dated April 1, 2013 (incorporated by reference to Exhibit 4.6 on Form 20-F filed with the U.S. Securities and Exchange Commission on April 29, 2013 (File No. 001-34175)) (English Translation). |
| 4.7 | Refined Products Transportation Services Agreement between Ecopetrol S.A. and Cenit Transporte y Logística de Hidrocarburos S.A.S., dated April 1, 2013 (incorporated by reference to Exhibit 4.7 on Form 20-F filed with the U.S. Securities and Exchange Commission on April 29, 2013 (File No. 001-34175)) (English Translation). |
| 4.8 | Indenture, dated as of July 23, 2009, between the Company and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4.2 to the Company's Form F-4 filed with the U.S. Securities and Exchange Commission on July 31, 2009 (File No. 333-160965)). |
| 4.9 | Bicentenario Transport Contract between Oleoducto Bicentenario de Colombia S.A.S. and Ecopetrol S.A., dated June 20, 2012 (incorporated by reference to Exhibit 4.9 on Form 20-F filed with the U.S. Securities and Exchange Commission on April 25, 2014 (File No. 001-34175)) (English Translation). |
| 4.10 | Amendment No. 1 to the Indenture, dated as of June 26, 2015, between the Company and The Bank of New York Mellon, as trustee (incorporated by reference to Exhibit 4.10 on Form 6-K of the Company furnished to the U.S. Securities and Exchange Commission on June 25, 2015 (File No. 001-34175)). |

| Exhibit No. | Description |
|--------------------|--|
| 4.11 | Supplementary Agreement No. 2, dated March 28, 2014, to the Bicentenario Transport Contract between Oleoducto Bicentenario de Colombia S.A.S. and Ecopetrol S.A., dated June 20, 2012 (English Translation). |
| 4.12 | Supplementary Agreement No. 4, dated April 6, 2015, to the Bicentenario Transport Contract between Oleoducto Bicentenario de Colombia S.A.S. and Ecopetrol S.A., dated June 20, 2012 (English Translation). |
| 8.1 | List of subsidiaries of Ecopetrol S.A. |
| 12.1 | Section 302 Certification of the Chief Executive Officer. |
| 12.2 | Section 302 Certification of the Chief Financial Officer. |
| 13.1 | Section 906 Officer Certification. |
| 15.1 | Consent letter of PricewaterhouseCoopers Ltda. |
| 15.2 | Consent letter of Ryder Scott Company, L.P. |
| 15.3 | Consent letter of DeGolyer and MacNaughton. |
| 16.1 | Letter dated April 28, 2016 of PricewaterhouseCoopers Ltda., as required by Item 16F of Form 20-F. |
| 99.1 | Third-Party Reserve Report of Ryder Scott Company, L.P. |
| 99.2 | Third-Party Reserve Report of DeGolyer and MacNaughton. |

11. Cross-reference to Form 20-F

| | | <u>Sections</u> |
|---------|---|---|
| Item 1. | Identity of Directors, Senior Management and Advisers | N/A |
| Item 2. | Offer Statistics and Expected Timetable | N/A |
| Item 3. | Key Information | |
| | A. Selected Financial Data | 1.3 |
| | B. Capitalization and Indebtedness | N/A |
| | C. Reasons for the Offer and Use of Proceeds | N/A |
| | D. Risk Factors | 5.1 |
| Item 4. | Information on the Company | Note 1 to the consolidated financial statements |
| | A. History and Development of the Company | 2.1; 3.1; Note 1 to the consolidated financial statements |
| | B. Business Overview | 2; 3.3 – 3.9; 4.5.1 |
| | C. Organizational Structure | 3.2 |

| | | <u>Sections</u> |
|----------|--|---|
| | D. Property, Plants and Equipment | 3.4 – 3.6; 4.6.2; Notes 15 and 18 to the consolidated financial statements |
| | E. Oil and Gas Disclosures | 3.3 – 3.6; Notes 16 and 18 and Supplemental information on Oil and Gas producing activities (unaudited by PwC) to the consolidated financial statements |
| Item 4A. | Unresolved Staff Comments | None |
| Item 5. | Operating and Financial Review and Prospects | |
| | A. Operating Results | 3.8; 4.2; 4.5; 4.7; 5.1; 5.2 |
| | B. Liquidity and Capital Resources | 2.1; 4.6; 4.8; Notes 1, 6, 11, 20, 30 and 31.5 to the consolidated financial statements |
| | C. Research and development, Patents and Licenses, etc. | 3.7; Note 17 to the consolidated financial statements |
| | D. Trend Information | 4.10 |
| | E. Off-Balance Sheet Arrangements | 4.9 |
| | F. Tabular Disclosure of Contractual Obligations | 4.8 |
| | G. Safe Harbor | 1.2 |
| Item 6. | Directors, Senior Management and Employees | |
| | A. Directors and Senior Management | 7.3; 7.5 |
| | B. Compensation | 7.6; Notes 4, 15, 22 and 32 to the consolidated financial statements |
| | C. Board Practices | 7.3 |
| | D. Employees | 3.12 |
| | E. Share Ownership | 7.7 |
| Item 7. | Major Shareholders and Related Party Transactions | |
| | A. Major Shareholders | 6.3; 6.8; 7.7 |
| | B. Related Party Transactions | 3.10; Note 32 to the consolidated financial statements |
| | C. Interests of Experts and Counsel | N/A |
| Item 8. | Financial Information | |
| | A. Consolidated Statements and Other Financial Information | 3.4; 4; 5.3; 6.2; 8; Note 23 to the consolidated financial statements |

| | | <u>Sections</u> |
|----------|--|---|
| | B. Significant Changes | 7.8; Note 36 to the consolidated financial statements |
| Item 9. | The Offer and Listing | |
| | A. Offer and Listing Details | 6.3 |
| | B. Plan of Distribution | N/A |
| | C. Markets | 6.3 |
| | D. Selling Shareholders | N/A |
| | E. Dilution | N/A |
| | F. Expenses of the Issue | N/A |
| Item 10. | Additional Information | |
| | A. Share Capital | N/A |
| | B. Memorandum and Articles of Association | 7.1 |
| | C. Material Contracts | 3.4.4; 4.8; Exhibits 4.1 – 4.12 |
| | D. Exchange Controls | 5.1.4; 6.6 |
| | E. Taxation | 4.2.1; 6.5; Note 9 to the consolidated financial statements |
| | F. Dividends and Paying Agents | N/A |
| | G. Statements by Experts | N/A |
| | H. Documents On Display | 1.1 |
| | I. Subsidiary Information | N/A |
| Item 11. | Quantitative and Qualitative Disclosures About Market Risk | 4.10; 5.1.1; 5.2.1; 5.2.3; Note 31 to the consolidated financial statements |
| Item 12. | Description of Securities Other than Equity Securities | |
| | A. Debt Securities | N/A |
| | B. Warrants and Rights | N/A |
| | C. Other Securities | N/A |
| | D. American Depositary Shares | 6.4 |
| Item 13. | Defaults, Dividend Arrearages and Delinquencies | None |
| Item 14. | Material Modifications to the Rights of Security Holders and Use of Proceeds | None |

| | | <u>Sections</u> |
|-----------|---|-----------------|
| Item 15. | Controls and Procedures | 5.2; 7.8 |
| Item 16A. | Audit Committee Financial Expert | 7.3.2 |
| Item 16B. | Code of Ethics | 7.2; 7.4 |
| Item 16C. | Principal Accountant Fees and Services | 7.8 |
| Item 16D. | Exemptions from the Listing Standards for Audit Committees | N/A |
| Item 16E. | Purchases of Equity Securities by the Issuer and Affiliated Purchases | N/A |
| Item 16F. | Changes in Registrant's Certifying Accountant | 7.8 |
| Item 16G. | Corporate Governance | 7.4 |
| Item 16H. | Mine Safety Disclosure | N/A |
| Item 17 | Financial Statements | N/A |
| Item 18. | Financial Statements | 8 |
| Item 19. | Exhibits | 10 |

AMENDMENT No. 2 TO THE BICENTENARIO TRANSPORT AGREEMENT

Between

OLEODUCTO BICENTENARIO DE COLOMBIA S.A.S.

AND

ECOPETROL S.A.

BOGOTA D.C., 28 MARCH 2014

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Amendment No. 2 TO THE BICENTENARIO TRANSPORT AGREEMENT

This Amendment No. 2 to the Oil transport agreement entered into between the Parties on June 20, 2012 (the "Amendment No. 2") is entered into on this date March 28, 2014 (the "Date of Amendment") by the following persons (the "Parties to the Amendment" and each one of them a "Party to the Amendment" or the "Party to the Amendment"):

- 1- **OLEODUCTO BICENTENARIO DE COLOMBIA S.A.S.**, a Colombian corporation, of a commercial nature, of the simplified stock company type, domiciled in Bogota D.C., incorporated by means of private document dated August 18, 2010, registered on the mercantile register on August 18, 2010, with mercantile register No. 2017702, represented herein for subscribing to this Agreement by Fernando Gutierrez Montes, ("Bicentenario") and
- 2- **ECOPETROL S.A., mixed economy corporation, authorized by Law 1118 of 2006**, attached to the Ministry of Mines and Energy, acting in accordance with its bylaws, with main domicile in Bogota D.C., with NIT 899.999.068-1, represented by Martha María Echeverri Benjumea, identified as show below her signature, who acts in her capacity as Head of the Transport Services Commercial Department of the Transport and Logistics Vice Presidency, who is empowered to subscribe to this agreement in accordance with that provided for in the Authority Delegation Handbook (hereinafter the "Shipper" and together with Bicentenario, the "Parties" and each one of them a "Party" or the "Party").

The Parties to the Amendment have agreed on the clauses that are set forth based on the following

WHEREAS

- 1- On June 20, 2012, the Shipper and Bicentenario entered into an agreement for transport of Oil through the "Oleoducto Bicentenario de Colombia" (the "Agreement"), amended by means of Amendment No. 1 dated July 3, 2012, aimed at (a) ensuring financial viability for the construction, operation and maintenance of the Araguaney - Banadia Segment, and (b) transporting oil that is the property of the Shipper on the Araguaney - Banadia Segment (the "Pipeline");
- 2- Bicentenario, in view of the possibility of better using the Pipeline, has changed the nomination process in its Carrier Manual and, therefore the Parties have determined the need of adjusting the content of the Agreement as per said manual; and
- 3- Further, the Parties have decided to: (a) amend the value of the Service; (b) the provision in relation to the payments made by the Shippers in events of Service suspension; (c) regulate the application of an additional fee for using capacity above the Shipper Contracted Capacity; and (d) clarify the terms on which Bicentenario is to invoice its services to the Shareholders.

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Based on the above whereas, the Parties have decided to enter into this Amendment No. 2, which shall be governed by the following:

CLAUSES

CLAUSE 1 - DEFINITIONS AND INTERPRETATION. Unless otherwise stated, all terms starting with a capital letter in this Amendment No. 2 shall have the meaning given to them in the Agreement.

CLAUSE 2 - AMENDMENTS TO THE AGREEMENT.

Section 2.01 - Object and Scope of the Agreement. The Parties to Amendment No. 2 agree to amend Clause 2 of the Agreement, which as of the Date of the Amendment shall read as follows:

"Clause 2. Object of the Agreement.

Subject to the terms and conditions set forth in this Agreement and in the Carrier Manual, Bicentenario undertakes to provide to the Shipper the Service:

(a) During the Ship or Pay Term:

- (i) *For the Shipper Contracted Capacity, in consideration for the Fee that will be paid under the modality of "ship or pay", by virtue of which the payment obligations of the Fee by the Shipper in relations with said Shipper Contracted Capacity must be fully satisfied as per the terms of this Agreement, regardless of the number of Barrels that are nominated or effectively transported; and*
- (ii) *Up to the Conditioned Capacity, provided that it is available, in consideration of the MME Fee, which must be satisfied as per the terms set out in this Agreement only with the number of Barrels that are nominated and effectively transported within said Conditioned Capacity.*

(b) During the Ship and Pay Term:

- (i) *Up to the Shipper Contracted Capacity, in consideration of the MME Fee, under the modality of "ship and pay", by virtue of which the obligation of paying the fee by the Shipper must be satisfied as per the terms of this Agreement only for the number of Barrels effectively transported; and*
- (ii) *Up to the Conditioned Capacity, provided that it is available, in consideration of the MME Fee, which must be satisfied as per the terms set out in this Agreement only with the number of Barrels nominated and effectively transported within said Conditioned Capacity."*

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Section 2.02 - Credit Notes: The Parties to Amendment No. 2 agreed to amend Section 3.04 of the Agreement, which as of the Date of the Amendment shall read as follows:

“Section 3.04 - Credit Notes, Advance Application and Charges for Over-Utilization:

(a) Pipeline for the Shareholders’ Contracted Capacity: *During the Ship or Pay Term, in relation with the Shareholders’ Contracted Capacity, the Shipper that has not nominated and/or used all of the Shipper’s Contracted Capacity with respect to one Nomination Month, generating Unused Capacity, and that this Capacity is used by any of the other Shareholder shippers and/or their Affiliates, credit notes will then be issued in favor of the under-utilizing Shipper. For such purposes, the value of the credit note shall be equal to that at which Bicentenario has effectively invoiced said Unused Capacity to the shipper Shareholder and/or its Affiliates and these will be accredited to the Service payment of the immediately subsequent month after issuing said credit note. In the event of more than one shipper Shareholder and/or its Affiliates generating Unused Capacity, the credit note will be issued proportionately for Unused Capacity of all shippers that have generated Unused Capacity in an Operation Month.*

In the event in which Bicentenario has effectively commercialized with a third party the Unused Capacity as available capacity of the Pipeline, the value of the credit note shall be equal to the value at which Bicentenario has effectively commercialized said Unused Capacity. In the event of more than one shipper generating Unused Capacity, the credit note will be issued proportionately for Unused Capacity of all shippers that have generated Unused Capacity in an Operation Month.

It is understood that the cost and expenses incurred on by Bicentenario for commercialization shall be borne by the shipper that generated the commercialized Unused Capacity, and should that Unused Capacity be used by a Shareholder, said charge shall not be applicable. In any event, payment of interest in favor of the Shipper will not apply on account of commercialization of its Unused Capacity.

(b) Pipeline with Excess Capacity: *During the Ship or Pay Term, in relation with Shareholders Excess Capacity Contracted, when the Shipper effectively transports within the Excess Capacity, Bicentenario shall issue the respective invoice for a value equivalent to the MME Fee multiplied by the barrels effectively transported during the Operation Month, chargeable to the advance payments referred to in Section 4.01(b).*

In the event that Bicentenario has effectively commercialized with a third party the Excess Capacity as Pipeline available capacity, the values that are invoiced and charged shall be considered as Bicentenario revenues and there will be no possibility of either credit notes or recognition of interest payment in favor of the Shipper.

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Section 2.03 - Value of Service: The Parties to Amendment No. 2 agree to amend Section 4.01 of the Agreement, which as of the Date of the Amendment shall read as follows:

"Section 4.01 - Value of Service:

(a) *The Shipper undertakes to pay Bicentenario for:*

(i) **- During the Ship or Pay Term:**

(A) *The Fee multiplied by the Shipper Contracted Capacity and the number of days of the respective Calendar Month, regardless that the Nomination presented by the Shipper in the respective month is below the Shipper Contracted Capacity and even when it has neither nominated nor transported any Barrel, plus*

(B) *The MME Fee multiplied by the barrels effectively transported during the Operation Month, within the Conditioned Capacity.*

(ii) **- During the Ship and Pay Term:** *The MME Fee, by the number of Barrels effectively transported within the Shipper Contracted Capacity and within the Conditioned Capacity in the Operation Month.*

In the event that the MME Fee is not sufficient to pay for Pipeline maintenance, operations and administration costs, the depreciation, amortization and taxes, and an equitable profit, then will be subject to the agreement of the Parties on the terms and conditions of the fee to be applied, without prejudice of the processing to be performed by Bicentenario before the Ministry of Mines to review the MME Fee.

(b) *In the event that the Fee Payment Commencement Date occurs before the Service Commencement Date and only with respect to the period elapsed between those dates, the Shipper undertakes to pay a sum equivalent to the Fee multiplied by the Shipper Contracted Capacity, times the number of Days of the respective Calendar Month, even in spite of the fact that the Service provisions has not commenced. Said payments will be managed as indicated herein below:*

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(i) *Provided that Bicentenario is in a position to make payments of principal and interest of the debt acquired with Lenders, meet the coverage rates set out in the Local Syndicated Credit Agreement or in any other agreement with the Lenders, meet any other obligation or financial covenant stipulated in said instrument, meet all obligations acquired by Bicentenario with third parties and cover all Pipeline operation and maintenance obligations, the amounts corresponding to the Fee that the Shipper has paid from the Date of Commencement of Fee Payment to December 31, 2013 pursuant to that provided for in above section 4.01(b), if any, shall be considered as an advance payment of the Shipper's charge in favor of Bicentenario and may be accounted for during the Ship or Pay and/or Ship and Pay term, as follows:*

- *During the Ship or Pay Term: The aforementioned advance payment shall be booked in Colombian pesos for payment of the MME Fee, caused by the volumes that are effectively transported within the Excess Capacity, until depleting the balance in favor of the Shipper.*
- *During the Ship and Pay Term: Provided that during the Ship or Pay Term not all advance payments referred to in above Section 4.01 (b) (i) can be booked, these will be booked in Colombian pesos for payment of the Service provided until depleting the balance in favor of the Shipper or until expiry of the Ship and Pay Term.*
- *To determine the amount to be charged to the advance payment, the rules set out in Section 4.02(a) (iii) shall apply.*
- *The Parties acknowledge that the current status of the advanced payments caused until December 31, 2013 are listed in Exhibit K to this Agreement.*

(c) *The sums corresponding to the Fee that has been paid by the Shipper as of January 1, 2014, are considered amount effectively paid under the ship or pay modality and, therefore, are not considered as advance and cannot be charged or offset to any payment.*

(d) *The breach by the Shipper of any payment obligations of the MME Fee of this Agreement, shall give rise to the suspension of the transport Service for the barrels intended for transport as part of the Conditioned Capacity. The foregoing, without prejudice of the Shipper obligations of paying the Fee, and the consequences foreseen in the Agreement as to breach of Shipper obligations."*

Section 2.04 - Invoicing and Payment: The Parties to Amendment No. 2 agreed to amend Sections 4.02(a) and 4.02(b) of the Agreement, which shall read as follows:

(a) *"As of the Fee Payment Commencement Date or the Service Commencement Date, whatever occurs first, Bicentenario shall issue bill or invoice, as the case may be, pursuant to the following rules and terms:*

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(i) During the Ship or Pay Term:

- (A) The value of the Service for the Shipper Contracted Capacity, shall be charged monthly in advance for the correct presentation of a bill within the first 10 days of the respective Nomination Month, as of January 1, 2014. The bill shall include the multiplication of the respective Fee for the Shipper Contracted Capacity times the number of Days of the Calendar Month that is being invoiced.
- (B) The value of the Service for Conditioned Capacity shall be charged monthly within 45 Days following the expiry of the respective Operation Month. The invoice shall include the multiplication of the MME Fee times the number of Barrels effectively transported during the Operation Month, within the Conditioned Capacity.

(ii)- During the Ship and Pay Term:

- (A) The value of Service for the Shipper Scheduled Capacity will be charged monthly and in advance during the first 10 Days of the respective Nomination Month. The bill shall include the multiplication of the MME Fee times the number of the Scheduled Barrels within the Shipper Contracted Capacity, times the number of Days in the Calendar Month that are being charged. Once the Barrels have been transported, the respective adjustment between the Scheduled and those effectively transported will be done. Should there be a balance in favor of the Shipper, a credit note in its favor shall be issued, which will be applied to the respective invoice.
- (B) The value of the Service for Conditioned Capacity shall be charged monthly within 30 Days following the expiry of the respective Operation Month. The invoice shall include the multiplication of the MME Fee times the number of Barrels effectively transported within the Conditioned Capacity.

(iii) Amounts of Credit Notes and Amortization of Advance Payments: For determining the amount of credit notes, the number of Barrels effectively transported within the Conditioned Capacity and the amounts to be amortized against advance payments established in Exhibit K to this Agreement, Section 4.01(a)(1) (B) shall be taken into account.

The provisions of numerals (i) and (ii) above shall apply without prejudice of applicable Credit or Debit notes resulting from over-utilized or under-utilized Shipper Contracted Capacity by the Shipper, in accordance with the approved Nomination process and the Carrier Manual pursuant to the terms set out in Section 3.04 of the Agreement and the Credit Notes, if any, set out in Section 4.02(e)(i)(A) of the Agreement.

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(b) Bicentenario will legalize bills since the Service Commencement Date by issuing and submitting the invoices within 30 Days following the expiry of the Nomination Month, indicating (i) the amount effectively paid by the Shipper, plus (ii) the amount to be collected to Bicentenario on account of transport tax.

Bills or invoices, as the case may be, issued by Bicentenario, shall detain in an annex:

- (i) The transport Fee on account of the Shipper Contracted Capacity, breaking down the amount destined for payment of principal and interest of the current credit contracts.*
- (ii) The MME fee caused by the Conditioned Capacity.*

Section 2.05 –Effects of a Justified Event: The Parties to Amendment No. 2 agree to modify Section 8.03(c) of the Agreement, which shall read as follows:

“(c) The Shipper shall continue paying the Fee. Notwithstanding the foregoing, should the Justified Event suspend Service provided for a period equal to or greater than 6 continuous and uninterrupted months, counted as of the date of occurrence of the event, the Shipper shall have the right to terminate this Agreement without having to pay any compensation to Bicentenario. Should the suspension of the Service be caused by a vice inherent to the Oil or by fault attributable to the Shipper, the Shipper shall respond in accordance with that provided for in Section 8.02 of this Agreement and Clause 18 of the Carrier Manual.”

Section 2.06 - Valid Term. The Parties to Amendment No. 2 agree to modify Section 14.01 of the Agreement, which shall read as follows:

“Section 14.01 - Valid Term: This Agreement shall come into force on the Date of Execution and will remain valid first (I) for the Ship or Pay Term, under the "ship or pay" modality with respect to the Shipper Contracted Capacity, and subject to availability and for the Barrels effectively transported with respect to the Conditioned Capacity and then (ii) for the Ship and Pay Term under the "ship and pay" modality, for up to the Shipper Contracted Capacity, and subject to availability and for the Barrels effectively transported with respect to the Conditioned Capacity, for which the Parties shall agree on the applicable terms and conditions, including, but without limitation, the demand or not of the Warranty; unless it is terminated pursuant to Section 14.02.

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Should the Parties not reach an agreement on the other terms and conditions for the Ship and Pay Term pursuant to the preceding paragraph, the terms and conditions that will govern will be those set out for Shipper Contracted Capacity, as applicable, and the Carrier Manual."

Section 2.07 - Definitions (Exhibit A): The Parties to Amendment No. 2 agree on including and/or modifying Annex A to the Agreement concerning the definitions, which shall read as follows:

"Owned Oil: Means Oil Produced by the Shipper or its Affiliates, Oil that has been acquired by any other means by the Shipper and/or its Affiliates, and/or Oil on which the Shipper and/or any of its Affiliates and/or associates have a commercial or technical interest, which will be understood as existing with respect to oil produced by or owned by any of its Affiliates and/or associates of the Shipper, as well as with respect to oil whose transport through the Pipeline results in or implies some benefit, either direct or indirect, to the Shipper and/or any of its Affiliates and/or associates.

Shipper Contracted Capacity: Means the transport capacity of Owned Oil through the Pipeline to which the Shipper is entitled by virtue of this Agreement. Said Shipper Contracted Capacity corresponds to the share equity percentage of the Shipper and/or its Affiliates in Bicentenario applied on 110,000 bpcd.

Shareholders Contracted Capacity: Means the transport capacity of Owned Oil through the Pipeline to which the Shareholders and/or its Affiliates are entitled, which in total will be equal to 110,000 bpcd.

Conditioned Capacity: Means the transport capacity of Owned Oil through the Pipeline subject to availability and expressed in bpcd, conditioned to the existence of: (i) Unused Capacity by other shipper shareholder of Bicentenario and/or its Affiliates, and/or (ii) Excess Capacity. This capacity shall be offered to all Shareholders of Bicentenario and/or their Affiliates. In the event that two or more Shareholders of Bicentenario and/or their Affiliates request this capacity for an Operation Month, it shall be allocated proportionately to their equity share in Bicentenario.

Excess Capacity: Means the transport capacity of Owned Oil through the Pipeline subject to availability of excess capacity above 110,000 bpcd in an Operation Month and will be expressed in bpcd.

MME Fee: Means the transport fee for Oil set out by the Ministry of Mines and Energy by means of Resolution No. 0072524 dated December 28, 2012, or that set out for each fee period after the Service Commencement Date, as well as by any revision or adjustments made in accordance with applicable legislation."

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Section 2.08 - Carrier Manual (Annex B). The Parties to Amendment No. 2 agree on changing Exhibit B to the Agreement, which as of the Date of the Amendment shall agree with that provided for in Exhibit 1 to this Amendment No. 2.

Section 2.09 - Fee Calculation Methodology (Exhibit G): The Parties to Amendment No. 2 agree to amend numeral 3 of Exhibit G to the Agreement, which as of the Date of the Amendment shall read as follows:

"3. Definition of FCF (Free Cash Flow)

The concept behind FCL is to determine the cash flow that Bicentenario would have had if it had financial debts. This shall be structured with actual and projected figures.

The FCF (Free Cash Flow) is calculated as follows:

- Revenues calculated based on numeral 3.1.1. of this Exhibit (the "Calculated Revenues")

Less

- All administration, operation and maintenance costs and expenses of Bicentenario.

Less

- Operational Taxes

Less

- Estimated leveraged income tax payment (taxes that would have been or will be paid when financial debt and yield from cash surplus exist).

Less (Plus)

- The increase (or decrease) of working capital.

Less

- Capital investment required for the construction of the Pipeline, including expenses that can be capitalized.

The calculation of FCF (Free Cash Flow) is detailed in the fee Calculation Model (as such term is defined herein below)."

Section 2.10 - List of Advance Payments: The Parties to Amendment No. 2 agree to add as an exhibit to the Agreement (hereinafter Exhibit K) the balance of advance payments generated between the Fee Payment Commencement Date and December 31, 2013, which as of the Amendment Date shall be Exhibit 2 to this Amendment No. 2.

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CLAUSE 3 ENTIRE AGREEMENT. Other clauses in the Agreement remain entirely in force, without being understood as amended by this Amendment No. 2.

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**AMENDMENT No. 2 TO THE BICENTENARIO TRANSPORT AGREEMENT
SIGNING PAGE**

FOR THE SHIPPER,

SIGNATURE /s/ Martha María Echeverri Benjumea
NAME: MARTHA MARIA ECHEVERRI BENJUMEA
TITLE: HEAD OF TRANSPORT SERVICES
COMMERCIAL DEPARTMENT
VICEPRESIDENCY OF TRANSPORT AND LOGISTICS
C.C. 52.152.043

FOR BICENTENARIO,

SIGNATURE /s/ Fernando Gutierrez Montes
NAME: FERNANDO GUTIERREZ MONTES
TITLE: LEGAL REPRESENTATIVE
C.C. 17.146.690

Exhibit 4.12

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AMENDMENT NO. 4 TO THE BICENTENARIO TRANSPORT AGREEMENT

BETWEEN

OLEODUCTO BICENTENARIO DE COLOMBIA S.A.S.

(“THE COMPANY”)

AND

ECOPETROL S.A.

BOGOTÁ D.C., 6 APRIL 2015

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VERSION FOR SIGNING

AMENDMENT NO. 4 TO THE BICENTENARIO TRANSPORT AGREEMENT

This Amendment No. 4 to the Oil Transport Agreement entered into by the Parties on June 20, 2012 (the "Amendment No. 4" is entered into on this date April 6, 2015 (the "Date of Amendment" by the following parties (the "Parties to the Amendment" and each one of them a "Party to the Amendment" or the "Party to the Amendment")):

1. **OLEODUCTO BICENTENARIO DE COLOMBIA S.A.S.**, a Colombian corporation, of a commercial nature, of the simplified stock company type, domiciled in Bogota D.C., incorporated by means of private document dated August 18, 2010, registered on the mercantile register on August 18, 2010, with mercantile register No. 2017702, represented herein for subscribing to this Agreement No. 3 by **Fernando Gutierrez Montes**, identified as shown below his signature ("Bicentenario"); and
2. **ECOPETROL S.A.**, Colombian mixed economy corporation, of a commercial nature, national order, attached to the Ministry of Mines and Energy pursuant to Law 118 of 2006, governed by its corporate bylaws, domiciled in Bogota, represented for execution of this Amendment No. 4 by **Martha María Echeverri Benjumea**, identified as shown below her signature (hereinafter the "Shipper" and together with Bicentenario, the "Parties" and, each of them, a "Party" or the "Party").

The Parties to the Amendment have agreed on the clauses that are set forth based on the following:

WHEREAS

1. On June 20, 2012, the Shipper and Bicentenario entered into an Oil transport agreement through "Oleoducto Bicentenario de Colombia" (the "Agreement"), amended through Amendment No. 1, dated July 3, 2012, Amendment No. 2, dated March 28, 2014, Amendment No. 2 dated November 21, 2014;
2. Bicentenario shall obtain new financing in order to pay in advance or novate credit obtained from Colombian financing agencies, through Syndicated credit agreement that Bicentenario subscribed to with some financial agencies on May 8, 2012, for an amount of up to COP\$ 2,100,000,000,000, destined for financing construction, start-up, and operation and maintenance of the Aruaney-Banadia segment; and
3. For purposes of ensuring financial viability of new financing, it is necessary for the Agreement to incorporate and refer to the new debt and obligations acquired by Bicentenario pursuant to the new indebtedness.

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Based on the above whereas, the Parties have decided to enter into this Amendment No. 4, which shall be governed by the following:

CLAUSES

CLAUSE 1 - DEFINITIONS AND INTERPRETATION. Unless otherwise stated, all terms starting with a capital letter in this Amendment No. 4 shall have the meaning given to them in the Agreement.

CLAUSE 2 - AMENDMENTS TO THE AGREEMENT

Section 2.01 - Value of Service: The Parties to Amendment No. 4 agree to amend Section 4.01(b) of the Agreement, which as of the Date of the Amendment shall read as follows:

“(b) *In the event that the Tariff Payment Commencement Date occurs before the Service Commencement Date and only with respect to the period elapsed between those dates, the Shipper undertakes to pay a sum equivalent to the Tariff multiplied by the Shipper Contracted Capacity, times the number of Days of the respective Calendar Month, even in spite of the fact that the Service provisions has not commenced.*

Said payments will be managed as indicated herein below:

(i) *Provided that Bicentenario is in a position to make payments of principal and interest of the debt acquired with the Lenders, meet the coverage rates set out in the Local Syndicated Credit Agreement or in any other agreement with the Lenders, meet any other obligation or financial covenant stipulated in said instrument, meet all obligations acquired by Bicentenario with third parties and cover all Pipeline operation and maintenance obligations, the amounts corresponding to the Tariff that the Shipper has paid from the Date of Commencement of Tariff Payment to December 31, 2013 pursuant to that provided for in above section 4.01(b), if any, shall be considered as an advance payment of the Shipper's charge in favor of Bicentenario.*

(ii) *These may be accounted for during the Ship or Pay and/or Ship and Pay term, as follows:*

(1) *During the Ship or Pay Term: The aforementioned advance payment shall be booked in Colombian pesos for payment of the MME Rate, caused by the volumes that are effectively transported within the Excess Capacity, until depleting the balance in favor of the Shipper.*

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(2) During the Ship and Pay Term: Provided that during the Ship or Pay Term not all advance payments referred to in above Section 4.01 (b) can be booked, these will be booked in Colombian pesos for payment of the Service provided until depleting the balance in favor of the Shipper or until expiry of the Ship and Pay Term.

(iii) *To determine the amount to be charged to the advance payment, the rules set out in Section 4.02(a) (iii) shall apply.*

(iv) *The Parties acknowledge that the current status of the advanced payments caused until December 31, 2013 are listed in Exhibit K to this Agreement.*

Section 2.02 – Early Termination: The Parties to Amendment No. 4 agree to amend Section 14.02 of the Agreement, which as of the Date of the Amendment shall read as follows:

“(d) *If as a result of the early termination of the Agreement by Bicentenario pursuant to that provided for in Section 14.02(b) of this Agreement, (A) the Lenders require advance payment of the debt acquired by Bicentenario under the New Loan Agreement; and/or (B) Bicentenario, after performing reasonable commercial efforts for 6 months from the early termination of this Agreement, has not subscribed to with a third party a transport agreement in conditions that are similar to this Agreement, which enable it to pay for the cost and expense of Bicentenario's debt with the Lenders under the New Loan Agreement; and/or (C) the "Purchase Option" (as the term is defined in the AMI has not been exercised within 6 months following the date of early termination of the Agreement; the Shipper must pay to the autonomous equity account to which Bicentenario has assigned the economic rights derived from this Agreement, when it requires, an amount equivalent to:*

(i) *The balance of the current unsettled debt of Bicentenario with the Lenders under the New Loan Agreement on the date of the early termination of the Agreement, multiplied by the per cent share of the [Shipper/Shipper Affiliate] in Bicentenario; plus¹*

(ii) *Any other reasonable cost or expense incurred on by Bicentenario as a result of the early termination of the Agreement”.*

Section 2.02 - Integrity of Agreement and Amendments: The Parties to Amendment No. 4 agree to amend Section 21.02 of the Agreement, which as of the Date of the Amendment shall read as follows:

¹ This will be adjusted depending on the quality held by the Shipper.

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***“Section 21.02 - Amendments:** Only those amendments to this Agreement that are enshrined in a document signed by both Parties shall be valid: In the event of intended changes affecting compliance by Bicentenario with the obligations provided for in the New Loan Agreement or causing an Adverse Material Effect (as per definition of such term in the New Loan Agreement), said amendment shall also be approved in advance by the Lenders.”*

Section 2.03 – New Definitions (Exhibit A): The Parties to Amendment No. 4 agree on adding the following definition as of the Date of the Amendment:

***“New Loan Agreement:** It means the loan agreement subscribed to by Bicentenario and some financial agencies, aimed at granting a loan destined to the advance payment or novation of the loan granted in accordance with the Local Syndicate Loan Agreement.”*

Section 2.04 - Amendment to Definitions (Exhibit A). The Parties to Amendment No. 4 agree on amending the following definitions set out in Exhibit A to the Agreement, which shall read as follows:

***“Warranty:** It means an irrevocable stand-by credit letter or irrevocable bank warranty upon first request, issued by (a) a banking agency authorized to operate in Colombia with credit rating of AAA on its long term debt in pesos, or (b) a financial agency abroad with long term risk rating in dollars of not less than that of Colombia's sovereign external debt, and in any event, designating as its beneficiary the autonomous equity that is established by Bicentenario under the Local Syndicate Loan or the New Loan Agreement, in which case it may use the form included in Exhibit F of this Agreement.*

***Ship or Pay Term:** Means the term commencing on whatever occurs first between the Tariff Payment Commencement Date or the Service Commencement Date and ends on whatever occurs first between (a) 12 years as of the commencement of the term, and (b) the date of depleting all of the obligations that are the object of the New Loan Agreement.*

***Lenders:** Means the financial institutions with who Bicentenario enters into the New Loan Agreement.”*

Section 2.05 - Tariff Calculation Methodology (Exhibit G): The Parties to Amendment No. 4 agree to amend number 3.2 of Exhibit G to the Agreement, which as of the Date of the Amendment shall read as follows:

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“3.2 Tariff Calculation Model

The Board of Directors of Bicentenario will approve a tariff calculation model for Bicentenario (the "Tariff Calculation Model"), which enables the calculation of such tariff based on the described methodology. The Tariff Calculation Model shall also be informed to the creditors of Bicentenario in line with the Local Syndicate

The first Tariff that will be applied on the Service Commencement Date or the Tariff Payment Commencement Date, whatever occurs first, shall be that approved by the Board of Directors of Bicentenario 60 days in advance of said dates."

CLAUSE 3 ENTIRE AGREEMENT. Other clauses in the Agreement are entirely in force, not understood as amended by this Amendment No. 4.

[SPACE INTENTIONALLY LEFT BLANK]

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AMENDMENT No. 4 TO THE BICENTENARIO TRANSPORT AGREEMENT

SIGNING PAGE

BY THE SHIPPER,

SIGNATURE /s/ Martha María Echeverri Benjumea
NAME: MARTHA MARIA ECHEVERRI BENJUMEA
TITLE: HEAD OF TRANSPORT SERVICES
 COMMERCIAL DEPARTMENT
C.C. 52.152.043 of Bogota

FOR BICENTENARIO,

SIGNATURE /s/ Fernando Gutierrez Montes
NAME: FERNANDO GUTIERREZ MONTES
TITLE: LEGAL REPRESENTATIVE
C.C. 17.146.690

Subsidiaries of Ecopetrol S.A.

The following table sets forth our subsidiaries, their respective countries of incorporation, our percentage ownership in each (both directly and indirectly through other subsidiaries) at March 31, 2016.

| COMPANY | COUNTRY OF INCORPORATION | OWNERSHIP |
|---|---------------------------------|------------------|
| ANDEAN CHEMICALS LIMITED | Bermuda | 100.00% |
| BLACK GOLD RE LIMITED | Bermuda | 100.00% |
| CENIT TRANSPORTE Y LOGÍSTICA DE HIDROCARBUROS S.A.S. | Colombia | 100.00% |
| ECOPETROL CAPITAL AG | Switzerland | 100.00% |
| ECOPETROL GLOBAL ENERGY S.L.U | Spain | 100.00% |
| ECOPETROL GLOBAL CAPITAL S.L.U. | Spain | 100.00% |
| EQUION ENERGÍA LIMITED | United Kingdom | 51.00% |
| HOCOL PETROLEUM LIMITED | Bermuda | 100.00% |
| BIOENERGY S.A.** | Colombia | 96.21% |
| BIOENERGY ZONA FRANCA S.A.S.** | Colombia | 96.21% |
| COLOMBIA PIPELINES LIMITED** | United Kingdom | 51.00% |
| COMPOUNDING AND MASTERBATCHING INDUSTRY LTDA - COMAI ** | Colombia | 100.00% |
| ECOPETROL AMERICA INC** | United States | 100.00% |
| ECOPETROL DEL PERU S.A.** | Peru | 100.00% |
| ECOPETROL OLEO & GAS DO BRASIL LTDA** | Brazil | 100.00% |
| ECOPETROL GERMANY GmbH** | Germany | 100.00% |
| HOCOL S.A.** | Cayman Islands | 100.00% |
| OLEODUCTO BICENTENARIO DE COLOMBIA S.A.S.** | Colombia | 55.97% |
| OLEODUCTO CENTRAL S.A. - OCENSA** | Colombia | 72.65% |
| OLEODUCTO DE COLOMBIA S.A. - ODC** | Colombia | 73.00% |
| OLEODUCTO DE LOS LLANOS ORIENTALES S.A.** | Panama | 65.00% |
| REFINERIA DE CARTAGENA S.A. * | Colombia | 100.00% |
| PROPILCO S.A.* | Colombia | 100.00% |
| SANTIAGO OIL COMPANY** | Cayman Islands | 51.00% |
| PROYECTO ODC N1 S.A.S.** | Colombia | 51.00% |
| SENTO S.A.S. | Colombia | 51.00% |
| ECOPETROL COSTA AFUERA COLOMBIA S.A.S | Colombia | 100.00% |

*Direct and indirect participation.

**Solely indirect participation through other subsidiaries or affiliates.

CERTIFICATION

I, Juan Carlos Echeverry, certify that:

1. I have reviewed this annual report on Form 20-F of Ecopetrol S.A.;
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(s) 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(s) 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.

Dated: April 28, 2016

By: /s/ Juan Carlos Echeverry
Name: Juan Carlos Echeverry
Title: Chief Executive Officer

CERTIFICATION

I, María Fernanda Suárez, certify that:

1. I have reviewed this annual report on Form 20-F of Ecopetrol S.A.;
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(s) 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(s) 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.

Dated: April 28, 2016

By: /s/ María Fernanda Suárez
Name: María Fernanda Suárez
Title: Chief Financial Officer

Certification
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
(Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code)

Pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code), each of the undersigned officers of Ecopetrol S.A. (the "Company"), does hereby certify, to such officer's knowledge, that:

The annual report on Form 20-F for the fiscal year ended December 31, 2015 (the "Form 20-F") of the Company fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 and information contained in the Form 20-F fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: April 28, 2016

By: /s/ Juan Carlos Echeverry
Name: Juan Carlos Echeverry
Title: Chief Executive Officer

Dated: April 28, 2016

By: /s/ María Fernanda Suárez
Name: María Fernanda Suárez
Title: Chief Financial Officer



Consent of Independent Registered Public Accounting Firm

We hereby consent to the incorporation by reference in the Registration Statement on Form F-3 No. 333-190198 of Ecopetrol S. A. of our report dated April 28, 2016 relating to the financial statements and the effectiveness of internal control over financial reporting which appears in this Form 20-F.

/s/ PricewaterhouseCoopers Ltda.

Bogotá, Colombia

April 28, 2016



RYDER SCOTT COMPANY
PETROLEUM CONSULTANTS

TBPE REGISTERED ENGINEERING FIRM F-1580
1100 LOUISIANA STREET SUITE 4600 HOUSTON, TEXAS 77002-5294

FAX (713) 651-0849
TELEPHONE (713) 651-9191

CONSENT OF INDEPENDENT PETROLEUM ENGINEERS

Ryder Scott Company, L.P. ("Ryder Scott") consents to the references to our firm and our report dated February 18, 2016 (our "Report") included in Ecopetrol S.A.'s annual report on Form 20-F for the year ended December 31, 2015 (the "Annual Report"), the inclusion of our Report as Exhibit 99.1 to the Annual Report and references to and information derived from our Report in the Annual Report, as well as to the incorporation by reference of this consent and our Report into Ecopetrol's S.A.'s registration statement on Form F-3 filed with the United States Securities and Exchange Commission on or about July 26, 2013 (the "Registration Statement"). Ryder Scott further consents to the references to Ryder Scott as set forth in the Registration Statement under the heading "Experts".

/s/ RYDER SCOTT COMPANY, L.P.

RYDER SCOTT COMPANY, L.P.
TBPE Firm Registration No. F-1580

Houston, Texas
April 19, 2016

SUITE 600, 1015 4TH STREET, S.W. CALGARY, ALBERTA T2R 1J4 TEL (403) 262-2799 FAX (403) 262-2790
621 17TH STREET, SUITE 1550 DENVER, COLORADO 80293-1501 TEL (303) 623-9147 FAX (303) 623-4258

DeGolyer and MacNaughton

5001 Spring Valley Road
Suite 800 East
Dallas, Texas 75244

April 11, 2016

Board of Directors
Ecopetrol S.A.
Calle 35 No. 7-21 Piso 1
Bogota, D.C. Colombia

Ladies and Gentlemen:

We hereby consent to the references to DeGolyer and MacNaughton and to the inclusion of and information derived from our third-party letter report dated March 1, 2016, containing our opinions regarding our estimates, as of December 31, 2015, of the proved oil and condensate, natural gas liquids, gas, and oil equivalent reserves of certain selected properties that Ecopetrol S.A. has represented that it owns in Colombia and Peru as set forth under the headings “3. Business Overview—3.4 Exploration and Production—3.4.3 Reserves” and “10. Exhibits,” as Exhibit 99.2 in the Annual Report on Form 20-F of Ecopetrol S.A. for the year ended December 31, 2015 (the Annual Report), and as incorporated by reference into Ecopetrol S.A.’s registration statement on Form F-3 filed with the United States Securities and Exchange Commission on July 26, 2013 (the Registration Statement), and we further consent to the references to DeGolyer and MacNaughton as set forth in the Registration Statement under the heading “Experts;” provided, however, that we are necessarily unable to verify the accuracy of the reserves estimates contained in the Annual Report because our estimates of reserves have been combined with estimates of reserves prepared by other petroleum consultants.

Very truly yours,

/s/ DeGolyer and MacNaughton
DeGOLYER and MacNAUGHTON
Texas Registered Engineering Firm F-716



April 28, 2016
Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549

Commissioners:

We have read the statements made by Ecopetrol S. A. included under Item 16F of its Form 20-F, which we understand will be filed with the Securities and Exchange Commission, on April 28, 2016. We agree with the statements concerning our Firm in such Form 20-F.

Very truly yours,

/s/ PricewaterhouseCoopers Ltda.
Bogotá, Colombia
April 28, 2016



TBPE REGISTERED ENGINEERING FIRM F-1580
1100 LOUISIANA SUITE 4600

HOUSTON, TEXAS 77002-5294

FAX (713) 651-0849
TELEPHONE (713) 651-9191

February 18, 2016

ECOPETROL
Cra. 13 No. 36-24
Edificio Principal, Piso 7
Bogotá, D.C., Colombia

Gentlemen:

At the request of ECOPETROL, Ryder Scott Company, L.P. (Ryder Scott) has prepared an estimate of the proved reserves attributable to certain properties of ECOPETROL, as of December 31, 2015. The subject properties are located in the country of Colombia and the United States of America. Ryder Scott estimated the reserves based on the definitions and disclosure guidelines of the United States Securities and Exchange Commission (SEC) contained in Title 17, Code of Federal Regulations, Modernization of Oil and Gas Reporting, Final Rule released January 14, 2009 in the Federal Register (SEC Regulations). Our third party study, completed on January 25, 2016 and presented herein, was prepared for public disclosure by ECOPETROL in filings made with the SEC in accordance with the disclosure requirements set forth in the SEC regulations.

The properties evaluated by Ryder Scott account for a portion of ECOPETROL's total net proved reserves as of December 31, 2015. Based on information provided by ECOPETROL, the third party estimate conducted by Ryder Scott addresses 58 percent of the total proved developed net liquid hydrocarbon reserves and 49 percent of the total proved undeveloped net liquid hydrocarbon reserves, of ECOPETROL. The Ryder Scott review also addresses 80 percent of the total proved developed net gas reserves and 75 percent of the total proved undeveloped net gas reserves, of ECOPETROL.

The estimated reserve amounts presented in this report, as of December 31, 2015, are related to hydrocarbon prices. The hydrocarbon prices used in the preparation of this report are based on the average prices during the 12-month period prior to the "as of date" of this report, determined as the unweighted arithmetic averages of the prices in effect on the first-day-of-the-month for each month within such period, unless prices were defined by contractual arrangements, as required by the SEC regulations. Actual future prices may vary significantly from the prices required by SEC regulations; therefore, volumes of reserves actually recovered may differ significantly from the estimated quantities presented in this report. The results of Ryder Scott's estimates are summarized as follows.

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TEL (303) 623-9147

FAX (403) 262-2790
FAX (303) 623-4258

ECOPETROL
February 18, 2016
Page 2

SEC PARAMETERS
Estimated Net Reserves
Certain Interests of
ECOPETROL
As of December 31, 2015

| | Proved | | Total Proved |
|--------------------------------------|-----------|-------------|--------------|
| | Developed | Undeveloped | |
| <u>Net Remaining Reserves</u> | | | |
| Oil/Condensate - MBarrels | 481,836 | 142,333 | 624,169 |
| Plant Products - MBarrels | 51,504 | 16,884 | 68,388 |
| Sales Gas - MMCF | 2,368,112 | 221,540 | 2,589,652 |
| Fuel Gas - MMCF | 179,026 | 6,888 | 185,914 |

Liquid hydrocarbons are expressed in thousand standard 42 gallon barrels. All gas volumes are reported on an “as sold” basis expressed in millions of cubic feet (MMCF) at the official temperature and pressure bases of the areas in which the gas reserves are located. Further, they include ECOPETROL’s participation interest in properties operated by Ecopetrol America Incorporated, Equion Energía Ltd. and Hocol Petroleum Ltd. The proved liquid hydrocarbon reserves volumes are exclusive of royalties. The net gas reserves volumes include certain gas royalty volumes paid in cash.

Reserves Included in This Report

The proved reserves included herein conform to the definition as set forth in the Securities and Exchange Commission’s Regulations Part 210.4-10(a). An abridged version of the SEC reserves definitions from 210.4-10(a) entitled “Petroleum Reserves Definitions” is included as an attachment to this report. The various proved reserve status categories are defined under the attachment entitled “Petroleum Reserves Status Definitions and Guidelines” in this report.

No attempt was made to quantify or otherwise account for any accumulated gas production imbalances that may exist. The proved gas volumes included herein do not attribute gas consumed in operations as reserves. Non-hydrocarbon or inert gas volumes have been excluded from the reserves reported herein.

Reserves are those estimated remaining quantities of petroleum that are anticipated to be economically producible, as of a given date, from known accumulations under defined conditions. All reserve estimates involve an assessment of the uncertainty relating the likelihood that the actual remaining quantities recovered will be greater or less than the estimated quantities determined as of the date the estimate is made. The uncertainty depends chiefly on the amount of reliable geologic and engineering data available at the time of the estimate and the interpretation of these data. The relative degree of uncertainty may be conveyed by placing reserves into one of two principal classifications, either proved or unproved. Unproved reserves are less certain to be recovered than proved reserves, and may be further sub-classified as probable and possible reserves to denote progressively increasing uncertainty in their recoverability. At ECOPETROL’s request, this report addresses only the proved reserves attributable to the properties evaluated herein.

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.” The proved reserves included herein were estimated using deterministic methods. If deterministic methods are used, the SEC has defined reasonable certainty for proved reserves as a “high degree of confidence that the quantities will be recovered.”

RYDER SCOTT COMPANY PETROLEUM CONSULTANTS

ECOPETROL
February 18, 2016
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Proved reserve estimates will generally be revised only as additional geologic or engineering data become available or as economic conditions change. For proved reserves, the SEC states that "as changes due to increased availability of geoscience (geological, geophysical, and geochemical), engineering, and economic data are made to the estimated ultimate recovery (EUR) with time, reasonably certain EUR is much more likely to increase or remain constant than to decrease." Moreover, estimates of proved reserves may be revised as a result of future operations, effects of regulation by governmental agencies or geopolitical or economic risks. Therefore, the proved reserves included in this report are estimates only and should not be construed as being exact quantities, and if recovered, the revenues therefrom, and the actual costs related thereto, could be more or less than the estimated amounts.

The proved reserves reported herein are limited to the period prior to expiration of current contracts providing the legal rights to produce, or a revenue interest in such production, unless evidence indicates that contract renewal is reasonably certain. Furthermore, properties in the different countries may be subjected to significantly varying contractual fiscal terms that affect the net revenue to ECOPETROL for the production of these volumes. The prices and economic return received for these net volumes can vary significantly based on the terms of these contracts. Therefore, when applicable, Ryder Scott reviewed the fiscal terms of such contracts and discussed with ECOPETROL the net economic benefit attributed to such operations for the determination of the net hydrocarbon volumes and income thereof. Ryder Scott has not conducted an exhaustive audit or verification of such contractual information. Neither our review of such contractual information nor our acceptance of ECOPETROL's representations regarding such contractual information should be construed as a legal opinion on this matter.

Ryder Scott did not evaluate the country and geopolitical risks in the countries where ECOPETROL operates or has interests. ECOPETROL's operations may be subject to various levels of governmental controls and regulations. These controls and regulations may include, but may not be limited to, matters relating to land tenure and leasing, the legal rights to produce hydrocarbons including the granting, extension or termination of production sharing contracts, the fiscal terms of various production sharing contracts, drilling and production practices, environmental protection, marketing and pricing policies, royalties, various taxes and levies including income tax, and foreign trade and investment and are subject to change from time to time. Such changes in governmental regulations and policies may cause volumes of proved reserves actually recovered and amounts of proved income actually received to differ significantly from the estimated quantities.

The estimates of proved reserves presented herein were based upon a detailed study of the properties in which ECOPETROL owns an interest; however, we have not made any field examination of the properties. No consideration was given in this report to potential environmental liabilities that may exist nor were any costs included for potential liabilities to restore and clean up damages, if any, caused by past operating practices.

Estimates of Reserves

The estimation of reserves involves two distinct determinations. The first determination results in the estimation of the quantities of recoverable oil and gas and the second determination results in the estimation of the uncertainty associated with those estimated quantities in accordance with the definitions set forth by the Securities and Exchange Commission's Regulations Part 210.4-10(a). The process of estimating the quantities of recoverable oil and gas reserves relies on the use of certain generally accepted analytical procedures. These analytical procedures fall into three broad categories or methods: (1) performance-based methods; (2) volumetric-based methods; and (3) analogy. These methods may be used singularly or in combination by the reserve evaluator in the process of estimating the quantities of reserves. Reserve evaluators must select the method or combination of methods which in their professional judgment is most appropriate given the nature and amount of reliable geoscience and engineering data available at the time of the estimate, the established or anticipated performance characteristics of the reservoir being evaluated and the stage of development or producing maturity of the property.

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In many cases, the analysis of the available geoscience and engineering data and the subsequent interpretation of this data may indicate a range of possible outcomes in an estimate, irrespective of the method selected by the evaluator. When a range in the quantity of reserves is identified, the evaluator must determine the uncertainty associated with the incremental quantities of the reserves. If the reserve quantities are estimated using the deterministic incremental approach, the uncertainty for each discrete incremental quantity of the reserves is addressed by the reserve category assigned by the evaluator. Therefore, it is the categorization of reserve quantities as proved, probable and/or possible that addresses the inherent uncertainty in the estimated quantities reported. For proved reserves, uncertainty is defined by the SEC as reasonable certainty wherein the “quantities actually recovered are much more likely than not to be achieved.” The SEC states that “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.” The SEC states that “possible reserves are those additional reserves that are less certain to be recovered than probable reserves and the total quantities ultimately recovered from a project have a low probability of exceeding proved plus probable plus possible reserves.” All quantities of reserves within the same reserve category must meet the SEC definitions as noted above.

Estimates of reserves quantities and their associated reserve categories may be revised in the future as additional geoscience or engineering data become available. Furthermore, estimates of reserves quantities and their associated reserve categories may also be revised due to other factors such as changes in economic conditions, results of future operations, effects of regulation by governmental agencies or geopolitical economic risks as previously noted herein.

The proved reserves for the properties included herein were estimated by performance methods, the volumetric method, or a combination of performance and volumetric methods. The following table summarizes the approximate percent of reserves estimated by each of these methods.

Approximate Percent Proved Reserves Estimated by the Various Methods

| Method | Gas | | Liquid Hydrocarbons | |
|-------------|-----------|-------------|---------------------|-------------|
| | Developed | Undeveloped | Developed | Undeveloped |
| Volumetric | 0 | 3% | 0 | 3% |
| Performance | 20% | 0 | 99.5% | 0 |
| Analogy | 0 | 2% | 0 | 80% |
| Combination | 80% | 95% | 0.5% | 17% |

These performance methods include, but may not be limited to, decline curve analysis and analogy which utilized extrapolations of historical production and pressure data available through November 2015 in those cases where such data were considered to be definitive. The data utilized in this analysis were supplied to Ryder Scott by ECOJETROL and were considered sufficient for the purpose thereof. The volumetric method was used where there were inadequate historical performance data to establish a definitive trend and where the use of production performance data as a basis for the reserve estimates was considered to be inappropriate. The volumetric analysis utilized pertinent well and seismic data supplied to Ryder Scott by ECOJETROL that were available through November 2015. The data utilized from the well and seismic data incorporated into our volumetric analysis were considered sufficient for the purpose thereof.

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To estimate economically recoverable proved oil and gas reserves and related future net cash flows, we consider many factors and assumptions including, but not limited to, the use of reservoir parameters derived from geological, geophysical and engineering data that cannot be measured directly, economic criteria based on current costs and SEC pricing requirements, and forecasts of future production rates. Under the SEC regulations 210.4-10(a)(22)(v) and (26), proved reserves must be anticipated to be economically producible from a given date forward based on existing economic conditions including the prices and costs at which economic producibility from a reservoir is to be determined. While it may reasonably be anticipated that the future prices received for the sale of production and the operating costs and other costs relating to such production may increase or decrease from those under existing economic conditions, such changes were, in accordance with rules adopted by the SEC, omitted from consideration in making this evaluation.

ECOPETROL has informed us that they have furnished us all of the material accounts, records, geological and engineering data, and reports and other data required for this investigation. In preparing our forecast of future proved production and income, we have relied upon data furnished by ECOPETROL with respect to property interests owned, production and well tests from examined wells, normal direct costs of operating the wells or leases, other costs such as transportation and/or processing fees, ad valorem and production taxes, recompletion and development costs, development plans, abandonment costs after salvage, product prices based on the SEC regulations, adjustments or differentials to product prices, geological structural and isochore maps, well logs, core analyses, and pressure measurements. Ryder Scott reviewed such factual data for its reasonableness; however, we have not conducted an independent verification of the data furnished by ECOPETROL. We consider the factual data used in this report appropriate and sufficient for the purpose of preparing the estimates of reserves herein.

In summary, we consider the assumptions, data, methods and analytical procedures used in this report appropriate for the purpose hereof, and we have used all such methods and procedures that we consider necessary and appropriate to prepare the estimates of reserves herein. The proved reserves included herein were determined in conformance with the United States Securities and Exchange Commission (SEC) Modernization of Oil and Gas Reporting; Final Rule, including all references to Regulation S-X and Regulation S-K, referred to herein collectively as the "SEC Regulations." In our opinion, the proved reserves presented in this report comply with the definitions, guidelines and disclosure requirements as required by the SEC regulations.

Future Production Rates

For wells currently on production, our forecasts of future production rates are based on historical performance data. If no production decline trend has been established, future production rates were held constant, or adjusted for the effects of curtailment where appropriate, until a decline in ability to produce was anticipated. An estimated rate of decline was then applied to depletion of the reserves. If a decline trend has been established, this trend was used as the basis for estimating future production rates.

Test data and other related information were used to estimate the anticipated initial production rates for those wells or locations that are not currently producing. For reserves not yet on production, sales were estimated to commence at an anticipated date furnished by ECOPETROL. Wells or locations that are not currently producing may start producing earlier or later than anticipated in our estimates due to unforeseen factors causing a change in the timing to initiate production. Such factors may include delays due to weather, the availability of rigs, the sequence of drilling, completing and/or recompleting wells and/or constraints set by regulatory bodies.

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The future production rates from wells currently on production or wells or locations that are not currently producing may be more or less than estimated because of changes including, but not limited to, reservoir performance, operating conditions related to surface facilities, compression and artificial lift, pipeline capacity and/or operating conditions, producing market demand and/or allowables or other constraints set by regulatory bodies.

Hydrocarbon Prices

The hydrocarbon prices used herein are based on SEC price parameters using the average prices during the 12-month period prior to the “as of date” this report, determined as the unweighted arithmetic averages of the prices in effect on the first-day-of-the-month for each month within such period, unless prices were defined by contractual arrangements. For hydrocarbon products sold under contract, the contract prices, including fixed and determinable escalations, exclusive of inflation adjustments, were used until expiration of the contract. Upon contract expiration, the prices were adjusted to the 12-month unweighted arithmetic average as previously described.

ECOPETROL furnished us with the above mentioned average prices in effect on December 31, 2015. These initial SEC hydrocarbon prices were determined using the 12-month average first-day-of-the-month benchmark prices appropriate to the geographic area where the hydrocarbons are sold. These benchmark prices are prior to the adjustments for differentials as described herein. The table below summarizes the “benchmark prices” and “price reference” used for the geographic area included in the report. In certain geographic areas, the price reference and benchmark prices may be defined by contractual arrangements. In cases where there are numerous contracts or price references within the same geographic area, the benchmark price is represented by the unweighted arithmetic average of the initial 12-month average first-day-of-the-month benchmark prices used.

The product prices that were actually used to determine the future gross revenue for each property reflect adjustments to the benchmark prices for gravity, quality, local conditions and/or distance from market, referred to herein as “differentials.” The differentials used in the preparation of this report were furnished to us by ECOPETROL. The differentials furnished to us were accepted as factual data and reviewed by us for their reasonableness; however, we have not conducted an independent verification of the data used by ECOPETROL to determine these differentials.

In addition, the following table summarizes the net volume weighted benchmark prices adjusted for differentials and referred to herein as the “average realized prices.” The average realized prices shown in the table below were determined from the total future gross revenue before production taxes and the total net reserves for the geographic area and presented in accordance with SEC disclosure requirements for each of the geographic areas included in the report.

| Geographic Area | Product | Price Reference | Average Benchmark Prices | Average Realized Prices |
|-------------------------|----------------|-----------------|--------------------------|-------------------------|
| North and South America | Oil/Condensate | Brent | \$55.57/Bbl | \$38.87/Bbl |
| | NGLs | Brent | \$55.57/Bbl | \$28.35/Bbl |
| | Gas | Contract | Contract | \$3.02/MCF |

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The liquid prices above, as provided by ECOPETROL, used the ICE Brent published by Bloomberg as reference. The effects of derivative instruments designated as price hedges of oil and gas quantities are not reflected in our individual property evaluations. For the properties reviewed by Ryder Scott, approximately 77 percent of the future gross income is derived from the sale of liquid hydrocarbons and 23 percent from gas sales.

Costs

Operating costs used in our evaluation were based on the operating expense reports of ECOPETROL and include only those costs directly applicable to the evaluated assets. The operating costs include a portion of general and administrative costs allocated directly to the leases and wells. The operating costs furnished to us were accepted as factual data and reviewed by us for their reasonableness; however, we have not conducted an independent verification of the operating cost data used by ECOPETROL. No deduction was made for loan repayments, interest expenses, or exploration and development prepayments that were not charged directly to the assets.

Development costs were furnished to us by ECOPETROL and are based on authorizations for expenditure for the proposed work or actual costs for similar projects. The development costs furnished to us were accepted as factual data and reviewed by us for their reasonableness; however, we have not conducted an independent verification of these costs. The estimated net cost of abandonment after salvage was included for properties where abandonment costs net of salvage were significant. The estimates of the net abandonment costs furnished by ECOPETROL were accepted without independent verification.

The proved developed and undeveloped reserves in this report have been incorporated herein in accordance with ECOPETROL's plans to develop these reserves as of December 31, 2015. The implementation of ECOPETROL's development plans as presented to us and incorporated herein is subject to the approval process adopted by ECOPETROL's management. As the result of our inquires during the course of preparing this report, ECOPETROL has informed us that the development activities included herein have been subjected to and received the internal approvals required by ECOPETROL's management at the appropriate local, regional and/or corporate level. In addition to the internal approvals as noted, certain development activities may still be subject to specific partner AFE processes, Joint Operating Agreement (JOA) requirements or other administrative approvals external to ECOPETROL. Additionally, ECOPETROL has informed us that they are not aware of any legal, regulatory or political obstacles that would significantly alter their plans. While these plans could change from those under existing economic conditions as of December 31, 2015, such changes were, in accordance with rules adopted by the SEC, omitted from consideration in making this evaluation.

Current costs used by ECOPETROL were held constant throughout the life of the properties.

Standards of Independence and Professional Qualification

Ryder Scott is an independent petroleum engineering consulting firm that has been providing petroleum consulting services throughout the world since 1937. Ryder Scott is employee-owned and maintains offices in Houston, Texas; Denver, Colorado; and Calgary, Alberta, Canada. We have over eighty engineers and geoscientists on our permanent staff. By virtue of the size of our firm and the large number of clients for which we provide services, no single client or job represents a material portion of our annual revenue. We do not serve as officers or directors of any privately-owned or publicly-traded oil and gas company and are separate and independent from the operating and investment decision-making process of our clients. This allows us to bring the highest level of independence and objectivity to each engagement for our services.

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Ryder Scott actively participates in industry-related professional societies and organizes an annual public forum focused on the subject of reserves evaluations and SEC regulations. Many of our staff have authored or co-authored technical papers on the subject of reserves related topics. We encourage our staff to maintain and enhance their professional skills by actively participating in ongoing continuing education.

Prior to becoming an officer of the Company, Ryder Scott requires that staff engineers and geoscientists have received professional accreditation in the form of a registered or certified professional engineer's license or a registered or certified professional geoscientist's license, or the equivalent thereof, from an appropriate governmental authority or a recognized self-regulating professional organization.

We are independent petroleum engineers with respect to ECOPEOTROL. 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 this study, presented herein, are based on technical analysis conducted by teams of geoscientists and engineers from Ryder Scott. The professional qualifications of the undersigned, the technical person primarily responsible for overseeing, reviewing and approving the evaluation of the reserves information discussed in this report, are included as an attachment to this letter.

Terms of Usage

The results of our third party study, presented in report form herein, were prepared in accordance with the disclosure requirements set forth in the SEC regulations and intended for public disclosure as an exhibit in filings made with the SEC by ECOPEOTROL.

We have provided ECOPEOTROL with a digital version of the original signed copy of this report letter. In the event there are any differences between the digital version included in filings made by ECOPEOTROL and the original signed report letter, the original signed report letter shall control and supersede the digital version.

The data and work papers used in the preparation of this report are available for examination by authorized parties in our offices. Please contact us if we can be of further service.

Very truly yours,

RYDER SCOTT COMPANY, L. P.
TBPE Firm Registration No. F-1580

/s/ Herman G. Acuña
Herman G. Acuña, P.E.
TBPE License No. 92254
Managing Senior Vice President-International

HGA (DPR)/pl



RYDER SCOTT COMPANY PETROLEUM CONSULTANTS

Professional Qualifications of Primary Technical Person

The conclusions presented in this report are the result of technical analysis conducted by teams of geoscientists and engineers from Ryder Scott Company, L.P. Herman G. Acuña was the primary technical person responsible for overseeing the independent estimation of the reserves, future production and income to render the audit conclusions of the report.

Mr. Acuña, an employee of Ryder Scott Company, L.P. (Ryder Scott) since 1997, is a Managing Senior International Vice President and Board Member. He serves as an Engineering Group Coordinator responsible for coordinating and supervising staff and consulting engineers of the company in ongoing reservoir evaluation studies worldwide. Before joining Ryder Scott, Mr. Acuña served in a number of engineering positions with Exxon. For more information regarding Mr. Acuña's geographic and job specific experience, please refer to the Ryder Scott Company website at www.ryderscott.com.

Mr. Acuña earned a Bachelor (Cum Laude) and a Masters (Magna Cum Laude) of Science degree in Petroleum Engineering from The University of Tulsa in 1987 and 1989 respectively. He is a registered Professional Engineer in the State of Texas, a member of the Association of International Petroleum Negotiators (AIPN) and the Society of Petroleum Engineers (SPE).

In addition to gaining experience and competency through prior work experience, the Texas Board of Professional Engineers requires a minimum of fifteen hours of continuing education annually, including at least one hour in the area of professional ethics, which Mr. Acuña fulfills. Mr. Acuña has attended formalized training and conferences including dedicated to the subject of the definitions and disclosure guidelines contained in the United States Securities and Exchange Commission Title 17, Code of Federal Regulations, Modernization of Oil and Gas Reporting, Final Rule released January 14, 2009 in the Federal Register. Mr. Acuña has recently taught various company reserves evaluation schools in Argentina, China, Denmark, Spain and the U.S.A. Mr. Acuña has participated in various capacities in reserves conferences such as being a panelist at Trinidad and Tobago's Petroleum Conference, delivering the reserves evaluation seminar during IAPG convention in Mendoza, Argentina and chairing the first Reserves Evaluation Conference in the Middle East in Dubai, U.A.E.

Based on his educational background, professional training and over 20 years of practical experience in petroleum engineering and the estimation and evaluation of petroleum reserves, Mr. Acuña has attained the professional qualifications as a Reserves Estimator and Reserves Auditor set forth in Article III of the "Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserves Information" promulgated by the Society of Petroleum Engineers as of February 19, 2007.

RYDER SCOTT COMPANY PETROLEUM CONSULTANTS

PETROLEUM RESERVES DEFINITIONS**As Adapted From:
RULE 4-10(a) of REGULATION S-X PART 210
UNITED STATES SECURITIES AND EXCHANGE COMMISSION (SEC)*****PREAMBLE***

On January 14, 2009, the United States Securities and Exchange Commission (SEC) published the "Modernization of Oil and Gas Reporting; Final Rule" in the Federal Register of National Archives and Records Administration (NARA). The "Modernization of Oil and Gas Reporting; Final Rule" includes revisions and additions to the definition section in Rule 4-10 of Regulation S-X, revisions and additions to the oil and gas reporting requirements in Regulation S-K, and amends and codifies Industry Guide 2 in Regulation S-K. The "Modernization of Oil and Gas Reporting; Final Rule", including all references to Regulation S-X and Regulation S-K, shall be referred to herein collectively as the "SEC Regulations". The SEC Regulations take effect for all filings made with the United States Securities and Exchange Commission as of December 31, 2009, or after January 1, 2010. Reference should be made to the full text under Title 17, Code of Federal Regulations, Regulation S-X Part 210, Rule 4-10(a) for the complete definitions, as the following definitions, descriptions and explanations rely wholly or in part on excerpts from the original document (direct passages excerpted from the aforementioned SEC document are denoted in italics herein).

Reserves are those estimated remaining quantities of petroleum which are anticipated to be economically producible, as of a given date, from known accumulations under defined conditions. All reserve estimates involve some degree of uncertainty. The uncertainty depends chiefly on the amount of reliable geologic and engineering data available at the time of the estimate and the interpretation of these data. The relative degree of uncertainty may be conveyed by placing reserves into one of two principal classifications, either proved or unproved. Unproved reserves are less certain to be recovered than proved reserves and may be further sub-classified as probable and possible reserves to denote progressively increasing uncertainty in their recoverability. Under the SEC Regulations as of December 31, 2009, or after January 1, 2010, a company may optionally disclose estimated quantities of probable or possible oil and gas reserves in documents publicly filed with the Commission. The SEC Regulations continue to prohibit disclosure of estimates of oil and gas resources other than reserves and any estimated values of such resources in any document publicly filed with the Commission unless such information is required to be disclosed in the document by foreign or state law as noted in §229.1202 Instruction to Item 1202.

Reserves estimates will generally be revised as additional geologic or engineering data become available or as economic conditions change.

Reserves may be attributed to either natural energy or improved recovery methods. Improved recovery methods include all methods for supplementing natural energy or altering natural forces in the reservoir to increase ultimate recovery. Examples of such methods are pressure maintenance, natural gas cycling, waterflooding, thermal methods, chemical flooding, and the use of miscible and immiscible displacement fluids. Other improved recovery methods may be developed in the future as petroleum technology continues to evolve.

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PETROLEUM RESERVES DEFINITIONS

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Reserves may be attributed to either conventional or unconventional petroleum accumulations. Petroleum accumulations are considered as either conventional or unconventional based on the nature of their in-place characteristics, extraction method applied, or degree of processing prior to sale. Examples of unconventional petroleum accumulations include coalbed or coalseam methane (CBM/CSM), basin-centered gas, shale gas, gas hydrates, natural bitumen and oil shale deposits. These unconventional accumulations may require specialized extraction technology and/or significant processing prior to sale.

Reserves do not include quantities of petroleum being held in inventory.

Because of the differences in uncertainty, caution should be exercised when aggregating quantities of petroleum from different reserves categories.

RESERVES (SEC DEFINITIONS)

Securities and Exchange Commission Regulation S-X §210.4-10(a)(26) defines reserves as follows:

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 to paragraph (a)(26): *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 RESERVES (SEC DEFINITIONS)

Securities and Exchange Commission Regulation S-X §210.4-10(a)(22) defines proved oil and gas reserves 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.*

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PETROLEUM RESERVES DEFINITIONS

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PROVED RESERVES (SEC DEFINITIONS) CONTINUED

(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 further conditions.*

RYDER SCOTT COMPANY PETROLEUM CONSULTANTS

PETROLEUM RESERVES STATUS DEFINITIONS AND GUIDELINES

As Adapted From:
RULE 4-10(a) OF REGULATION S-X PART 210
UNITED STATES SECURITIES AND EXCHANGE COMMISSION (SEC)

and

PETROLEUM RESOURCES MANAGEMENT SYSTEM (SPE-PRMS)
Sponsored and Approved by:
SOCIETY OF PETROLEUM ENGINEERS (SPE),
WORLD PETROLEUM COUNCIL (WPC)
AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS (AAPG)
SOCIETY OF PETROLEUM EVALUATION ENGINEERS (SPEE)

Reserves status categories define the development and producing status of wells and reservoirs. Reference should be made to Title 17, Code of Federal Regulations, Regulation S-X Part 210, Rule 4-10(a) and the SPE-PRMS as the following reserves status definitions are based on excerpts from the original documents (direct passages excerpted from the aforementioned SEC and SPE-PRMS documents are denoted in italics herein).

DEVELOPED RESERVES (SEC DEFINITIONS)

Securities and Exchange Commission Regulation S-X §210.4-10(a)(6) defines developed oil and gas reserves as follows:

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 extracting equipment and infrastructure operational at the time of the reserves estimate if the extraction is by means not involving a well.*

Developed Producing (SPE-PRMS Definitions)

While not a requirement for disclosure under the SEC regulations, developed oil and gas reserves may be further sub-classified according to the guidance contained in the SPE-PRMS as Producing or Non-Producing.

Developed Producing Reserves

Developed Producing Reserves are expected to be recovered from completion intervals that are open and producing at the time of the estimate.

Improved recovery reserves are considered producing only after the improved recovery project is in operation.

RYDER SCOTT COMPANY PETROLEUM CONSULTANTS

PETROLEUM RESERVES STATUS DEFINITIONS AND GUIDELINES

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Developed Non-Producing

Developed Non-Producing Reserves include shut-in and behind-pipe reserves.

Shut-In

Shut-in Reserves are expected to be recovered from:

- (1) *completion intervals which are open at the time of the estimate but which have not yet started producing;*
- (2) *wells which were shut-in for market conditions or pipeline connections; or*
- (3) *wells not capable of production for mechanical reasons.*

Behind-Pipe

Behind-pipe Reserves are expected to be recovered from zones in existing wells which will require additional completion work or future re-completion prior to start of production.

In all cases, production can be initiated or restored with relatively low expenditure compared to the cost of drilling a new well.

UNDEVELOPED RESERVES (SEC DEFINITIONS)

Securities and Exchange Commission Regulation S-X §210.4-10(a)(31) defines undeveloped oil and gas reserves as follows:

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 paragraph (a)(2) of this section, or by other evidence using reliable technology establishing reasonable certainty.*

RYDER SCOTT COMPANY PETROLEUM CONSULTANTS

Exhibit 99.2

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
500 1 SPRING VALLEY ROAD
SUITE 800 EAST
DALLAS, TEXAS 75244

March 1, 2016

Board of Directors
Ecopetrol S.A.
Calle 35 No. 7-21 Pisa 1
Bogota, D.C. Colombia

Ladies and Gentlemen:

Pursuant to your request, we have audited the net proved hydrocarbon reserves, as of December 31, 2015, of certain selected properties in Colombia and Peru that Ecopetrol S.A. has represented are owned by Ecopetrol S.A., its wholly owned subsidiary Hocol Petroleum Limited, and through its ownership interest in Savia Peru S.A. (collectively, "ECOPETROL"). This evaluation was completed on March 1, 2016. ECOPETROL has represented that these properties account for 36.0 percent on a net equivalent barrel basis of ECOPETROL's net proved reserves as of December 31, 2015. ECOPETROL has also represented that these properties account for 41.2 percent of ECOPETROL's total proved developed net liquid hydrocarbon (oil, condensate, and natural gas liquids (NGL)) reserves, 19.8 percent of its total proved developed net gas reserves, 51.2 percent of its total proved undeveloped net liquid hydrocarbon reserves, and 24.7 percent of its total proved undeveloped net gas reserves. 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 ECOPETROL.

Reserves estimates included herein are expressed as net reserves. Gross reserves are defined as the total estimated petroleum to be produced from these properties after December 31, 2015. Net reserves are defined as that portion of the gross reserves attributable to the interests owned by ECOPETROL after deducting all interests owned by others, including royalties paid in kind. ECOPETROL has advised that new legislation, Resolución n° 877 enacted in September 2013 by the Government of Colombia (Agencia Nacional de Hidrocarburos (ANH)), requires that oil and condensate royalties be paid in kind and gas and NGL royalties be paid in cash. Based on this new legislation, ECOPETROL has requested that royalties associated with gas and NGL be considered as a cash payment and not deducted from net reserves. ECOPETROL has also advised that for the properties in Peru evaluated herein, all royalties are paid in kind.

DEGOLYER AND MACNAUGHTON

Estimates of oil and condensate, NGL, and gas reserves should be regarded only as estimates that may change as further production history and additional information become available. Not only are such reserves 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.

Data used in this audit were obtained from reviews with ECOPETROL personnel, from ECOPETROL files, from records on file with the appropriate regulatory agencies, and from public sources. In the preparation of this report we have relied, without independent verification, upon such information furnished by ECOPETROL with respect to property interests, 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. A field examination of the properties was not considered necessary for the purposes of this report.

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 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.

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Based on the current stage of field development, production performance, the development plans provided by ECOPETROL, and the analyses of areas offsetting existing wells with test or production data, reserves were classified as proved.

When applicable, the volumetric method was used to estimate the original oil in place (OOIP) and the original gas in place (OGIP). Structure 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 and other engineering methods were used to estimate OOIP or OGIP.

Estimates of ultimate recovery were obtained after applying recovery factors to OOIP or 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. In such cases, an analysis of reservoir performance, including production rate, reservoir pressure, and gas-oil ratio behavior, was used in the estimation of reserves.

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 the analyses of production-decline curves, reserves were estimated only to the limits of economic production or to the limit of the production licenses as appropriate.

Oil and condensate and NGL reserves estimated in this report are expressed in terms of 42 United States gallons per barrel. Oil and condensate reserves are to be recovered by conventional field operations. In this report, NGL are defined to be propane, butane, and C₅₊. NGL reserves are to be recovered by low-temperature separation.

Gas quantities estimated herein are expressed as marketable gas, fuel gas, and sales gas at a temperature base of 60 degrees Fahrenheit (°F) and a pressure base of 14.7 pounds per square inch absolute (psia). 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 and is estimated as reserves. 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.

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The proved reserves for the properties included herein were estimated by the performance method, the volumetric method, or a combination of performance and volumetric methods. The following table summarizes the approximate percentage of net reserves estimated by each of these methods.

| Method | Percent Net Proved Reserves Estimated by Method | | | |
|-------------|---|-----------------|---------------------|-----------------|
| | Gas | | Liquid Hydrocarbons | |
| | Developed (%) | Undeveloped (%) | Developed (%) | Undeveloped (%) |
| Volumetric | 2 | 0 | 21 | 0 |
| Performance | 58 | 5 | 16 | 4 |
| Combination | 40 | 95 | 63 | 96 |

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.

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(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.

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(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.

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(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.

Primary Economic Assumptions

The following economic assumptions were used for estimating existing and future prices and costs, expressed in United States dollars (U.S.):

Oil and Condensate and NGL Prices

ECOPETROL has represented that the oil and condensate and NGL prices were based on a 12-month average price, calculated as the unweighted 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. The volume-weighted average adjusted product prices attributable to estimated proved reserves for the properties in Colombia evaluated herein were U.S.\$42.67 per barrel for oil and condensate and U.S.\$32.28 per barrel for NGL, based on a 12-month average Brent reference price of U.S.\$55.57 per barrel. ECOPETROL supplied differentials by field to the Brent reference price, and the prices were held constant thereafter. ECOPETROL has also represented that the volume-weighted average adjusted product prices attributable to estimated proved reserves for the properties in Peru evaluated herein were U.S.\$50.61 per barrel for oil and condensate and U.S.\$38.67 per barrel for NGL based on the 12-month average Ardjuna and Minas crude reference prices. These prices were held constant throughout the life of the evaluation.

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Sales Gas Prices

ECOPETROL has represented that the sales gas prices for the properties in Colombia evaluated herein are defined by contractual agreements based on specific market conditions. The volume-weighted average adjusted product price attributable to estimated proved reserves was U.S.\$4.32 per thousand cubic feet, and the prices were held constant thereafter. ECOPEPETROL has also represented that the sales gas prices for the properties in Peru evaluated herein are defined by contractual agreements based on specific market conditions, and the average adjusted product price was U.S.\$0.92 per thousand cubic feet, and the prices were held constant thereafter.

Operating Expenses, Capital Costs, and Abandonment Costs

Operating expenses and capital costs, based on information provided by ECOPEPETROL, were used in estimating future costs required to operate the properties. In certain cases, future costs, either higher or lower than existing costs, may have been used because of anticipated changes in operating conditions. These costs were not escalated for inflation. Abandonment costs were provided by ECOPEPETROL.

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 oil and gas reserves, we are not aware of any such governmental actions which would restrict the recovery of the December 31, 2015, estimated proved oil and gas reserves.

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Our estimates of ECOPETROL's net proved reserves attributable to the reviewed properties are based on the definitions of proved reserves of the SEC and are summarized as follows, expressed in millions of barrels (MMbbl), millions of cubic feet (MMcf), and millions of barrels of oil equivalent (MMboe):

Estimated by DeGolyer and MacNaughton
Net Proved Reserves
as of
December 31, 2015

| | Oil and Condensate (MMbbl) | NGL (MMbbl) | Marketable Gas (MMcf) | Fuel Gas (MMcf) | Sales Gas (MMcf) | Oil Equivalent (MMboe) |
|-----------------------------------|---|------------------------|--------------------------------------|--------------------------------|---------------------------------|---------------------------------------|
| South America | | | | | | |
| Proved Developed | 372.670 | 3.587 | 628,336.740 | 50,434.579 | 577,902.161 | 486.492 |
| Proved Undeveloped | 165.728 | 1.048 | 74,863.000 | 1,473.733 | 73,389.267 | 179.910 |
| South America Total Proved | 538.398 | 4.636 | 703,199.740 | 51,908.312 | 651,291.428 | 666.402 |

Notes:

1. Totals may vary due to rounding.
2. Marketable gas is converted to oil equivalent using an energy equivalent factor of 5,700 cubic feet of gas per 1 barrel of oil equivalent.

In our opinion, the information relating to estimated proved reserves of oil and condensate, natural gas liquids, 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 Securities and Exchange Commission; 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.

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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 ECOPETROL. Our fees were not contingent on the results of our evaluation. This letter report has been prepared at the request of ECOPETROL. DeGolyer and MacNaughton has used all assumptions, data, procedures, and methods that it considers necessary and appropriate to prepare this report.

Submitted,

/s/ DeGOLYER and MacNAUGHTON
DeGOLYER and MacNAUGHTON
Texas Registered Engineering Firm F-716



/s/ Thomas C. Pence, P.E.
Thomas C. Pence, P.E.
Senior Vice President
DeGolyer and MacNaughton

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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 of DeGolyer and MacNaughton, which company did prepare the letter report addressed to ECOPETROL dated March 1, 2016, and that I, as Senior Vice President, was responsible for the preparation of this letter report.
2. That I attended Texas A&M University, and that I graduated with a Bachelor of Science degree in Petroleum Engineering in 1982; that I am a Registered Professional Engineer in the State of Texas; that I am a member of the International Society of Petroleum Engineers and that I have in excess of 33 years of experience in oil and gas reservoir studies and reserves evaluations.



/s/ Thomas C. Pence, P.E.
Thomas C. Pence, P.E.
Senior Vice President
DeGolyer and MacNaughton