TOTAL S.A.
Form 20-F/A
March 27, 2015
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UNITED STATES SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

Form 20-F/A

(Amendment No.1)

(Mark One)

¨ **REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR 12(g) OF THE SECURITIES EXCHANGE ACT OF 1934**

OR

þ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2014

OR

¨ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 For the transition period from ______ to ______**

OR

¨ **SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 Date of event requiring this shell company report**

Commission file number: 1-10888

TOTAL S.A.

(Exact Name of Registrant as Specified in Its Charter)

Republic of France

(Jurisdiction of Incorporation or Organization)

2, place Jean Millier

La Défense 6

92400 Courbevoie

France

(Address of Principal Executive Offices)

Patrick de La Chevardière

Chief Financial Officer

TOTAL S.A.

2, place Jean Millier

La Défense 6

92400 Courbevoie

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(Name, Telephone, Email and/or Facsimile Number and Address of Company Contact Person)

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

Title of each class	Name of each exchange on which registered
Shares	New York Stock Exchange*
American Depositary Shares	New York Stock Exchange

* Not for trading, but only in connection with the registration of American Depositary Shares, pursuant to the requirements of the Securities and Exchange Commission.

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.

2,385,267,525 Shares, par value €2.50 each, as of December 31, 2014

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

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 þ No ¨

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

Yes ¨ No ¨

** This requirement is not currently applicable to the registrant.

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 þ	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 þ	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. Item17 ¨ 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 þ

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Explanatory Note

This Amendment No. 1 on Form 20-F/A (Amendment No. 1) to the Annual Report on Form 20-F of TOTAL S.A. (the Company) for the fiscal year ended December 31, 2014, filed on March 26, 2015 (the 2014 Form 20-F), amends the Supplemental Oil and Gas Information starting on page S-1 in order to correct figures on pages S-3, S-6, S-8, S-9, S-13, S-14, S-15 and S-17.

Other than as set forth herein, the Company has not modified or updated any other disclosures and has made no changes to the items or sections in the Company s 2014 Form 20-F. Other than as expressly set forth above, this Amendment No. 1 does not, and does not purport to, amend, update or restate the information in any part of the Company s 2014 Form 20-F or reflect any events that have occurred after the 2014 Form 20-F was filed on March 26, 2015. The filing of this Amendment No. 1, and the inclusion of newly executed certifications, should not be understood to mean that any other statements contained in the original filing are true and complete as of any date subsequent to March 26, 2015. Accordingly, this Amendment No. 1 should be read in conjunction with the 2014 Form 20-F and the documents filed with or furnished to the Securities and Exchange Commission by the Company subsequent to March 26, 2015, including any amendments to such documents.

Basis of presentation

Financial information included in this Annual Report is presented according to International Financial Reporting Standards (IFRS) as issued by the International Accounting Standards Board (IASB) and IFRS as adopted by the European Union (EU) as of December 31, 2014.

Statements regarding competitive position

Unless otherwise indicated, statements made in Item 4. Information on the Company referring to TOTAL s competitive position are based on the Company s estimates, and in some cases rely on a range of sources, including investment analysts reports, independent market studies and TOTAL s internal assessments of market share based on publicly available information about the financial results and performance of market participants.

Additional information

This Annual Report on Form 20-F reports information primarily regarding TOTAL s business, operations and financial information relating to the fiscal year ended December 31, 2014. For more recent updates regarding TOTAL, you may inspect any reports, statements or other information TOTAL files with the United States Securities and Exchange Commission (SEC). All of TOTAL s SEC filings made after December 31, 2001, are available to the public at the SEC website at http://www.sec.gov and from certain commercial document retrieval services. See also Item 10 7. Documents on Display .

No material on the TOTAL website forms any part of this Annual Report on Form 20-F. References in this document to documents on the TOTAL website are included as an aid to their location and are not incorporated by reference into this document.

Certain terms

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

acreage	The area, expressed in acres, over which TOTAL has interests in exploration or production.
ADRs	American Depositary Receipts evidencing ADSs.
ADSs	American Depositary Shares representing the shares of TOTAL S.A.
association / consortium / joint venture	Terms used to generally describe a project in which two or more entities participate. For the principles and methods of consolidation applicable to different types of joint arrangements according to IFRS, refer to Note 1 to the Consolidated Financial Statements.
barrels	Barrels of crude oil, condensates, NGL or bitumen.

Company	TOTAL S.A.
condensates	Condensates are a mixture of hydrocarbons that exist in a gaseous phase at original reservoir temperature and pressure, but that, when produced, exist in a liquid phase at surface temperature and pressure. Condensates are sometimes referred to as C5+.
crude oil	Crude oil is a mixture of compounds (mainly pentanes and heavier hydrocarbons) that exists in a liquid phase at original reservoir temperature and pressure and remains liquid at atmospheric pressure and ambient temperature. Crude oil or oil are sometimes used as generic terms to designate crude oil plus condensates plus NGL.
Depositary	JP Morgan Chase Bank, N.A.
Depositary Agreement	The depositary agreement pursuant to which ADSs are issued, a copy of which is attached as Exhibit (a) to the registration statement on Form F-6 (Reg. No. 333-199737) filed with the SEC on October 31, 2014.
ERMI	The ERMI (European Refining Margin Indicator) is a Group indicator intended to represent the refining margin after variable costs for a theoretical complex refinery located around Rotterdam in Northern Europe that processes a mix of crude oil and other inputs commonly supplied to this region to produce and market the main refined products at prevailing prices in the region.

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Group	TOTAL S.A. and its subsidiaries and affiliates. The terms TOTAL and Group are used interchangeably.
hydrocracker	A refinery unit which uses a catalyst and extraordinarily high pressure, in the presence of surplus hydrogen, to shorten molecules.
liquids	Liquids consist of crude oil, bitumen, condensates and NGL.
LNG	Liquefied natural gas.
LPG	Liquefied petroleum gas is a mixture of hydrocarbons, the principal components of which are propane and butane, in a gaseous state at atmospheric pressure, but which is liquefied under moderate pressure and ambient temperature. LPG is included in NGL.
NGL	Natural gas liquids (NGL) are a mixture of light hydrocarbons that exist in the gaseous phase at atmospheric pressure and are recovered as liquids in gas processing plants; NGL include very light hydrocarbons (ethane, propane and butane).
oil and gas	Generic term which includes all hydrocarbons (*e.g.*, crude oil, condensates, NGL, bitumen and natural gas).
project	As used in this report, project may encompass different meanings, such as properties, agreements, investments, developments, phases, activities or components, each of which may also informally be described as a project . Such use is for convenience only and is not intended as a precise description of the term project as it relates to any specific governmental law or regulation.
proved 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 full definition of proved reserves that we are required to follow in presenting such information in our financial results and elsewhere in reports we file with the SEC is found in Rule 4-10 of Regulation S-X under the U.S. Securities Act of 1933, as amended (including as amended by the SEC Modernization of Oil and Gas Reporting Release No. 33-8995 of December 31, 2008) (Rule 4-10).
proved developed reserves	Proved developed oil and gas reserves are proved reserves 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. The full definition of developed reserves that we are required to follow in presenting such information in our financial results and elsewhere in reports we file with the SEC is found in Rule 4-10.
proved undeveloped reserves	Proved undeveloped oil and gas reserves are proved reserves that are expected to be recovered from new wells on undrilled acreage, or from existing wells where a relatively major expenditure is required for recompletion. The full definition of undeveloped reserves that we are required to follow

	in presenting such information in our financial results and elsewhere in reports we file with the SEC is found in Rule 4-10.
steam cracker	A petrochemical plant that turns naphtha and light hydrocarbons into ethylene, propylene, and other chemical raw materials.
TOTAL	TOTAL S.A. and its subsidiaries and affiliates. We use such term interchangeably with the term Group. When we refer to the parent holding company alone, we use the term TOTAL S.A. or the Company.
trains	Facilities for converting, liquefying, storing and off-loading natural gas.
turnarounds	Temporary shutdowns of facilities for maintenance, overhaul and upgrading.

Abbreviations

b	= barrel	boe	= barrel of oil equivalent	cf	= cubic feet	GWh	= gigawatt-hour
t	= metric ton	m^3	= cubic meter	Btu	= British thermal unit	TWh	= terawatt-hour
/d	= per day	/y	= per year	k	= thousand	Wp	= watt peak
M	= million	B	= billion	W	= watt		

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Conversion table

1 acre	= 0.405 hectares	
1 b	= 42 U.S. gallons	
1 boe	= 1 b of crude oil	= 5,400 cf of gas in 2014[1] (5,403 cf in 2013 and 5,434 cf in 2012)
1 b/d of crude oil	= approximately 50 t/y of crude oil	
1 Bm^3/y	= approximately 0.1 Bcf/d	
1 m^3	= 35.3147 cf	
1 kilometer	= approximately 0.62 miles	
1 ton	= 1 t	= 1,000 kilograms (approximately 2,205 pounds)
1 ton of oil	= 1 t of oil	= approximately 7.5 b of oil (assuming a specific gravity of 37° API)
1 Mt of LNG	= approximately 48 Mcf of gas	
1 Mt/y LNG	= approximately 131 Mcf/d	

(1) *Natural gas is converted to barrels of oil equivalent using a ratio of cubic feet of natural gas per one barrel. This ratio is based on the actual average equivalent energy content of TOTAL s natural gas reserves during the applicable periods, and is subject to change. The tabular conversion rate is applicable to TOTAL s natural gas reserves on a group-wide basis.*

Cautionary statement concerning forward-looking statements

TOTAL has made certain forward-looking statements in this document and in the documents referred to in, or incorporated by reference into, this Annual Report. Such statements are subject to risks and uncertainties. These statements are based on the beliefs and assumptions of the management of TOTAL and on the information currently available to such management. Forward-looking statements include information concerning forecasts, projections, anticipated synergies, and other information concerning possible or assumed future results of TOTAL, and may be preceded by, followed by, or otherwise include the words believes , expects , anticipates , intends , plans , targets , estimates or similar expressions.

Forward-looking statements are not assurances of results or values. They involve risks, uncertainties and assumptions. TOTAL s future results and share value may differ materially from those expressed in these forward-looking statements. Many of the factors that will determine these results and values are beyond TOTAL s ability to control or predict. Except for its ongoing obligations to disclose material information as required by applicable securities laws, TOTAL does not have any intention or obligation to update forward-looking statements after the distribution of this document, even if new information, future events or other circumstances have made them incorrect or misleading.

You should understand that various factors, certain of which are discussed elsewhere in this document and in the documents referred to in, or incorporated by reference into, this document, could affect the future results of TOTAL and could cause results to differ materially from those expressed in such forward-looking statements, including:

- material adverse changes in general economic conditions or in the markets served by TOTAL, including changes in the prices of oil, natural gas, refined products, petrochemical products and other chemicals;
- changes in currency exchange rates and currency devaluations;
- the success and the economic efficiency of oil and natural gas exploration, development and production programs, including, without limitation, those that are not controlled and/or operated by TOTAL;
- uncertainties about estimates of changes in proven and potential reserves and the capabilities of production facilities;
- uncertainties about the ability to control unit costs in exploration, production, refining and marketing (including refining margins) and chemicals;
- changes in the current capital expenditure plans of TOTAL;
- the ability of TOTAL to realize anticipated cost savings, synergies and operating efficiencies;
- the financial resources of competitors;
- changes in laws and regulations, including tax and environmental laws and industrial safety regulations;
- the quality of future opportunities that may be presented to or pursued by TOTAL;
- the ability to generate cash flow or obtain financing to fund growth and the cost of such financing and liquidity conditions in the capital markets generally;
- the ability to obtain governmental or regulatory approvals;
- the ability to respond to challenges in international markets, including political or economic conditions (including national and international armed conflict) and trade and regulatory matters (including actual or proposed sanctions on companies that conduct business in certain countries);
- the ability to complete and integrate appropriate acquisitions, strategic alliances and joint ventures;
- changes in the political environment that adversely affect exploration, production licenses and contractual rights or impose minimum drilling obligations, price controls, nationalization or expropriation, and regulation of refining and marketing, chemicals and power generating activities;

- the possibility that other unpredictable events such as labor disputes or industrial accidents will adversely affect the business of TOTAL; and
- the risk that TOTAL will inadequately hedge the price of crude oil or finished products.

For additional factors, you should read the information set forth under Item 3 C. Risk Factors , Item 4 C. Other Matters , Item 5. Operating and Financial Review and Prospects and Item 11. Quantitative and Qualitative Disclosures About Market Risk .

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ITEM 1. IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISERS

Not applicable.

ITEM 2. OFFER STATISTICS AND EXPECTED TIMETABLE

Not applicable.

ITEM 3. KEY INFORMATION

A. SELECTED FINANCIAL DATA

The following table presents selected consolidated financial data for TOTAL on the basis of IFRS as issued by the IASB and IFRS as adopted by the EU for the years ended December 31, 2014, 2013, 2012, 2011 and 2010. Effective January 1, 2014, TOTAL changed the presentation currency of the Group s Consolidated Financial Statements from the Euro to the US Dollar. Comparative 2013, 2012, 2011 and 2010 information in the table below has been restated. For more information, see the Introduction to the Consolidated Financial Statements. Following the retrospective application of the accounting interpretation IFRIC 21 effective January 1, 2014, the information for 2013 and 2012 has been restated; however, the impact on such restated results is not significant (for further information concerning this restatement, see the introduction to the Notes to the Consolidated Financial Statements included elsewhere herein). Ernst & Young Audit and KPMG S.A., independent registered public accounting firms and the Company s auditors, audited the historical consolidated financial statements of TOTAL for these periods from which the financial data presented below for such periods are derived, except for the application of the revised accounting standard IAS 19 for the year 2010 and for the application of IFRIC 21 and change of presentation currency for the years 2010 and 2011. All such data should be read in conjunction with the Consolidated Financial Statements and the Notes thereto included elsewhere herein.

SELECTED CONSOLIDATED FINANCIAL DATA

(M$, except share and per share data)[a]	2014	2013	2012	2011	2010
INCOME STATEMENT DATA					
Revenues from sales	212,018	227,969	234,216	231,830	186,232
Net income, Group share	4,244	11,228	13,648	17,400	14,740
Earnings per share	1.87	4.96	6.05	7.74	6.60
Fully diluted earnings per share	1.86	4.94	6.02	7.71	6.57
CASH FLOW STATEMENT DATA					
Cash flow from operating activities	25,608	28,513	28,858	27,193	24,516
Total expenditures	30,509	34,431	29,475	34,161	21,574
BALANCE SHEET DATA					
Total assets	229,798	239,223	225,886	211,793	191,641
Non-current financial debt	45,481	34,574	29,392	29,186	27,770
Non-controlling interests	3,201	3,138	1,689	1,749	1,144
Shareholders equity Group share	90,330	100,241	93,969	86,667	79,748
Common shares	7,518	7,493	7,454	7,447	7,398
DIVIDENDS					
Dividend per share (euros)	€2.44[b]	€2.38	€2.34	€2.28	€2.28
Dividend per share (dollars)	$3.00[b][c]	$3.24	$3.05	$2.97	$3.15
COMMON SHARES[d]					
Average number outstanding of common shares €2.50 par value (shares undiluted)	2,272,859,512	2,264,349,795	2,255,801,563	2,247,479,529	2,234,829,043

Average number outstanding of common shares €2.50 par value (shares diluted)	2,281,004,151	2,271,543,658	2,266,635,745	2,256,951,403	2,244,494,576

[(a)] *Following the retrospective application of the accounting interpretation IFRIC 21 effective January 1, 2014, the information for 2013 has been restated; however, the impact on such restated results is not significant (for further information concerning this restatement, see the introduction to the Notes to the Consolidated Financial Statements included elsewhere herein).*

[(b)] *Subject to approval by the shareholders meeting on May 29, 2015.*

[(c)] *Estimated dividend in dollars includes the first quarterly interim ADR dividend of $0.77 paid in October 2014 and the second quarterly interim ADR dividend of $0.75 paid in January 2015, as well as the third quarterly interim ADR dividend of $0.74 payable in April 2015 and the proposed final interim ADR dividend of $0.74 payable in July 2015, both converted at a rate of $1.21/€.*

[(d)] *The number of common shares shown has been used to calculate per share amounts.*

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B. EXCHANGE RATE INFORMATION

For information regarding the effects of currency fluctuations on TOTAL s results, see Item 5. Operating and Financial Review and Prospects .

Most currency amounts in this Annual Report on Form 20-F are expressed in U.S. dollars (dollars or $) or in euros (euros or €). For the convenience of the reader, this Annual Report on Form 20-F presents certain translations into dollars of certain euro amounts ($1.30/€1.00).

The following table sets out the average dollar/euro exchange rates expressed in dollars per €1.00 for the years indicated, based on an average of the daily European Central Bank (ECB) reference exchange rate[1]. Such rates are used by TOTAL in preparation of its Consolidated Statement of Income and Consolidated Statement of Cash Flow in its Consolidated Financial Statements. No representation is made that the euro could have been converted into dollars at the rates shown or at any other rates for such periods or at such dates.

DOLLAR/EURO EXCHANGE RATES

Year	Average Rate
2010	1.3257
2011	1.3920
2012	1.2848
2013	1.3281
2014	1.3285

The table below shows the high and low dollar/euro exchange rates for the four months ended December 31, 2014, and for the first months of 2015, based on the daily ECB reference exchange rates published during the relevant month expressed in dollars per €1.00.

DOLLAR/EURO EXCHANGE RATES

Period	High	Low
September 2014	1.3151	1.2583
October 2014	1.2823	1.2524
November 2014	1.2539	1.2393
December 2014	1.2537	1.2141
January 2015	1.2043	1.1198
February 2015	1.1447	1.1240
March 2015[a]	1.1227	1.0557

[a] *Through March 24, 2015.*

The ECB reference exchange rate on March 24, 2015 for the dollar against the euro was $1.0950/€.

C. RISK FACTORS

The Group and its businesses are subject to various risks relating to changing competitive, economic, political, legal, social, industry, business and financial conditions. These conditions, along with TOTAL s approaches to managing certain of these risks, are described below and discussed in greater detail elsewhere in this Annual Report, particularly under the headings Item 4 C. Other Matters , Item 5. Operating and Financial Review and Prospects and Item 11. Quantitative and Qualitative Disclosures About Market Risk .

The operating results and future rate of growth of the Group are exposed to the effects of changing commodity prices.

Prices for oil and natural gas may fluctuate widely due to many factors over which TOTAL has no control. These factors include:

- variations in global and regional supply and demand of energy;
- global and regional economic and political developments in resource-producing regions, particularly in the Middle East, Africa and South America;
- the ability of the Organization of the Petroleum Exporting Countries (OPEC) and other producing nations to influence global production levels and prices;
- prices of unconventional energies as well as evolving approaches for developing oil sands and shale oil, which may affect the Group s realized prices, notably under its long-term gas sales contracts and asset valuations, particularly in North America;
- cost and availability of new technology;
- governmental regulations and actions;
- global economic and financial market conditions;
- war or other conflicts;
- changes in demographics, including population growth rates and consumer preferences; and
- adverse weather conditions (such as hurricanes) that can disrupt supplies or interrupt operations of the Group s facilities.

Substantial or extended declines in oil and natural gas prices would significantly and adversely affect TOTAL s results of operations by reducing its profits. The year 2014 was marked by a sharp oil price decline in the second half, which continued in early 2015. For more detailed information on this oil price decline and its impact on the Group s 2014 results, financial position and outlook, refer to Item 5. Operating and Financial Review and Prospects . For the year 2015, according to the scenarios retained, TOTAL estimates that a decrease of $10 per barrel in the average annual price of Brent crude would have the effect of reducing its annual cash flow from operations by approximately $2 billion, and vice versa (Brent price of $60 per barrel). In addition to the adverse effect on revenues, margins and profitability from any fall in oil and natural gas prices, a prolonged period of low prices or other indicators could lead to a review of the Group s assets and oil and natural gas reserves. Such review would reflect the Company s view based on estimates, assumptions and judgments and could result in a reduction in the Group s reported reserves and/or a charge for impairment that could have a significant effect on the Group s results in the period in which it occurs. Lower oil and natural gas prices over prolonged periods may also reduce the

(1) *For the period 2010 2014, the averages of the ECB reference exchange rates expressed in dollars per €1.00 on the last business day of each month during the relevant year are as follows: 2010 1.32; 2011 1.40; 2012 1.29; 2013 1.33; and 2014 1.32.*

economic viability of projects planned or in development, impact the asset sale program of the Group and reduce liquidity, thereby decreasing the Group s ability to finance capital expenditures and/or causing it to cancel or postpone investment projects. If TOTAL is unable to follow through with investment projects, the Group s opportunities for future revenue and profitability growth would be reduced, which could materially impact the Group s financial condition.

Conversely, in a high oil and gas price environment, the Group can experience significant increases in cost and government take, and, under some production-sharing contracts, the Group s production rights could be reduced. Higher prices can also reduce demand for the Group s products.

The Group s earnings from its Refining & Chemicals and Marketing & Services segments are primarily dependent upon the supply and demand for refined products and the associated margins on refined product sales, with the impact of changes in oil and gas prices on earnings on these segments being dependent upon the speed at which the prices of refined products adjust to reflect movements in oil and gas prices. For the year 2015, according to the scenarios retained, TOTAL estimates that a decrease in the Group s European Refining Margin Indicator (ERMI) of $1.00 per ton would decrease its annual cash flow from operations by approximately $0.07 billion, and vice versa.

The Group s long-term profitability depends on cost effective discovery, acquisition and development of new reserves; if the Group is unsuccessful, its results of operations and financial condition would be materially and adversely affected.

A significant portion of the Group s revenues and the majority of its operating results are derived from the sale of oil and gas that the Group extracts from underground reserves developed as part of its Exploration & Production activities. The development of oil and gas fields, the construction of facilities and the drilling of production or injection wells is capital intensive and requires advanced technology. Due to constantly changing market conditions and difficult environmental challenges, cost projections can be uncertain. In order for the Upstream segment to continue to be profitable, the Group needs to replace its reserves with new proved reserves. Furthermore, the Group needs to accomplish such replacement in a manner that allows subsequent production to be economically viable. However, TOTAL s ability to discover or acquire and develop new reserves successfully is uncertain and can be negatively affected by a number of factors, including:

- the geological nature of oil and gas fields, notably unexpected drilling conditions including pressure or irregularities in geological formations;
- the risk of dry holes or failure to find expected commercial quantities of hydrocarbons;
- the inability of service companies to deliver on contracted services;
- the inability of the Group s partners to execute or finance projects in which the Group holds an interest;
- equipment failures, fires, blow-outs or accidents;
- the Group s inability to develop or implement new technologies that enable access to previously inaccessible fields;
- the Group s inability to anticipate market changes in a timely manner;
- adverse weather conditions;
- compliance with both anticipated and unanticipated governmental requirements, including U.S. and EU regulations that may give a competitive advantage to companies not subject to such regulations;
- shortages or delays in the availability or delivery of appropriate equipment;
- industrial action;
- competition from oil and gas companies for the acquisition and development of assets and licenses (see Item 4 C. Other Matters 5. Competition);
- increased taxes and royalties, including retroactive claims; and
- disputes related to property titles.

Any of these factors could lead to cost overruns and impair the Group s ability to make discoveries and acquisitions or complete a development project, or to make production economical. It is impossible to guarantee that new reserves of oil and gas will be discovered or acquired in sufficient quantities to replace the Group s reserves currently being developed, produced and marketed.

Furthermore, some of these factors may also affect the Group s projects and facilities further down the oil and gas chain. If TOTAL fails to develop new reserves cost-effectively on an ongoing basis, the Group s results of operations, including profits, and the Group s financial condition, would be materially and adversely affected.

The Group s oil and gas reserves data are only estimates and subsequent downward adjustments are possible. If actual production from such reserves is lower than current estimates indicate, the Group s results of operations and financial condition would be negatively impacted.

The Group s proved reserves figures are estimates reflecting applicable reporting regulations. Proved reserves are those reserves which, by analysis of geosciences and engineering data, can be estimated with reasonable certainty to be economically recoverable 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. Reserves are estimated by teams of qualified, experienced and trained geoscientists, petroleum engineers and project engineers, who rigorously review and analyze in detail all available geosciences and engineering data (*e.g.*, seismic, electrical logs, cores, fluids, pressures, flow rates, facilities parameters). This process involves making subjective judgments, including with respect to the estimate of hydrocarbons initially in place, initial production rates and recovery efficiency, based on available geological, technical and economic data. Consequently, estimates of reserves are not exact measurements and are subject to revision. In addition, they may be negatively impacted by a variety of factors that are beyond the Group s control and that could cause such estimates to be adjusted downward in the future, or cause the Group s actual production to be lower than its currently reported proved reserves indicate. The main such factors include:

- a decline in the price of oil or gas, making reserves no longer economically viable to exploit and therefore not classifiable as proved;
- an increase in the price of oil or gas, which may reduce the reserves to which the Group is entitled under production sharing and risked service contracts and other contractual terms;
- changes in tax rules and other government regulations that make reserves no longer economically viable to exploit; and
- the actual production performance of the Group s reservoirs.

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Item 3 - C. Risk Factors

The Group s proved reserves based on SEC rules were 11,523 Mboe at December 31, 2014, based on the average monthly Brent price of $101.3/b. If the Brent price were to continue to remain low in 2015 compared to 2014, proved reserves at year-end 2015 could decline.

The Group s reserves estimates may therefore require substantial downward revisions to the extent its subjective judgments prove not to have been conservative enough based on the available geosciences and engineering data, or the Group s assumptions regarding factors or variables that are beyond its control prove to be incorrect over time. Any downward adjustment would indicate lower future production amounts, which could adversely affect the Group s results of operations, including profits as well as its financial condition.

The Group s production growth depends on the delivery of its major development projects.

The Group s targeted production growth relies heavily on the successful execution of major development projects that are increasingly complex and capital-intensive. These major projects are subject to a number of challenges, including:

- negotiations with partners, governments, suppliers, customers and others;
- cost overruns and delays related to the availability of skilled labor or delays in manufacturing and delivery of critical equipment, or shortages in the availability of such equipment;
- unforeseen technical difficulties that could delay project startup or cause unscheduled project downtime;
- the actual performance of the reservoir and natural field decline; and
- timely issuance or renewal of permits and licenses by government agencies.

Poor delivery of any major project that underpins production or production growth could adversely affect the Group s financial performance.

Many of the Group s projects are conducted by equity affiliates. This may reduce the Group s degree of control, as well as its ability to identify and manage risks.

A significant and growing number of the Group s projects are conducted by equity affiliates. In cases where the Group s company is not the operator, such company may have limited influence over, and control of, the behavior, performance and costs of the partnership, its ability to manage risks may be limited and it may, nevertheless, be prosecuted by regulators or claimants in the event of an incident. Additionally, the partners of the Group may not be able to meet their financial or other obligations to the projects, which may threaten the viability of a given project. These partners may also not have the financial capacity to fully indemnify the Group in the event of an incident.

For additional information concerning equity affiliates, refer to Note 12 (Equity affiliates: investments and loans) to the Consolidated Financial Statements.

TOTAL has significant production and reserves located in politically, economically and socially unstable areas, where the likelihood of material disruption of the Group s operations is relatively high.

A significant portion of TOTAL s oil and gas production and reserves is located in countries outside of the Organisation for Economic Co-operation and Development (OECD). In recent years, a number of these countries have experienced varying degrees of one or more of the following: economic instability, political volatility, civil war, violent conflict, social unrest, actions of terrorist groups

and the application of international economic sanctions. Any of these conditions alone or in combination could disrupt the Group s operations in any of these regions, causing substantial declines in production or revisions to reserves estimates. In Africa, which represented 31% of the Group s 2014 combined liquids and gas production, certain of the countries in which the Group has production have recently suffered from some of these conditions, including Nigeria, which has been the main contributing country to the Group s production of hydrocarbons since 2012, and Libya. The Middle East, which represented 18% of the Group s 2014 combined liquids and gas production, has in recent years suffered increased political volatility in connection with violent conflict and social unrest, including Syria, where European Union (EU) and U.S. economic sanctions have prohibited TOTAL from producing oil and gas since 2011, and Yemen. In South America, which represented 7% of the Group s 2014 combined liquids and gas production, certain of the countries in which TOTAL has production have recently suffered from some of the above-mentioned conditions, including Argentina and Venezuela. In Russia, where, as of December 31, 2014, the Group held 19% of its proved reserves, members of the international community have, since July 2014, adopted economic sanctions against certain Russian persons and entities, including various entities operating in the financial, energy and defense sectors, in response to the situation in Ukraine (for additional information, refer to Restrictions against Russia , below). Furthermore, in addition to current production, TOTAL is also exploring for and developing new reserves in other regions of the world that are historically characterized by political, social and economic instability, such as the Caspian Sea region where TOTAL has large projects currently underway.
The occurrence and magnitude of incidents related to economic, social and political instability are unpredictable. It is possible that they could have a material adverse impact on the Group s production and operations in the future and/or cause certain investors to reduce their holdings of TOTAL s securities.

TOTAL, like other major international energy companies, has a geographically diverse portfolio of reserves and operational sites, which allows it to conduct its business and financial affairs so as to reduce its exposure to political and economic risks. However, there can be no assurance that such events will not have a material adverse impact on the Group.

TOTAL s activities are subject to intervention by the government of host countries, which could have an adverse effect on the Group s results of operations.

TOTAL has significant exploration and production activities, and in some cases refining, marketing or chemicals operations, in countries whose governmental and regulatory framework is subject to unexpected change and where the enforcement of contractual rights is uncertain. In addition, the Group s exploration and production activities in such countries are often done in conjunction with state-owned entities, for example as part of a joint venture, where the state has a significant degree of control. In recent years, in various regions globally, TOTAL has seen governments and state-owned enterprises imposing more stringent conditions on companies pursuing exploration and production activities in their respective countries, increasing the costs and uncertainties of the Group s business operations, which is a trend TOTAL expects to continue.

Potential increasing intervention by governments in such countries can take a wide variety of forms, including:

- the award or denial of exploration and production interests;
- the imposition of specific drilling obligations;
- price and/or production quota controls and export limits;

- nationalization or expropriation of assets;
- unilateral cancellation or modification of license or contract rights;
- increases in taxes and royalties, including retroactive claims;
- the renegotiation of contracts;
- the imposition of increased local content requirements;
- payment delays; and
- currency exchange restrictions or currency devaluation.

Imposition of any of these factors by a host government where TOTAL has substantial operations, including exploration, could cause the Group to incur material costs or cause the Group s production or value of the Group s assets to decrease, potentially having a material adverse effect on its results of operations, including profits.

For example, the Nigerian government has been contemplating new legislation to govern the petroleum industry which, if passed into law, could have an impact on the existing and future activities of the Group in that country through increased taxes and/or costs of operation and could adversely affect financial returns from projects in that country.

Ethical misconduct or breaches of applicable laws by employees of the Group could expose TOTAL to criminal and civil penalties and be damaging to TOTAL s reputation and shareholder value.

The Group s Code of Conduct, which applies to all of its employees, defines the Group s commitment to business integrity, compliance with all applicable legal requirements and high ethical standards. The Code also defines the behavior and actions expected of the businesses and people of the Group wherever it operates. Ethical misconduct or non-compliance with applicable laws and regulations, including non-compliance with anti-bribery and anti-corruption laws, by TOTAL, its partners, agents or others that act on the Group s behalf, could expose TOTAL and its employees to criminal and civil penalties and could be damaging to TOTAL s reputation and shareholder value. In addition, ethical misconduct or non-compliance with applicable laws may lead the competent authorities to impose other measures, such as the appointment of an independent monitor in charge of reviewing the Group s compliance and internal control procedures and, if need be, recommending improvements of such procedures. For an overview of the settlements between TOTAL, the SEC and the Department of Justice (DoJ) providing for the appointment of an independent monitor, refer to Item 4 C. Other Matters 7.3.7.1. Preventing corruption and Item 8 4. Legal or arbitration proceedings 4. Iran .

TOTAL is exposed to risks related to the safety and security of its operations.

TOTAL engages in a broad range of industrial activities, including, in particular, drilling, oil and gas production, processing, transportation, refining and petrochemical activities, storage and distribution of petroleum products, specialty chemicals and solar energy. These activities involve a wide range of operational risks, such as explosions, fires, accidents, equipment failures, leakage of toxic products, emissions or discharges into the air, water or soil, and related environmental and health risks. In the transportation area, the type of risk depends not only on the hazardous nature of the products transported, but also on the transportation methods used (mainly maritime, river-maritime, rail, road and pipelines), the volumes involved and the sensitivity of the regions through which the transport passes (quality of infrastructure, population density, environmental considerations). Moreover, most of the Group s activities will eventually require environmental site remediation, closure and decommissioning after operations are discontinued.

The industrial events that could have the most significant impact are primarily:

- a major industrial accident (fire, explosion, leakage of highly toxic products); and
- large-scale accidental pollution or pollution at a particularly sensitive site.

Each of the described risks corresponds to events that could potentially cause death, harm human health, damage property, disrupt business activities or cause environmental damage. The Group s employees, contractors, residents living near the facilities or customers can suffer injuries. Property damage can involve the facilities of the Group as well as the property of third parties. The seriousness of the consequences of these events varies according to the vulnerability of the people, ecosystems and business activities impacted, on the one hand, and the number of people in the impact area and the location of the ecosystems and business activities in relation to TOTAL s facilities or to the trajectory of the products after the event, on the other hand.

Acts of terrorism against the Group s plants and sites, pipelines, transportation and computer systems could also severely disrupt business activities and could cause harm to people, the environment and property.

Like most industrial groups, TOTAL is affected by reports of occupational illnesses, particularly those caused by past exposure of the Group s employees to asbestos. Asbestos exposure has been subject to close monitoring at all of the Group s business segments. As of December 31, 2014, the Group estimates that the ultimate cost of all pending or future asbestos-related claims is not likely to have a material impact on the Group s financial position.

Certain segments or activities of the Group face specific additional risks.

TOTAL s Upstream segment faces, notably, risks related to the physical characteristics of oil and gas fields. These risks include eruptions of oil or gas, discovery of hydrocarbon pockets with abnormal pressure, crumbling of well openings, leaks that can harm the environment and explosions or fires. These events, which may cause injury, death or environmental damage, can also damage or destroy oil or gas wells as well as equipment and other property, lead to a disruption of the Group s operations or reduce its production. In addition, since exploration and production activities may take place on sites that are ecologically sensitive (for example, in tropical forests or in a marine environment), each site requires a risk-based approach to avoid or minimize the impact on human health, flora and fauna, the ecosystem and biodiversity. In certain situations where the operator is not a Group entity, the Group may have reduced influence and control over third parties, which may limit its ability to manage and control these risks.

The activities of the Refining & Chemicals and Marketing & Services business segments also entail additional health, safety and environmental risks related to the overall life cycle of the products manufactured, as well as the materials used in the manufacturing process, such as catalysts, additives and monomers. These risks can arise from the intrinsic characteristics of the products involved (flammability, toxicity or long-term environmental impacts such as greenhouse gas emissions), their use (including by customers), emissions and discharges resulting from their manufacturing process (such as greenhouse gas emissions), and from material and waste disposal (recycling, regeneration or other processes, or waste elimination).

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Item 3 - C. Risk Factors

Contracts signed by the Group s entities may provide for indemnification obligations either by TOTAL in favor of the contractor or third parties or by the contractor or third parties in favor of TOTAL if, for example, an event occurs leading to death, personal injury or property or environmental damage.

With respect to joint ventures in which an entity of the Group has an interest and the assets of which are operated by such Group entity under an operating agreement between the joint venture and such entity, contractual terms generally provide that the operator assumes full liability for damages caused by its gross negligence or willful misconduct.

With respect to joint ventures in which an entity of the Group has an interest but the assets of which are operated by a third party, contractual terms generally provide that the operator assumes full liability for damages caused by its gross negligence or willful misconduct.

In the absence of the operator s gross negligence or willful misconduct, other liabilities are generally borne by the joint venture and the cost thereof is assumed by the partners of the joint venture in proportion to their respective ownership interests.

With respect to third-party providers of goods and services, the amount and nature of the liability assumed by the third party depends on the context and may be limited by contract. With respect to their customers, the Group s entities ensure that their products meet applicable specifications and abide by all applicable consumer protection laws. Failure to do so could lead to personal injury, environmental harm and loss of customers, which could negatively impact the Group s results of operations, financial position and reputation.

Crisis management systems are necessary to respond effectively to emergencies, avoid potential disruptions in TOTAL s business and operations, and minimize impacts on third parties and the environment.

TOTAL has crisis management plans in place to deal with emergencies. However, these plans cannot exclude the risk that the Group s business and operations may be severely disrupted in a crisis situation or ensure the absence of impacts on third parties or the environment. TOTAL also has implemented business continuity plans in order to continue or resume operations following a shutdown or incident. An inability to restore or replace critical capacity in a timely manner could prolong the impact of any disruption and could have a material adverse effect on the Group s business and operations. For more information on the Group s crisis management systems, see Item 4 C. Other Matters 1. Management and monitoring of industrial and environmental risks .

While the Group s insurance coverage is in line with industry practice, TOTAL is not insured against all possible risks.

The Group maintains insurance to protect itself against the risk of damage to Group property and/or business interruption to the Group s main refining and petrochemical sites. In addition, the Group also maintains worldwide third-party liability insurance coverage for all of its subsidiaries. The Group s insurance and risk management policies are described under Item 4 C. Other Matters 2. Insurance and risk management . TOTAL believes that its insurance coverage is in line with industry practice and sufficient to cover normal risks in its operations. However, the Group is not insured against all potential risks. In the event of a major environmental disaster, for example, TOTAL s liability may exceed the maximum coverage provided by its third-party liability insurance. The loss TOTAL could suffer in the event of such disaster would depend on all the facts and circumstances of the

event and would be subject to a whole range of uncertainties, including legal uncertainty as to the scope of liability for consequential damages, which may include economic damage not directly connected to the disaster. The Group cannot guarantee that it will not suffer any uninsured loss and there can be no guarantee, particularly in the case of a major environmental disaster or industrial accident, that such loss would not have a material adverse effect on the Group.

TOTAL is subject to stringent environmental, health and safety laws in numerous countries and may incur material costs to comply with these laws and regulations.

TOTAL s workforce and the public are exposed to risks inherent to the Group s operations that potentially could lead to loss of life, injuries, property damage or environmental damage and could result in regulatory action and legal liability against the entities of the Group and its officers, as well as damage to the Group s reputation.

TOTAL incurs, and will continue to incur, substantial expenditures to comply with increasingly complex laws and regulations aimed at protecting health, safety and the environment.

These expenditures include:

- costs incurred to prevent, control, eliminate or reduce certain types of air and water emissions, including those costs incurred in connection with measures taken to address climate change;
- remedial measures related to environmental contamination or accidents at various sites, including those owned by third parties;
- indemnification of individuals or entities claiming damages caused by accidents or by the Group s activities;
- increased production costs and costs related to changes in product specifications; and
- costs related to the decommissioning of drilling platforms and other facilities.

Such expenditures could have a material effect on the results of operations of the Group and its financial position.

Furthermore, in countries where the Group operates or plans to operate, the introduction of new laws and regulations, stricter enforcement or new interpretations of existing laws and regulations or the imposition of tougher license requirements may also cause the Group s entities to incur higher costs resulting from actions taken to comply with such laws and regulations, including:

- modifying operations;
- installing complementary pollution control equipment;
- implementing additional safety measures; and
- performing site clean-ups.

As a further result of, notably, the introduction of any new laws and regulations, the Group could also be compelled to curtail, modify or cease certain operations or implement temporary shutdowns of facilities, which could diminish the Group s productivity and have a material adverse impact on its results of operations.

All TOTAL entities monitor legal and regulatory developments in order to remain in compliance with local and international rules and standards for the assessment and management of industrial and environmental risks. With regard to the permanent shutdown of an activity, the Group s environmental contingencies and asset retirement obligations are addressed in the Asset retirement obligations and Provisions for environmental contingencies sections of the Group s Consolidated Balance Sheet (see Note 19 to the Consolidated Financial Statements). Future expenditures related to asset retirement obligations are accounted for in accordance with the accounting principles described in Note 1Q to the Consolidated Financial Statements.

Laws and regulations related to climate change and its physical effects may adversely affect the Group s business.

Growing public concern in a number of countries over greenhouse gas emissions and climate change, as well as a multiplication of stricter regulations in this area, could adversely affect the Group s businesses and product sales, increase its operating costs and reduce its profitability.

More of TOTAL s future production could come from unconventional sources in order to help meet the world s growing demand for energy. Since the energy intensity of oil and gas production from unconventional sources can be higher than that of production from conventional sources, the CO_2 emissions produced by the Group s activities may increase. Therefore, TOTAL may need to incur additional costs related to certain projects. For information concerning the regulation of CO_2 emission allowances in Europe, see Item 4 C. Other Matters 3.3.1. European Union CO_2 emission allowances .

Finally, TOTAL s businesses operate in varied locales where the potential physical impacts of climate change, including changes in weather patterns, are highly uncertain and may adversely impact the results of the Group s operations.

TOTAL faces foreign exchange risks that could adversely affect its results of operations.

The Group faces foreign exchange risks because a large percentage of its revenues and cash receipts are denominated in dollars, the international currency of petroleum sales, while a significant portion of its operating expenses and income taxes accrue in euros and other currencies. Movements between the dollar and euro or other currencies may adversely affect the Group s business by negatively impacting its booked revenues and income, and may also result in significant translation adjustments that impact its shareholders equity as the Group s financial statements are presented in dollars.

The Group is exposed to trading risks that could adversely affect its business.

TOTAL s trading business is particularly sensitive to market risk and more specifically to price risk as a consequence of the volatility of oil prices, to liquidity risk (inability to buy or sell oil cargoes at quoted prices) and to performance risk (counterparty does not fulfill its contractual obligations). The Group uses various instruments such as futures, forwards, swaps and options on organized markets or over-the-counter markets to hedge against fluctuations in the price of crude oil, refined products, natural gas, power, coal, emissions and freight-rates. Although TOTAL believes it has established appropriate risk management procedures, large market fluctuations may adversely affect the Group s business and results of operations and make it more difficult to optimize revenues from the Group s oil and gas production and to obtain favorable pricing to supply the Group s refineries.

Disruption of the Group s critical IT services or breaches of information security could adversely affect its operations.

The businesses of the Group depend heavily on the reliability and security of its information technology (IT) systems. If the integrity of the IT systems were compromised due to, for example, technical failure, or cyber attack, the Group s business operations and assets could sustain serious damage, material intellectual property could be divulged and, in some cases, personal injury, environmental harm and regulatory violations could occur, potentially having a material adverse effect on the Group s results of operations, including profits.

TOTAL s IT department has developed and distributed governance and security rules that describe the recommended infrastructure, organization and procedures to maintain information systems that are appropriate to the organization s needs and to limit information security risks. These rules are implemented across the Group under the responsibility of the various business segments.

TOTAL has activities in certain countries that are targeted by economic sanctions under relevant U.S. and EU laws, and if the Group s activities are not conducted in accordance with the relevant conditions, TOTAL could be sanctioned or otherwise penalized.

Various members of the international community have targeted certain countries, including Cuba, Iran, Sudan, Syria and Russia, with economic sanctions and other restrictive measures. This section focuses on certain U.S. and European restrictions relevant to the Group. For certain disclosure concerning the Group s limited activities or presence in certain targeted countries, refer to Item 4 C. Other Matters 8. Cuba, Iran and Syria .

The United States has adopted various laws and regulations designed to restrict trade with Cuba, Iran, Sudan and Syria, and the U.S. Department of State has identified these countries as state sponsors of terrorism. The European Union (EU) has similar restrictions with respect to Iran and Syria. Since mid-2014, both the United States and the EU have adopted economic sanctions against various persons and entities in Russia in response to the situation in Ukraine. A violation by the Group of applicable laws or regulations could result in criminal and material financial penalties.

The U.S. Treasury Department s Office of Foreign Assets Control (referred to as OFAC) administers and enforces economic sanctions programs against the countries identified as state sponsors of terrorism, as well as other targeted countries, territories, entities and individuals, including those engaged in activities related to terrorism or the proliferation of weapons of mass destruction and other threats to the national security, foreign policy or economy of the United States. The activities that are restricted depend on the details of each particular sanctions program. Civil and criminal penalties, which are imposed on a per transaction basis for apparent violations, can be substantial. These OFAC sanctions apply to U.S. persons, activities taking place in the United States, and activities that are otherwise subject to U.S. jurisdiction.

TOTAL continues to closely monitor the possible impacts on all of its activities of the different economic sanctions regimes. TOTAL does not believe that its activities in targeted countries are in violation of applicable international economic sanctions administered by the United States, the European Union and other members of the international community. TOTAL cannot assure that current or future regulations or developments related to economic sanctions will not have a negative impact on its business or reputation.

Set forth below is additional information concerning U.S. and EU restrictions adopted against Iran, Syria and Russia.

Restrictions against Iran

With respect to Iran, the United States has adopted a number of measures since 1996 that provide for the possible imposition of sanctions against non-U.S. companies engaged in certain activities in and with Iran, including in Iran s energy sector. The United States first adopted legislation in 1996 authorizing sanctions against non-U.S. companies doing business in Iran and Libya (the Iran and Libya Sanctions Act, referred to as ILSA). In 2006, ILSA was amended to concern only business in Iran (then renamed the Iran Sanctions Act, referred to as ISA). Pursuant to ISA, which has been amended and expanded since 1996, the

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Item 3 - C. Risk Factors

President of the United States is authorized to initiate an investigation into the activities of non-U.S. companies in Iran s energy sector and to impose sanctions against persons found, amongst other activities, to have knowingly made investments of $20 million or more in Iran s petroleum sector in any 12-month period. In May 1998, the U.S. government waived the application of ISA sanctions for TOTAL s investment in the South Pars gas field. This waiver, which has not been modified since it was granted, does not address any of TOTAL s other activities in Iran. In each of the years between the passage of ILSA and 2007, TOTAL made investments in Iran in excess of $20 million (excluding the investments made as part of the development of South Pars). These investments will not be sanctioned by the U.S. authorities, provided that TOTAL meets certain commitments pursuant to a determination made by U.S. authorities under a Special Rule on September 30, 2010, as further described below. Since 2008, TOTAL s position in Iran essentially has consisted of being reimbursed for its past investments as part of buyback contracts signed between 1995 and 1999 with respect to permits on which the Group is no longer the operator. Since 2011, TOTAL has had no production in Iran.

ISA was amended in July 2010 by the Comprehensive Iran Sanctions, Accountability and Divestment Act of 2010 (CISADA), which expanded both the list of activities with Iran that could lead to sanctions and the list of restrictive measures available. TOTAL had already discontinued potentially sanctionable sales of refined petroleum products to Iran prior to CISADA s enactment. On September 30, 2010, the U.S. State Department announced that the U.S. government, pursuant to the Special Rule provision of ISA added by CISADA that allows it to avoid making a determination of sanctionability under ISA with respect to any party that provides certain assurances, would not make such a determination with respect to TOTAL. The U.S. State Department further indicated that, as long as TOTAL acts in accordance with its commitments, TOTAL will not be regarded as a company of concern for its past Iran-related activities.

Since the applicability of the Special Rule to TOTAL was announced by the U.S. State Department, the United States has imposed a number of additional measures targeting activities in Iran. TOTAL does not conduct activities that it believes would be sanctionable under these measures.

The Iran Threat Reduction and Syria Human Rights Act of 2012 (ITRA) added Section 13(r) to the Securities Exchange Act of 1934, as amended (U.S. Exchange Act), which requires TOTAL to disclose whether it or any of its affiliates has engaged during the calendar year in certain Iran-related activities, including those targeted under ISA, without regard to whether such activities are sanctionable under ISA, and any transaction or dealing with the Government of Iran that is not conducted pursuant to a specific authorization of the U.S. government (refer to Item 4 8.1. Iran , below). For any annual report that contains responsive Section 13(r) disclosure, an Iran Notice must be separately filed with the United States Securities and Exchange Commission (SEC). The SEC must notify the President and U.S. Congress, and the President must initiate an investigation and make a sanctions determination within 180 days after initiating the investigation. TOTAL believes that its Iran-related activities required to be disclosed by Section 13(r) are not sanctionable, and TOTAL has not been informed that it is at risk of possible imposition of sanctions for activities previously disclosed.

Moreover, many U.S. states have adopted legislation with respect to Iran requiring, in certain conditions, state pension funds to divest themselves of securities in any company with active business operations in Iran and state contracts not to be awarded

to such companies. State insurance regulators have adopted similar initiatives relating to investments by insurance companies in companies doing business with the Iranian oil and gas, nuclear and defense sectors. If TOTAL s presence in Iran were determined to fall within the prohibited scope of these laws, and TOTAL were not to qualify for any available exemptions, certain U.S. institutions holding interests in TOTAL may be required to sell their interests. If significant, sales of securities resulting from such laws and/or regulatory initiatives could have an adverse effect on the prices of TOTAL s securities.

The EU has also adopted sanctions measures with regard to Iran, including a set of restrictive measures adopted in July and October 2010. Among other things, the supply of key equipment and technology in the following sectors of the oil and gas industry in Iran are prohibited: refining, liquefied natural gas (LNG), exploration and production. The prohibition extends to technical assistance, training and financial assistance in connection with such items. Extension of loans or credit to, acquisition of shares in, entry into joint ventures with or other participation in enterprises in Iran (or Iranian-owned enterprises outside of Iran) engaged in any of the targeted sectors also is prohibited. Moreover, with respect to restrictions on transfers of funds and on financial services, any transfer of at least €400,000 or equivalent to or from an Iranian individual or entity shall require a prior authorization of the competent authorities of the EU Member States. TOTAL conducts its activities in compliance with these EU measures.

On January 23, 2012, the Council of the EU prohibited the purchase, import and transport of Iranian oil and petroleum and petrochemical products by European persons and by entities constituted under the laws of an EU Member State. Prior to that date, TOTAL had ceased these now-prohibited activities.

TOTAL continues to closely monitor the Joint Plan of Action announced late 2013 among Iran and the P5+1 countries (China, France, Russia, the United Kingdom and the United States, as well as Germany) regarding limits on Iran s nuclear activities and the suspension of certain United States and EU sanctions regarding Iran. Negotiations between Iran and the P5+1 were extended in November 2014 and are ongoing.

Restrictions against Syria

With respect to Syria, the EU adopted measures in May 2011 that prohibit the supply of certain equipment to Syria, as well as certain financial and asset transactions with respect to a list of named individuals and entities. These measures apply to European persons and to entities constituted under the laws of an EU Member State. In September 2011, the EU adopted further measures, including, notably, a prohibition on the purchase, import or transportation from Syria of crude oil and petroleum products. Since early September 2011, the Group ceased to purchase hydrocarbons from Syria. On December 1, 2011, the EU extended sanctions against, among others, three state-owned Syrian oil firms, including General Petroleum Corporation, TOTAL s co-contracting partner in the production sharing agreement signed in 1988 (Deir Ez Zor licence) and the Tabiyeh contract. The United States also has various measures regarding Syria. Since early December 2011, the Group has ceased its activities that contributed to oil and gas production in Syria.

Restrictions against Russia

Since July 2014, members of the international community have adopted economic sanctions against certain Russian persons and entities, including various entities operating in the financial, energy and defense sectors, in response to the situation in Ukraine.

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Among other things, OFAC has adopted economic sanctions targeting OAO Novatek, a Russian company listed on the Moscow Interbank Currency Exchange and the London Stock Exchange in which the Group held an 18.24% interest as of December 31, 2014 through its subsidiary TOTAL E&P Holdings Russia, and entities in which OAO Novatek (individually or with other similarly targeted persons or entities collectively) owns an interest of at least 50%. The OFAC sanctions applicable to OAO Novatek prohibit U.S. persons from transacting in, providing financing for or otherwise dealing in debt issued after July 16, 2014 of greater than 90 days maturity, including OAO Yamal LNG, which is jointly-owned by OAO Novatek (60%), TOTAL E&P Yamal (20%) and CNODC (20%), a subsidiary of CNPC. Consequently, the use of the U.S. dollar for such financing is effectively prohibited.

In order to comply with these sanctions, the financing plan for the Yamal LNG project is being reviewed, and the project s partners are engaged in efforts to develop a financing plan in line with the applicable regulations.

TOTAL continues to closely monitor the different international economic sanctions with respect to its activities in Russia. Within this framework, the Group is filing the requests for prior authorizations required by EU restrictive measures concerning technical assistance, brokering services, financing and financial assistance related to certain technologies. The Treasury Department of the French Ministry of Finance, the competent authority on the subject, issued authorizations specifically for the projects of Yamal LNG, Kharyaga and Termokarstovoye. The United States has also imposed export controls and restrictions on the export of goods, services, and technologies for use in certain Russian energy projects that may affect TOTAL s activities in Russia.

As of December 31, 2014, the Group held 19% of its proved reserves in Russia.

ITEM 4. INFORMATION ON THE COMPANY

A. HISTORY AND DEVELOPMENT

TOTAL S.A., a French *société anonyme* (limited liability company) incorporated in France on March 28, 1924, is, together with its subsidiaries and affiliates, the fourth largest publicly-traded integrated international oil and gas company[1].

With operations in more than 130 countries, TOTAL is engaged in every sector of the oil industry, including upstream (hydrocarbon exploration, development and production) and downstream (refining, petrochemicals, specialty chemicals, trading and shipping of crude oil and petroleum products and marketing). TOTAL also operates in the power generation and renewable energy sectors.

TOTAL began its Upstream operations in the Middle East in 1924. Since then, the Company has grown and expanded its operations worldwide. In early 1999, the Company acquired control of PetroFina S.A. (hereafter referred to as PetroFina or

Fina) and, in early 2000, the Company acquired control of Elf Aquitaine S.A. (hereafter referred to as Elf Aquitaine or Elf). For information concerning the Group s principal capital expenditures and divestitures, see Item 4 B. Business Overview 5. Investments , Item 5 C. Results 2012-2014 and Item 5 D. Liquidity and Capital Resources .

The Company s corporate name is TOTAL S.A. Its registered office is 2, place Jean Millier, La Défense 6, 92400 Courbevoie, France. Its telephone number is +33 (0)1 47 44 45 46.

TOTAL S.A. is registered in France at the Nanterre Trade Register under the registration number 542 051 180. The length of the life of the Company is 99 years from March 22, 2000, unless it is dissolved or extended prior to such date.

B. BUSINESS OVERVIEW

TOTAL provides energy-related products and services to customers around the world by discovering, producing and transforming oil and gas, as well as other natural resources (solar and biomass).

The Group s goal is to be a global, integrated energy company a leading international oil company and a world-class operator in gas, petrochemicals, solar energy and, tomorrow, biomass. To realize this goal, TOTAL leverages its integrated business model, which enables it to capture synergies between the different business segments of the Group. Together, TOTAL s commitments to ethical practices, safety and corporate social responsibility form a shared foundation allowing the achievement of four strategic objectives:

- driving profitable, sustainable growth in exploration and production;
- developing competitive, top-tier refining and petrochemical complexes;
- responding to customer needs by delivering innovative solutions; and
- consolidating the Group s leadership in solar energy and continuing to explore biomass, in order to offer the most appropriate energy solutions.

At the core of TOTAL s strategy is a strong belief that energy is vital, drives progress and must be made available to everyone. Energy is a precious resource that must be used wisely.

The Group is helping to produce the growing amount of energy that people around the planet need to live and thrive, while ensuring that its operations consistently deliver economic, social and environmental benefits. TOTAL is meeting this challenge with and for its fellow employees, its stakeholders and the local communities, in ways that exceed what is generally expected.

Respect, responsibility and exemplary behavior are the values that underpin TOTAL s Code of Conduct. It is through strict adherence to these core values and fundamental principles that TOTAL will be able to build strong and sustainable growth for the Group and its stakeholders.

(1) *Based on market capitalization (in dollars) as of December 31, 2014.*

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Item 4 - B.1. Geographic Breakdown of Activities

1. Geographic breakdown of activities

TOTAL s worldwide operations in 2014 were conducted through three business segments: Upstream, Refining & Chemicals and Marketing & Services. The table below gives information on the

geographic breakdown of TOTAL s activities and is taken from Note 5 to the Consolidated Financial Statements included elsewhere herein.

(M$)	France	Rest of Europe	North America	Africa	Rest of world	Total
2014						
Non-Group sales	51,471	114,747	23,766	23,281	22,857	**236,122**
Property, plant and equipment, intangible assets, net	4,350	25,137	16,064	41,405	34,602	**121,558**
Capital expenditures	1,266	5,880	3,658	9,798	9,907	**30,509**
2013						
Non-Group sales	57,650	128,661	22,332	23,146	19,936	**251,725**
Property, plant and equipment, intangible assets, net	6,251	26,840	19,588	37,847	32,349	**122,875**
Capital expenditures	1,772	6,289	4,157	10,705	11,508	**34,431**
2012						
Non-Group sales	59,077	133,439	22,675	23,025	18,821	**257,037**
Property, plant and equipment, intangible assets, net	6,017	23,349	20,082	32,983	26,011	**108,442**
Capital expenditures	2,041	5,660	4,045	9,346	8,383	**29,475**

2. Upstream segment

TOTAL s Upstream segment includes the activities of Exploration & Production and Gas & Power[1]. The Group has exploration and production activities in more than fifty countries and produces oil or gas in approximately thirty countries. Gas & Power conducts activities downstream from production related to natural gas, liquefied natural gas (LNG) and liquefied petroleum gas (LPG), as well as power generation and trading, and other activities.

2.1. Exploration & Production

2.1.1. Exploration and development

TOTAL s Exploration & Production activities aim at continuing to combine long-term growth and profitability at the level of the best actors of the industry.

TOTAL evaluates exploration opportunities based on a variety of geological, technical, political, economic (including taxes and license terms), environmental and societal factors and on projected oil and gas prices. Discoveries of new fields and extensions of existing fields have brought an additional 2,446 Mboe to the Upstream segment s proved reserves during the 3-year period ended December 31, 2014 (before deducting production and sales of reserves in place and adding any acquisitions of reserves in place during this period). The net level of revisions during this 3-year period is +181 Mboe, which was due to the overall positive revisions in field behaviors partially offset by the negative impacts of the increase of bitumen price in Canada (from $50.4/b in 2013 to $60.3/b in 2014 for Synbit), the increase in U.S. onshore gas price (from 2011 ($4.21/MBtu) to 2012 ($2.85/MBtu) for Henry Hub) and a perimeter change in two projects.

In 2014, the exploration investments of consolidated subsidiaries amounted to $2,608 million (excluding exploration bonuses), primarily in Angola, Brazil, Norway, South Africa, Iraq, Malaysia, Côte d Ivoire, Indonesia and Libya. Exploration investments of consolidated subsidiaries amounted to $2,926 million in 2013 and $2,701 million in 2012. For 2015, the exploration budget has been reduced to $1.9 billion to reflect the new market environment.

The Group s consolidated Exploration & Production subsidiaries organic[(2)] investments amounted to $23 billion in 2014, primarily in Angola, Norway, Australia, Canada, Nigeria, the Republic of the Congo, Russia, the United Kingdom, Indonesia, Gabon, the United

States and Kazakhstan. The Group s consolidated Exploration & Production subsidiaries organic investments amounted to $24 billion in 2013 and $20 billion in 2012.

2.1.2. Reserves

The definitions used for proved, proved developed and proved undeveloped oil and gas reserves are in accordance with the United States Securities & Exchange Commission (SEC) Rule 4-10 of Regulation S-X as amended by the SEC Modernization of Oil and Gas Reporting release issued on December 31, 2008. Proved reserves are estimated using geological and engineering data to determine with reasonable certainty whether the crude oil or natural gas in known reservoirs is recoverable under existing regulatory, economic and operating conditions.

TOTAL s oil and gas reserves are consolidated annually, taking into account, among other factors, levels of production, field reassessments, additional reserves from discoveries and acquisitions, disposal of reserves and other economic factors.

Unless otherwise indicated, any reference to TOTAL s proved reserves, proved developed reserves, proved undeveloped reserves and production reflects the Group s entire share of such reserves or such production. TOTAL s worldwide proved reserves include the proved reserves of its consolidated subsidiaries as well as its proportionate share of the proved reserves of equity affiliates.

For further information concerning changes in TOTAL s proved reserves for the years ended December 31, 2014, 2013 and 2012, refer to Supplemental Oil and Gas Information (Unaudited) .

The reserves estimation process involves making subjective judgments. Consequently, estimates of reserves are not exact measurements and are subject to revision under well-established control procedures.

[(1)] *Effective July 1, 2012, the Upstream segment no longer includes the activities of New Energies, which are now reported with Marketing & Services. As a result, certain information has been restated according to the new organization.*
[(2)] *For Exploration & Production, organic investments include exploration investments, net development investments and net financial investments.*

The reserves booking process requires, among other things:

internal peer reviews of technical evaluations to ensure that the SEC definitions and guidance are followed; and

that management makes significant funding commitments towards the development of the reserves prior to booking.

For further information regarding the preparation of reserves estimates, see Supplemental Oil and Gas Information (Unaudited) .

2.1.3. Proved reserves for years 2014, 2013 and 2012

In accordance with the amended Rule 4-10 of Regulation S-X, proved reserves at December 31 are calculated using a 12-month average price determined as the unweighted arithmetic average of the first-day-of-the-month price for each month of the relevant year unless prices are defined by contractual arrangements, excluding escalations based upon future conditions. The reference prices for 2014, 2013 and 2012 were, respectively, \$101.27/b, \$108.02/b and \$111.13/b for Brent crude.

As of December 31, 2014, TOTAL s combined proved reserves of oil and gas were 11,523 Mboe (50% of which were proved developed reserves). Liquids (crude oil, condensates, natural gas liquids and bitumen) represented approximately 46% of these reserves and natural gas the remaining 54%. These reserves were located in Europe (mainly in Norway and the United Kingdom), in Africa (mainly in Angola, Gabon, Nigeria and the Republic of the Congo), in the Americas (mainly in Canada, Argentina, the United States and Venezuela), in the Middle East (mainly in Qatar, the United Arab Emirates and Yemen), and in Asia (mainly in Australia, Kazakhstan and Russia).

As of December 31, 2013, TOTAL s combined proved reserves of oil and gas were 11,526 Mboe (49% of which were proved developed reserves). Liquids (crude oil, condensates, natural gas liquids and bitumen) represented approximately 47% of these reserves and natural gas the remaining 53%.

As of December 31, 2012, TOTAL s combined proved reserves of oil and gas were 11,368 Mboe (51% of which were proved developed reserves). Liquids (crude oil, condensates, natural gas liquids and bitumen) represented approximately 50% of these reserves and natural gas the remaining 50%.

2.1.4. Sensitivity to oil and gas prices

Changes in the price used as a reference for the proved reserves estimation result in non-proportionate inverse changes in proved reserves associated with production sharing and risked service contracts (which together represent approximately 21% of TOTAL s reserves as of December 31, 2014). Under such contracts, TOTAL is entitled to a portion of the production, the sale of which is meant to cover expenses incurred by the Group. As oil prices increase, fewer barrels are necessary to cover the same amount of expenses. Moreover, the number of barrels recoverable under these contracts may vary according to criteria such as cumulative production, the rate of return on investment or the income-cumulative expenses ratio. This decrease is partly offset by an extension of the duration over which fields can be produced economically. However, the increase in reserves due to extended field life resulting from higher prices is generally less than the decrease in reserves under production sharing or risked service contracts due to such higher prices. As a result, higher prices usually lead to a decrease in TOTAL s reserves.

Furthermore, changes in the reference price per barrel used for the proved reserves estimation have an impact on the volume of royalties in Canada and thus TOTAL s share of proved reserves.

Lastly, for any type of contract, a significant decrease of the reference price of petroleum products may involve a reduction of proved reserves.

2.1.5. Production

For the full year 2014, average daily oil and gas production was 2,146 kboe/d compared to 2,299 kboe/d in 2013 and 2,300 kboe/d in 2012. Liquids accounted for approximately 48% and natural gas for approximately 52% of TOTAL s combined liquids and natural gas production in 2014.

The tables on the next pages set forth by geographic area TOTAL s annual and average daily production of liquids and natural gas for each of the last three years.

Consistent with industry practice, TOTAL often holds a percentage interest in its fields rather than a 100% interest, with the balance being held by joint venture partners (which may include other international oil companies, state-owned oil companies or government entities). TOTAL s entities frequently act as operator (the party responsible for technical production) on acreage in which it holds an interest. See the table Presentation of production activities by geographic area on the following pages for a description of TOTAL s producing assets.

As in 2013 and 2012, substantially all of the liquids production from TOTAL s Upstream segment in 2014 was marketed by the Trading & Shipping division of TOTAL s Refining & Chemicals segment (see the table Trading s crude oil sales and supply and refined products sales in 3.2.1. Trading & Shipping , below).

The majority of TOTAL s natural gas production is sold under long-term contracts. However, its North American production, and part of its production from the United Kingdom, Norway and Argentina, is sold on the spot market. The long-term contracts under which TOTAL sells its natural gas usually provide for a price related to, among other factors, average crude oil and other petroleum product prices, as well as, in some cases, a cost-of-living index. Though the price of natural gas tends to fluctuate in line with crude oil prices, a slight delay may occur before changes in crude oil prices are reflected in long-term natural gas prices. Due to the interaction between the contract price of natural gas and crude oil prices, contract prices are not usually affected by short-term market fluctuations in the spot price of natural gas.

Some of TOTAL s long-term contracts, notably in Indonesia, Nigeria, Norway, Qatar, Thailand and Yemen, specify the delivery of quantities of natural gas that may or may not be fixed and determinable. Such delivery commitments vary substantially, both in duration and in scope, from contract to contract throughout the world. For example, in some cases, contracts require delivery of natural gas on an as-needed basis, and, in other cases, contracts call for the delivery of varied amounts of natural gas over different periods of time. Nevertheless, TOTAL estimates the fixed and determinable quantity of gas to be delivered over the period 2015-2017 to be 3,782 Bcf. The Group expects to satisfy most of these obligations through the production of its proved reserves of natural gas, with, if needed, additional sourcing from spot market purchases (refer to Supplemental Oil and Gas Information (Unaudited)).

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Item 4 - B.2. Upstream Segment

2.1.6. Production by region

The following table sets forth the Group s annual liquids and natural gas production by region.

	2014			2013			2012		
	Liquids Mb	Natural gas Bcf[b]	Total Mboe	Liquids Mb	Natural gas Bcf[b]	Total Mboe	Liquids Mb	Natural gas Bcf[b]	Total Mboe
Africa	**191**	**253**	**240**	**194**	**255**	**245**	**210**	**257**	**260**
Algeria	2	29	7	2	30	8	2	33	8
Angola	70	20	73	64	23	68	63	16	65
Gabon	20	5	21	20	6	22	20	7	21
Libya	10		10	18		18	23		23
Nigeria	57	187	94	58	187	95	63	190	102
The Congo, Republic of	32	13	35	32	10	34	39	11	41
North America	**14**	**104**	**33**	**10**	**93**	**27**	**9**	**90**	**25**
Canada[a]	4		4	5		5	4		4
United States	10	104	28	5	93	22	5	90	21
South America	**18**	**219**	**57**	**20**	**229**	**61**	**22**	**249**	**66**
Argentina	3	134	27	5	134	28	4	144	30
Bolivia	1	51	11	1	47	10	1	45	10
Colombia							0	8	2
Trinidad & Tobago				1	19	4	1	26	6
Venezuela	14	34	19	13	29	18	14	26	18
Asia-Pacific	**11**	**430**	**87**	**11**	**427**	**86**	**10**	**397**	**81**
Australia		8	1		9	1		11	2
Brunei	1	24	5	1	22	5	1	20	4
China		23	4		17	3		3	0
Indonesia	7	217	47	6	221	48	6	221	48
Myanmar		49	6		47	6		46	6
Thailand	4	108	22	4	112	23	3	97	20
CIS	**13**	**414**	**91**	**12**	**382**	**83**	**10**	**332**	**71**
Azerbaijan	1	22	5	2	30	7	1	23	6
Russia	12	393	86	10	352	76	8	308	65
Europe	**60**	**397**	**133**	**61**	**449**	**143**	**72**	**460**	**156**
France		3	1	0	16	3	1	21	5
The Netherlands	0	62	11	0	71	13	0	67	12
Norway	49	210	88	50	210	89	58	227	100
United Kingdom	11	122	32	11	152	38	13	144	39
Middle East	**70**	**396**	**143**	**118**	**422**	**196**	**114**	**361**	**180**
United Arab Emirates	42	22	46	90	26	95	85	26	90
Iraq	4	0	4	3	0	3	2		2
Oman	9	22	13	9	24	14	9	22	14
Qatar	12	203	48	13	204	50	14	204	51
Yemen	3	148	31	4	168	35	4	109	24
Total production	**377**	**2,213**	**783**	**426**	**2,257**	**839**	**445**	**2,146**	**840**
Including share of equity affiliates	**73**	**726**	**208**	**119**	**714**	**251**	**112**	**597**	**223**
Angola		4	1		6	1			
Venezuela	14	2	14	13	3	14	14	3	15
United Arab Emirates	40	19	43	88	22	92	82	22	87
Oman	8	22	12	8	24	13	8	22	12
Qatar	3	139	28	3	141	28	3	133	27
Yemen		147	27		167	31		109	20
Russia	9	392	83	7	351	72	5	308	62

[a] *The Group s production in Canada consists of bitumen only. All of the Group s bitumen production is in Canada.*

[b] *Including fuel gas (155 Bcf in 2014, 151 Bcf in 2013, 144 Bcf in 2012).*

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The following table sets forth the Group s average daily liquids and natural gas production by region.

		2014			2013			2012	
	Liquids kb/d	Natural gas Mcf/d[(b)]	Total kboe/d	Liquids kb/d	Natural gas Mcf/d[(b)]	Total kboe/d	Liquids kb/d	Natural gas Mcf/d[(b)]	Total kboe/d
Africa	**522**	**693**	**657**	**531**	**699**	**670**	**574**	**705**	**713**
Algeria	5	79	20	5	82	21	6	90	23
Angola	191	54	200	175	62	186	172	44	179
Gabon	55	14	58	55	16	59	54	19	57
Libya	27		27	50		50	62		62
Nigeria	156	511	257	158	511	261	173	521	279
The Congo, Republic of	88	35	95	88	28	93	107	31	113
North America	**39**	**285**	**90**	**28**	**256**	**73**	**25**	**246**	**69**
Canada[(a)]	12		12	13		13	12		12
United States	27	285	78	15	256	60	13	246	57
South America	**50**	**599**	**157**	**54**	**627**	**166**	**59**	**682**	**182**
Argentina	9	367	75	13	366	78	12	394	83
Bolivia	4	139	30	4	129	28	3	124	27
Colombia							1	23	6
Trinidad & Tobago				2	52	12	4	70	16
Venezuela	37	93	52	35	80	48	39	71	50
Asia-Pacific	**30**	**1,178**	**238**	**30**	**1,170**	**235**	**27**	**1,089**	**221**
Australia		23	4		25	4		29	5
Brunei	2	66	15	2	59	13	2	54	12
China		63	12		46	8		7	1
Indonesia	18	594	130	17	605	131	16	605	132
Myanmar		135	17		129	16		127	16
Thailand	10	297	60	11	306	63	9	267	55
CIS	**36**	**1,135**	**249**	**32**	**1,046**	**227**	**27**	**909**	**195**
Azerbaijan	3	59	14	5	82	20	4	64	16
Russia	33	1,076	235	27	964	207	23	845	179
Europe	**165**	**1,089**	**364**	**168**	**1,231**	**392**	**197**	**1,259**	**427**
France		9	2	1	45	9	2	58	13
The Netherlands	1	171	31	1	195	35	1	184	33
Norway	135	576	242	136	575	243	159	622	275
United Kingdom	29	333	89	30	416	105	35	395	106
Middle East	**192**	**1,084**	**391**	**324**	**1,155**	**536**	**311**	**990**	**493**
United Arab Emirates	115	61	127	247	71	260	233	70	246
Iraq	12	1	12	7	1	7	6		6
Oman	24	61	36	24	66	37	24	61	37
Qatar	32	555	132	36	558	137	38	560	139
Yemen	9	406	84	10	459	95	10	299	65
Total production	**1,034**	**6,063**	**2,146**	**1,167**	**6,184**	**2,299**	**1,220**	**5,880**	**2,300**
Including share of equity affiliates	**200**	**1,988**	**571**	**325**	**1,955**	**687**	**308**	**1,635**	**611**
Angola		10	2		16	3			
Venezuela	37	6	38	35	7	37	38	7	40
United Arab Emirates	109	51	118	240	61	253	225	61	237
Oman	23	61	34	23	66	35	23	60	34
Qatar	7	381	77	8	385	78	7	364	74
Yemen		404	75		458	84		299	55
Russia	24	1,075	227	19	962	197	15	844	171

[(a)] *The Group s production in Canada consists of bitumen only. All of the Group s bitumen production is in Canada.*
[(b)] *Including fuel gas (426 Mcf/d in 2014, 415 Mcf/d in 2013, 394 Mcf/d in 2012).*

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Item 4 - B.2. Upstream Segment

2.1.7. Presentation of production activities by region

The table below sets forth, by country, the producing assets of the Group s entities, the year in which the activities commenced, the interest held in each asset and whether a Group entity is operator of the asset.

TOTAL s producing assets as of December 31, 2014[a]	Year of entry into the country	Operated (Group share in %)	Non-operated (Group share in %)
Africa			
Algeria	**1952**		Tin Fouye Tabankort (35.00%)
Angola	**1953**	Girassol, Jasmim, Rosa, Dalia, Pazflor, CLOV (Block 17) (40.00%)	Cabinda Block 0 (10.00%)
			Kuito, BBLT, Tombua-Landana (Block 14) (20.00%)[b]
			Angola LNG (13.60%)
Gabon	**1928**	Anguille (100.00%)	
		Anguille Nord-Est (100.00%)	
		Anguille Sud-Est (100.00%)	
		Atora (40.00%)	
		Avocette (57.50%)	
		Ayol Marine (100.00%)	
		Baliste (50.00%)	
		Barbier (100.00%)	
		Baudroie Marine (50.00%)	
		Baudroie Nord Marine (50.00%)	
		Coucal (57.50%)	
		Girelle (100.00%)	
		Gonelle (100.00%)	
		Grand Anguille Marine (100.00%)	
		Grondin (100.00%)	
		Hylia Marine (75.00%)	
		Lopez Nord (100.00%)	
		Mandaros (100.00%)	

		M Boukou (57.50%)	
		M Boumba (100.00%)	
		Mérou Sardine Sud (50.00%)	
		Pageau (100.00%)	
		Port Gentil Océan (100.00%)	
		Port Gentil Sud Marine (100.00%)	
		Tchengue (100.00%)	
		Torpille (100.00%)	
		Torpille Nord Est (100.00%)	Rabi Kounga (47.50%)
Libya	**1959**		zones 15, 16 & 32 (75.00%)[c]
			zones 70 & 87 (75.00%)[c]
			zones 129 & 130 (30.00%)[c]
			zones 130 & 131 (24.00%)[c]
Nigeria	**1962**	OML 58 (40.00%)	
		OML 99 Amenam-Kpono (30.40%)	
		OML 100 (40.00%)	
		OML 102 (40.00%) OML 130 (24.00%)	OML 102-Ekanga (40.00%)
			Shell Petroleum Development Company (SPDC 10.00%)
			OML 118-Bonga (12.50%)
			OML 138 (20.00%)

TOTAL s producing assets as of December 31, 2014[a]	Year of entry into the country	Operated (Group share in %)	Non-operated (Group share in %)
The Congo, Republic of	**1968**	Kombi-Likalala-Libondo (65.00%) Moho Bilondo (53.50%) Nkossa (53.50%) Nsoko (53.50%) Sendji (55.25%) Tchendo (65.00%) Tchibeli-Litanzi-Loussima (65.00%) Tchibouela (65.00%) Yanga (55.25%)	Loango (42.50%) Zatchi (29.75%)
North America			
Canada	**1999**		Surmont (50.00%)
United States	**1957**		Several assets in the Barnett Shale area (25.00%)[d] Several assets in the Utica Shale area (25.00%)[d] Chinook (33.33%) Tahiti (17.00%)
South America			
Argentina	**1978**	Aguada Pichana (27.27%) Aguada San Roque (24.71%) Aries (37.50%) Cañadon Alfa Complex (37.50%) Carina (37.50%) Hidra (37.50%) Kaus (37.50%)	Sierra Chata (2.51%)
Bolivia	**1995**		San Alberto (15.00%) San Antonio (15.00%) Itaú (41.00%)
Venezuela	**1980**		PetroCedeño (30.32%) Yucal Placer (69.50%)
Asia-Pacific			
Australia	**2005**		Various fields in UJV GLNG (27.50%)[e]
Brunei	**1986**	Maharaja Lela Jamalulalam (37.50%)	
China	**2006**		South Sulige (49.00%)
Indonesia	**1968**	Bekapai (50.00%) Handil (50.00%)	

		Peciko (50.00%) Sisi-Nubi (47.90%) South Mahakam (50.00%) Tambora (50.00%) Tunu (50.00%)	Badak (1.05%) Nilam-gas and condensates (9.29%) Nilam-oil (10.58%) Ruby-gas and condensates (15.00%)
Myanmar	**1992**	Yadana (31.24%)	
Thailand	**1990**		Bongkot (33.33%)
Commonwealth of Independant States			
Kazakhstan	**1992**		Kashagan (16.81%)
Russia	**1991**	Kharyaga (40.00%)	Several fields through the participation in OAO Novatek (18.24%)

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Europe	Year of entry into the country	Operated (Group share in %)	Non-operated (Group share in %)
Norway	**1965**	Atla (40.00%) Skirne (40.00%)	Åsgard (7.68%) Ekofisk (39.90%) Ekofisk South (39.90%) Eldfisk (39.90%) Embla (39.90%) Gimle (4.90%) Gungne (10.00%) Heimdal (16.76%) Huldra (24.33%) Islay (5.51%)[(f)] Kristin (6.00%) Kvitebjørn (5.00%) Mikkel (7.65%) Oseberg (14.70%) Oseberg East (14.70%) Oseberg South (14.70%) Sleipner East (10.00%) Sleipner West (9.41%) Snøhvit (18.40%) Stjerne (14.70%) Tor (48.20%) Troll I (3.69%) Troll II (3.69%) Tune (10.00%)

			Tyrihans (23.15%) Visund (7.70%) Visund South (7.70%) Visund North (7.70%)
The Netherlands	**1964**	F6a gas (55.66%) F6a oil (65.68%) F15a Jurassic (38.20%) F15a/F15d Triassic (32.47%) F15d (32.47%) J3a (30.00%) K1a (40.10%) K1b/K2a (60.00%) K2c (60.00%) K3b (56.16%) K3d (56.16%) K4a (50.00%) K4b/K5a (36.31%) K5b (50.00%) K6/L7 (56.16%) L1a (60.00%) L1d (60.00%) L1e (55.66%) L1f (55.66%) L4a (55.66%) L4d (55.66%)	E16a (16.92%) E17a/E17b (14.10%) J3b/J6 (25.00%) K9ab-A (22.46%) Q16a (6.49%)
United Kingdom	**1962**	Alwyn North, Dunbar, Ellon, Forvie North, Grant, Jura, Nuggets (100.00%) Elgin-Franklin, West Franklin (46.17%) Glenelg (58.73%)	

Islay (94.49%)[f]

Bruce (43.25%)

Markham unitized field (7.35%)

Keith (25.00%)

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Middle East	Year of entry into the country	Operated (Group share in %)	Non-operated (Group share in %)
U.A.E.	1939	Abu Dhabi-Abu Al Bu Khoosh (75.00%)	Abu Dhabi offshore (13.33%)[g]
			GASCO (15.00%)
			ADGAS (5.00%)
Iraq	1920		Halfaya (22.5%)[h]
Oman	1937		Various fields onshore (Block 6) (4.00%)[i]
			Mukhaizna field (Block 53) (2.00%)[j]
Qatar	1936	Al Khalij (100.00%)	North Field-Bloc NF Dolphin (24.50%)
			North Field-Bloc NFB (20.00%)
			North Field-Qatargas 2 Train 5 (16.70%)
Yemen	1987	Kharir/Atuf (Block 10) (28.57%)	Yemen LNG (39.62%) Various fields onshore (Block 5) (15.00%)

(a) *The Group s interest in the local entity is approximately 100% in all cases except for Total Gabon (58.28%), Total E&P Congo (85.00%) and certain entities in Abu Dhabi and Oman (see notes b through i below).*
(b) *Stake in the company Angola Block 14 BV (TOTAL 50.01%).*
(c) *TOTAL s stake in the foreign consortium.*
(d) *TOTAL s interest in the joint venture with Chesapeake.*
(e) *TOTAL s interest in uncorporated joint venture.*
(f) *The field of Islay extends partially in Norway. TOTAL E&P UK holds a 94.49 % and TOTAL E&P Norge 5.51%*
(g) *Through ADMA (equity affiliate), TOTAL has a 13.33% interest in the operating company, Abu Dhabi Marine Operating Company.*
(h) *TOTAL holds an interest of 22.5% in the consortium.*
(i) *TOTAL holds an indirect interest of 4.00% in Petroleum Development Oman LLC, operator of Block 6, via its 10% interest in Private Oil Holdings Oman Ltd. TOTAL also has a 5.54% interest in the Oman LNG facility (trains 1 and 2), and an indirect participation of 2.04% through OLNG in Qalhat LNG (train 3).*
(j) *TOTAL holds a direct interest of 2.00% in Block 53.*

2.1.7.1. Africa

In 2014, TOTAL s production in Africa was 657 kboe/d, representing 31% of the Group s overall production, compared with 670 kboe/d in 2013 and 713 kboe/d in 2012.

In **South Africa**, TOTAL acquired an interest in the 11B-12B license (50%, operator) in September 2013. This license, which covers an area of 19,000 km^2, is located approximately 175 km south of the South African coast in water depths ranging from 200 m to 1,800 m. The drilling of an exploration well, which began in July 2014 and stopped at the beginning of October 2014, should resume when all of the conditions permit.

In addition, the Group holds a technical cooperation license for the Outeniqua Block (100%), which covers approximately 76,000 km^2 and is located to the southwest of the 11B-12B license in water depths ranging from 400 m to 4,000 m.

In **Algeria**, TOTAL s production was 20 kboe/d during 2014, compared with 21 kboe/d in 2013 and 23 kboe/d in 2012. All of the Group s production in Algeria comes from the Tin Fouyé Tabankort (TFT) field (35%). TOTAL also has a 37.75% stake in the Timimoun gas development project.

The development of the Timimoun field continued in 2014. The plant construction contract was signed in February 2014 and the drilling rig contract in September 2014.

TOTAL decided not to implement the Ahnet project and abandoned the Ain Enakhal exploration well.

In **Angola**, the Group s production in 2014 was 200 kboe/d, compared with 186 kboe/d in 2013 and 179 kboe/d in 2012. This production comes primarily from Blocks 0, 14 and 17. Recent highlights include the start-up of production on the Pazflor project in 2011 and the CLOV project in 2014, as well as the acquisition of interests in the exploration blocks 25, 39 and 40 in the Kwanza basin.

Deep offshore Block 17 (40%, operator) is TOTAL s principal asset in Angola. It is composed of four major producing hubs: Girassol, Dalia, Pazflor and CLOV. CLOV, the newest hub, was launched in 2010, started production in June 2014 and reached its plateau production of 160 kboe/d in September 2014.

On the ultra-deep offshore Block 32 (30%, operator), the Kaombo project was launched in April 2014 to develop the discoveries in the southeast part of the block via two FPSOs (Floating Production Storage and Offloading facilities) with a capacity of 115 kb/d each. Production start-up is planned for 2017. The exploration and delineation of the center and north parts of the block is ongoing.

On Block 14 (20%[1]), production comes from the Tombua-Landana and Kuito fields as well as the BBLT project, comprising the Benguela, Belize, Lobito and Tomboco fields.

Block 14K (36.75%) is the offshore unitization zone between Angola (Block 14) and the Republic of the Congo (Haute Mer license). Launched in 2012, the development of the Lianzi field will be via a connection to the existing BBLT platform (Block 14). TOTAL s interest in the unitized block is held 10% through Angola Block 14 BV and 26.75% through Total E&P Congo.

On Block 0 (10%), the development of Mafumeira Sul was approved by the partners and the authorities in 2012. This project constitutes the second development phase of the Mafumeira field.

In April 2014, TOTAL sold its entire stake in Block 15/06 (15%).

(1) *Interest held by the company Angola Block 14 BV (TOTAL 50.01%, INPEX Corporation 49.99% since February 2013).*

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TOTAL has interests in exploration blocks 17/06 (30%, operator) in the Lower-Congo basin and blocks 25 (35%, operator), 39 (15%) and 40 (40%, operator) in the deep offshore Kwanza basin. In 2014 and early 2015, the Group drilled pre-salt targets on blocks 25, 39 and 40. TOTAL relinquished its interest in Block 33 (58.67%, operator) in November 2014.

TOTAL is also developing its LNG activities through the Angola LNG project (13.6%), which includes a gas liquefaction plant near Soyo supplied in particular by the gas associated with production from Blocks 0, 14, 15, 17 and 18. LNG production started in June 2013 but various technical incidents required the extended shut down of the plant.

In **Côte d Ivoire**, TOTAL is active in four deep offshore exploration licenses located 50 km to 100 km from the coast and covering approximately 5,200 km^2 at water depths ranging from 1,000 m to 3,000 m.

On the CI-100 license (60%, operator) located in the Tano basin, an initial exploration well (Ivoire-1X) was drilled in early 2013 at a water depth of more than 2,300 meters.

On the licenses CI-514 (54%, operator), CI-515 (45%) and CI-516 (45%) situated in the San Pedro basin, a 3D seismic survey was carried out in 2012 and three exploration wells were drilled in 2014.

In **Egypt**, TOTAL relinquished Block 4 (East El Burullus Offshore; 50% operator) at the end of the first exploration period in August 2014 after having drilled the Kala-1 well in 2013.

In September 2014, Total was awarded Block 2 (North El Mahala Onshore) located in the Nile delta.

In **Gabon**, the Group s production in 2014 was 58 kboe/d compared with 59 kboe/d in 2013 and 57 kboe/d in 2012. The Group s exploration and production activities in Gabon are mainly carried out by Total Gabon[(1)].

- As part of the redevelopment project (estimated production capacity 20 kboe/d) of the Anguille field (100%, operator), the AGM North platform was installed in 2012. Production from the platform started in 2013 and fourteen wells are now operational.
- In the Torpille field (100%, operator), a 3D seismic survey is underway.
- On the deep offshore Diaba license (42.5%, operator), an initial exploration well (Diaman-1B) was drilled in 2013 at a water depth of more than 1,700 m. This well revealed an accumulation of gas and condensates. A 3D seismic survey was acquired in the western part of the block in the fourth quarter of 2014.
- The Nguongui-updip well drilled on the Mutamba-Iroru license (50%) in 2012 revealed the presence of hydrocarbons.
- On the Nziembou license (20%), the drilling of the Igongo-1X well revealed a multi-layer accumulation of oil and gas and the drilling of the Monbou 1 prospect was completed in early January 2015.

In **Kenya**, TOTAL has interests on the offshore L5 and L7 licenses (40%) and the L11a, L11b and L12 licenses (30% after selling 10% of the stake in December 2014) and is the operator of the L22 license (70%) located in the Lamu delta in water depths ranging from 1,000 m to 3,500 m.

In 2013, two exploration wells were drilled in Blocks L7 and L11b.

On the offshore L22 license, seabed core drilling operations were carried out in early 2014 and a 3D seismic survey was carried out, benefitting from synergies with the adjacent blocks.

In **Libya**, the Group s production in 2014 was 27 kb/d compared with 50 kb/d in 2013 and 62 kb/d in 2012. TOTAL is a 75%[(2)] partner in the Mabruk (Blocks 70 and 87) and Al Jurf (Blocks 15, 16 and 32) zones operated by Mabruk Oil Operations, a company held by National Oil Corporation (NOC) and TOTAL. In addition, TOTAL is a partner in the El Sharara zone (which comprises Blocks 129 and Blocks 130 (30%[(3)]) and 130 and 131 (24%[(3)])). Finally, TOTAL is the operator of the Block NC191 (100%[(3)]) exploration block.

The security situation in 2014 led the Group to gradually reduce the number of its personnel in Libya. Beginning in mid-2013 and through to the summer of 2014, production was affected by the blockade of most of the country s terminals and pipelines.

- In the onshore Blocks 70 and 87 (Mabruk), production has been stopped since August 2013 due to the blockade of the Es Sider export terminal. Production resumed in September 2014 with the reopening of the terminal before being disrupted again mid-December due to the security situation near the Es Sider terminal; the field has not been producing since then.

In the onshore Blocks 129, 130 and 131 (El Sharara), production was interrupted several times in 2014. Nevertheless, the exploration of these blocks continued in 2014 with the drilling of three wells.

In the offshore Blocks 15, 16 and 32 (Al Jurf), production has not been affected by the social unrest in the country. However, the A1-16/3 exploration well which began drilling at year-end 2013 was plugged and temporarily abandoned in August 2014.

In **Madagascar**, TOTAL is active on the Bemolanga 3102 license (60%, operator). A two-year extension of the exploration phase was approved by the local authorities in August 2014.

In **Morocco**, on the 100,000 km^2 Anzarane offshore reconnaissance contract which was granted in December 2011 to TOTAL and ONHYM (National Bureau of Petroleum and Mines), an extension was granted until December 2015. The processing and interpretation of a 3D seismic survey, acquired in 2013 in the southern part of the block, is ongoing.

In **Mauritania**, the Group holds exploration interests in the ultra-deep offshore C9 license (90%, operator) and the onshore Ta29 license (72%, operator) in the Taoudenni basin, both acquired in 2012.

On Block Ta29, following the results of the 2D seismic survey performed in 2012, studies are underway to assess the block. In 2013, TOTAL sold an 18% stake in Block Ta29, reducing its stake to 72%.

A 3D seismic survey campaign covering 4,700 km^2 was conducted on Block C9 in 2013.

Furthermore, at the end of the exploration period in July 2014, Blocks Ta7 and Ta8 (60%, operator) were relinquished to the authorities.

In **Mozambique**, TOTAL acquired a 40% stake in the production sharing contract for offshore zones 3 and 6 in 2012. Located in the Rovuma basin, these two blocks cover an area of 15,250 km^2 from the coast up to water depths of 2,500 m. Half of the area of the two blocks was relinquished in 2013. A 500 km^2 3D seismic survey was carried out between year-end 2014 and beginning of 2015.

(1) *Total Gabon is a company under Gabonese law listed on Euronext Paris. TOTAL holds 58.28%, the Republic of Gabon holds 25% and the public float is 16.72%.*

(2) *TOTAL s stake in the foreign consortium.*

In **Nigeria**, the Group s production in 2014 was 257 kboe/d compared with 261 kboe/d in 2013 and 279 kboe/d in 2012. This decline was primarily due to the sharp increase in oil bunkering and a blockade of Nigeria LNG s export cargoes in 2013. Nigeria is the leading contributor to the Group s production.

TOTAL has been present in Nigeria since 1962 and operates five of the thirty seven oil mining leases (OML) in which it has interests and also holds interests in four oil prospecting licenses (OPL).

Regarding the principal variations in TOTAL s permits since 2012:

- In September 2013, TOTAL was granted approval by the authorities to increase its stake in OPL 285 from 26.67% to 60%. In May 2013, TOTAL obtained the approval of the authorities for the renewal of OML 99, 100 and 102 for a period of twenty years.
- On OML 138 (20%), TOTAL started production in the Usan offshore field in 2012, reaching 130 kboe/d in 2013. In 2014, the Ukot South-2B and Ukot South-3 exploration wells led to two oil discoveries. The Group is actively pursuing the sale process launched in November 2012, which was not able to close. TOTAL ceased to be the operator of OML 138 in February 2014.
- Block 1 (48.6%, operator) of the Joint Development Zone was relinquished in September 2013, and OPL 221 was relinquished in November 2013.
- In 2012, TOTAL sold its 10% stake in OML 30, 34 and 40, which were operated via the Shell Petroleum Development Company (SPDC) joint venture. Furthermore, new sales processes for four blocks (OML 18, 24, 25 & 29) were launched in early 2014, with the sale of OML 24 finalized in November 2014, and those of OML 18 and OML 29 finalized in March 2015.

TOTAL continues to develop its operated assets, in particular:

- OML 58 (40%, operator): as part of its joint venture with the Nigerian National Petroleum Corporation (NNPC), TOTAL is pursuing a project to increase the block s gas production capacity from 370 Mcf/d to 550 Mcf/d.
- OML 102 (40%, operator): TOTAL achieved the flare-out portion of the Ofon Phase 2 project in December 2014. The associated gas from the Ofon field is now being compressed, evacuated to shore and monetized via Nigeria LNG (NLNG).
- OML 130 (24%, operator): the development of the Egina field (capacity of 200 kboe/d) was launched in June 2013.
- OML 99 (40%, operator): additional studies are underway for the development of the Ikike field.

TOTAL is also active in the LNG sector with a 15% stake in Nigeria LNG Ltd, which owns a liquefaction plant with a total capacity of 22 Mt/y. On Brass LNG, since the withdrawal of one of the partners, TOTAL s stake has temporarily increased from 17% to 20.48%. Studies are currently ongoing for a two train liquefaction plant with a 4.5 Mt/y capacity each.

The Group s non-operated production in Nigeria comes mainly from the SPDC joint venture, in which TOTAL holds a 10% stake. The sharp increase of oil bunkering in 2013, which continued in 2014, had a negative impact on onshore production, as well as on the integrity of the joint venture s facilities and the local environment.

In addition, TOTAL holds a stake in the deep offshore OML 118 (12.5%), including the Bonga field, which contributed 15 kboe/d to the Group s production in 2014. On OML 118, a pre-unitization agreement relating to the Bonga South West/Aparo discovery (10%) was signed in December 2013.

In **Uganda**, where TOTAL has been active since 2012, the Group holds a 33.33% interest in the EA-1, EA-1A and EA-2 licenses as

well as the Kingfisher license, located in the Lake Albert region. TOTAL is the operator of the EA-1 and EA-1A licenses and a partner on the other licenses.

- On the EA-1 license, a campaign of wells, production tests and a 3D seismic survey were carried out between 2012 and mid-2014. As of year-end 2014, five development plans had been submitted to the authorities: Ngiri (submitted in December 2013), Jobi-Rii (submitted in June 2014) and Mpyo, Gunya and Jobi East (submitted in December 2014).
- The EA-1A license expired in February 2013 following a campaign of five exploration wells that resulted in one discovery (Lyec). With the exception of the area relating to this discovery, the license has been returned to the authorities.
- On the EA-2 license, a campaign of wells and production tests that began in 2012 was completed in 2014. Two development plans were submitted to the authorities in June 2013 (Kasamene and Wahrindi fields, as well as those of Kigogole, Ngege, Ngara and Nsoga).
- The development plan for the Kingfisher field, which is located on the EA-3 production license, was approved by the authorities in September 2013.
- The Kanywataba license expired in 2012 and was returned to the authorities.

In the **Republic of the Congo**, the Group s production in 2014 was 95 kboe/d compared with 93 kboe/d in 2013 and 113 kboe/d in 2012. The reduced production in 2013 was due to a planned shutdown on the Nkossa field. The decrease in production between 2012 and 2014 was due primarily to the natural decline of the fields. In December 2013, Qatar Petroleum International Upstream (QPI) purchased a 15% stake in the capital of Total E&P Congo via a share capital increase of the subsidiary.

- The Moho Bilondo offshore field (53.5%, operator) reached plateau production of 90 kboe/d in mid-2010. The Phase 1b (capacity of 40 kboe/d) and Moho North (capacity of 100 kboe/d) project was launched in March 2013, with production start-up planned in 2015 and 2016, respectively.
- Block 14K (36.75%) corresponds to the offshore unitization zone between the Haute Mer license in the Republic of the Congo and Block 14 in Angola. The development of the Lianzi field was launched in 2012. TOTAL holds a 26.75% interest in the unitized block through Total E&P Congo and a 10% interest through Angola Block 14 BV.
- In July 2013, TOTAL obtained the Haute Mer B license (34.62%, operator). The authorities approved the license in June 2014.
- As part of the renewal of the Loango and Zatchi licenses, an agreement on the related contractual and fiscal conditions was signed in October 2013. Following the approval of the authorities in June 2014, TOTAL s interests in these licenses decreased respectively from 50% to 42.50% for Loango and from 35% to 29.75% for Zatchi, with retroactive effect from October 2013.

In the Lake Albert region of the **Democratic Republic of the Congo**, the Block III (66.66%, operator) exploration license was granted in 2012 for an initial three-year period. As a result of the security situation in the eastern part of the country in 2012, the license was extended for one year. The prospecting program is limited to the northern portion of the license, which is outside the Virunga park.

In the **Republic of South Sudan**, TOTAL is negotiating a new contract with the authorities that would enable it to resume exploration activities in part of Block B. Since the independence of the Republic of South Sudan in 2011, TOTAL is no longer present in Sudan.

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2.1.7.2. North America

In 2014, TOTAL s production in North America was 90 kboe/d, representing 4% of the Group s total production, compared with 73 kboe/d in 2013 and 69 kboe/d in 2012.

In **Canada**, the Group s production in 2014 was 12 kboe/d compared to 13 kboe/d in 2013 and 12 kboe/d in 2012. The Group s oil sands portfolio is focused around two themes: Steam Assisted Gravity Drainage (SAGD) on the Surmont (50%) asset, and mining at Fort Hills (39.2%). In addition, the Group holds stakes in a number of other oil sands leases, including Joslyn (38.25%, operator) and Northern Lights (50%, operator).

On Surmont, in order to optimize production, additional wells were drilled in 2013 and a decision was made to construct an additional steam generation unit. The second Surmont development phase is under construction (total capacity of phase 1 and 2 estimated at 130 kb/d).

The development of the Fort Hills project, with an estimated capacity of 180 kb/d, is underway.

On the Joslyn and Nothern Lights assets, a final investment decision is not expected in the near future due to the degraded economic environment.

Due to the current economic environment, the Group impaired its oil sands assets in Canada by $2.2 billion in its 2014 consolidated accounts.

In 2013, TOTAL finalized the sale of its 49% stake in the Voyageur upgrader project.

In the **United States**, the Group s production in 2014 was 78 kboe/d compared with 60 kboe/d in 2013 and 57 kboe/d in 2012.

In the Gulf of Mexico:

Phase 2 of the deep offshore Tahiti oil field (17%) was launched in 2010. This phase comprises drilling four injection wells and two production wells.

The Chinook 5 well on the deep offshore Chinook project (33.33%) started production in early 2014.

The TOTAL (40%) Cobalt (60%, operator) alliance s exploration campaign, which was launched in 2009, resumed in 2012 with the Ligurian-2 and North Platte wells, resulting in an oil discovery on the latter. A new drilling campaign commenced in February 2015 with the drilling of the North Platte 2 well.

TOTAL is active in shale gas production in Texas via a 25% stake in a joint venture operated by Chesapeake in the Barnett Shale basin. Drilling operations have been sharply reduced since 2012 (approximately 40 wells were drilled in 2014 compared to approximately 60 in 2013 and approximately 100 in 2012).

TOTAL is also active in the production of liquids-rich shale gas in the Utica region in Ohio via a joint venture (25%) operated by Chesapeake. Approximately 170 wells were drilled in 2014 (compared to more than 200 wells in 2013 and approximately 100 in 2012) and 207 wells have been connected and have started production (compared with 190 in 2013 and 47 in 2012). In November 2014, TOTAL sold its 25% stake in Cardinal Gas Services LLC, a company providing gas collection and treatment services for Utica.

The Group holds a 55.7% stake in American Shale Oil LLC (AMSO), which is developing an *in situ* shale oil production technology.

In 2012, TOTAL entered into a 50/50 joint venture with Red Leaf Resources, which is developing an *ex situ* shale oil production technology. In the summer of 2014, the joint venture launched a production pilot.

Regarding this shale oil theme, TOTAL acquired approximately 120 km^2 of additional land in Colorado and Utah in 2012.

In **Mexico**, TOTAL is conducting various studies with state-owned PEMEX under a general technical cooperation agreement renewed in July 2011 for a period of five years.

2.1.7.3. South America

In 2014, TOTAL s production in South America was 157 kboe/d, representing 7% of the Group s total production, compared with 166 kboe/d in 2013 and 182 kboe/d in 2012.

In **Argentina**, where TOTAL has been present since 1978, the Group operated approximately 30%(1) of the country s gas production in 2014. The Group s production in 2014 was 75 kboe/d compared with 78 kboe/d in 2013 and 83 kboe/d in 2012. In 2012, the Argentinean government concluded gas price agreements with various producers. Under the terms of these agreements, the Argentinean government guarantees the price of gas for quantities above a fixed production level in exchange for compliance with defined production targets and applicable penalties (*i.e.*, Deliver or Pay). In February 2013, TOTAL signed an agreement of this type for a period of five years with retroactive effect from December 1, 2012.

In Tierra del Fuego, the Group operates the Carina and Aries offshore fields (37.5%). A drilling campaign consisting of two additional wells began in 2014 based on the existing platform. The development of the Vega Pleyade field (37.5%, operator) was launched in October 2013 (production capacity of 350 Mcf/d).

In the Neuquén basin, TOTAL started a drilling campaign on its mining licenses in 2011 in order to assess their shale gas and shale oil potential. This campaign, which started on the Aguada Pichana licenses (27.3%, operator), was subsequently extended to all of the blocks. The initial results of the production tests on the wells drilled during this campaign were all positive. Two pilot developments intended to test the unconventional production potential at the Aguada Pichana and Rincón la Ceniza (42.5%, operator) Blocks have been launched.

In **Aruba**, TOTAL acquired a 35% stake in the offshore Aruba license (14,000 km^2) in July 2014. A 3D seismic survey covering 3,250 km^2 was carried out.

In **Bolivia**, the Group s production, primarily gas, was 30 kboe/d in 2014 compared with 28 kboe/d in 2013 and 27 kboe/d in 2012. TOTAL has stakes in seven licenses: three production licenses, San Alberto and San Antonio (15%) and the Tarija Oeste Block XX (41%); two licenses in the development phase, Aquio and Ipati (60%, operator); and two licenses in the exploration phase, Rio Hondo (50%) and Azero (50%, operator of the exploration phase).

(1) *Source: Argentinean Ministry of Federal Planning, Public Investment and Services Energy Secretary.*

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- The second development phase of the Itaú gas and condensates field located on the Tarija Oeste Block XX started production in January 2014 with a production capacity of 176 Mcf/d.
- Following the discovery of the Incahuasi gas field, located on the Ipati Block, two additional wells were drilled in 2011 and 2013. In April 2013, TOTAL was granted approval by the authorities to start the first development phase of the project, including the connection of three previously drilled wells to a central processing plant with a capacity of 6.5 Mm^3/d. An additional well was drilled in 2014 on the Ipati Block. In mid-2014, TOTAL reduced its participation in Aquio and Ipati from 80% to 60%.
- In 2013, TOTAL acquired a 50% stake in the Azero exploration license in the Andean Piedmont, located west of the Ipati and Aquio Blocks and covering an area of more than 7,800 km^2. The exploration period started in June 2014.

In **Brazil**, the Group has stakes in fourteen exploration licenses.

- In 2013, TOTAL acquired a 20% stake in the Libra field, located in Brazil s offshore Santos basin, the potential of which is currently being assessed. The field is located in the ultra-deep offshore (2,000 m) approximately 170 km off the coast of Rio de Janeiro and covers an area of 1,550 km^2. The drilling of two wells began in the third quarter of 2014 in the field s northwest and center zones.
- Following the eleventh bid round organized by the Brazilian authorities in May 2013, TOTAL acquired stakes in ten new exploration licenses. The Group operates five blocks (40%) located in the Foz do Amazonas basin (FZA-M-57, FZA-M-86, FZA-M-88, FZA-M-125 and FZA-M-127) and holds an interest in block CE-M-661 (45%) located in the Ceara basin. TOTAL also holds a 25% stake in three blocks (ES-M-669, ES-M-671 and ES-M-743) located in the Espirito Santo basin and a stake in the BAR-M-346 block (50%) located in the Barreirinhas basin. Seismic survey campaigns were completed in 2014 on the Foz do Amazonas and Espirito Santo basins.
- TOTAL also holds stakes in the Xerelete field, which the Group has operated since 2012. This field is primarily located on Block BC-2 (41.2%) and extends into Block BM-C-14 (50%). A well targeting both post-salt and pre-salt horizons was drilled and tested in January 2014.
- On the Gato Do Mato field located in Block BM-S-54 (20%) in the Santos basin, a well was drilled in 2012.

In **Colombia**, TOTAL has not had any production since the 2012 sale of its TEPMA BV subsidiary, which held a stake in the Cusiana field. Production was 6 kboe/d in 2012.

On the Niscota license (50%), the drilling program commenced in 2009 is ongoing.

In 2013, TOTAL sold its entire share in the Ocensa pipeline while retaining its transport rights. Subsequently, TOTAL signed an agreement in December 2014 to sell part of its transportation rights in the Ocensa pipeline and closing of this transaction occurred in February 2015.

In **French Guiana**, TOTAL owns a 25% stake in the Guyane Maritime license. This license, located approximately 150 km from the coast in water depths ranging from 200 m to 3,000 m, covers an area of approximately 24,000 km^2. At year-end 2011, the authorities extended the exploration license until May 31, 2016.

Further to the discovery of Zaedyus, a drilling campaign was conducted from July 2012 to year-end 2013, but was unable to confirm the extension of a reservoir.

In **Trinidad and Tobago**, TOTAL sold all of its exploration and production interests in 2013. The Group s production in 2013 was 12 kboe/d and 16 kboe/d in 2012.

In **Uruguay**, TOTAL holds a 100% stake in three exploration licenses: offshore Block 14, and onshore Blocks B1 and B2.

- In October 2013, TOTAL signed two exploration and production contracts for Blocks B1 and B2 for unconventional plays. These two blocks, which cover a total area of 5,200 km^2, are primarily located in the Artigas province in the northwestern part of the country.
- In 2012, TOTAL acquired a stake in Block 14, which is located approximately 250 km offshore in water depths ranging from 2,000 m to 3,500 m and covers an area of some 6,700 km^2. A 3D seismic acquisition of the entire block was completed in early 2014.

In **Venezuela**, where TOTAL has had operations since 1980, the Group s production was 52 kboe/d in 2014 compared with 48 kboe/d in 2013 and 50 kboe/d in 2012. TOTAL has equity stakes in PetroCedeño (30.3%), in Yucal Placer (69.5%) and in the offshore exploration Block 4, located in Plataforma Deltana (49%).

The development phase of the southern zone of PetroCedeño continues (86 producing wells were drilled at year-end 2014 compared with 43 wells at year-end 2013), as well as the debottlenecking project for the water separation and treatment facilities. In 2013, the postponement of an additional debottlenecking project combined with a performance study performed on the field led to a revision of PetroCedeño s reserves.

Pursuant to an amendment to the gas sale contract, a new development phase of the Yucal Placer field was launched in 2012. The field s production reached 150 Mcf/d in April 2014 following the commissioning of the first clusters and the debottlenecking of the existing gas treatment train.

2.1.7.4. Asia-Pacific

In 2014, TOTAL s production in Asia-Pacific was 238 kboe/d, representing 11% of the Group s total production, compared with 235 kboe/d in 2013 and 221 kboe/d in 2012.

In **Australia**, where TOTAL has held leasehold rights since 2005, the Group s production was 4 kboe/d in 2014 and in 2013, and 5 kboe/d 2012.

Following the acquisition of an additional 6% stake in 2013, TOTAL has held a 30% stake in the Ichthys project. Launched in early 2012, the project involves the development of a gas and condensate field in the Browse basin. The development consists of a floating platform designed for gas production, treatment and export, an FPSO (processing capacity of 100 kb/d of condensates) to stabilize and export condensates, an 889 km gas pipeline and an onshore liquefaction plant in Darwin with a capacity of 8.4 Mt/y of LNG and 1.6 Mt/y of LPG (liquefied petroleum gas). The LNG has already been sold mainly to Asian buyers under long-term contracts.

GLNG (27.5%) is an integrated gas production, transport and liquefaction project with a capacity of 7.2 Mt/y, based on the development of coal seam gas from the Fairview, Roma, Scotia and Arcadia fields. The upstream development of the project and the liquefaction plant are nearing completion.

In 2013, the WA-492 and WA-493 licenses in the Carnarvon basin were awarded to TOTAL (100%, operator). A 2D seismic campaign began in January 2015.

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TOTAL holds a 40% stake in the WA-343-P license.

At year-end 2012, TOTAL reduced its share in the WA-408 license located in the Browse basin (50%, operator) by disposing of 50% of its stake. Drilled in the first half of 2013, the first exploration well, Basset-1, revealed hydrocarbons. Completed at year-end 2013, the second exploration well has been definitively abandoned.

On the WA-403 license (60%, operator) located in the Bonaparte basin, a well drilled in 2011 indicated the presence of hydrocarbons. A 3D seismic survey was conducted in 2013. The adjacent Block WA-402-P was relinquished in July 2014.

In 2012, TOTAL signed an agreement to enter three shale gas exploration licenses in the South Georgina basin in the center of the country. In the second half of 2013, a 2D seismic survey was conducted on these three licenses.

In **Brunei**, where TOTAL has been present since 1986, the Group operates the offshore Maharaja Lela Jamalulalam gas and condensate field located on Block B (37.5%). The Group s production in 2014 was 15 kboe/d compared with 13 kboe/d in 2013 and 12 kboe/d in 2012. The gas is delivered to the Brunei LNG liquefaction plant.

In 2013, the study regarding the additional development south of the field (Maharaja Lela South) was completed. The project was officially launched in early 2014 with the signature of most of the contracts and a 20-year extension of the existing license.

Studies are currently being conducted to reassess the potential of the deep offshore exploration Block CA1 (54%, operator), which includes the Jagus East discovery.

In **China**, TOTAL has been present since 2006 on the South Sulige Block located in the Ordos basin in Inner Mongolia province. Following appraisal work by TOTAL, China National Petroleum Corporation (CNPC) and TOTAL agreed to a development plan pursuant to which CNPC is the operator and TOTAL holds a 49% stake. The authorities approved this development plan in April 2014. After an initial test phase that began in August 2012, the Group s production in 2014 was 12 kboe/d compared with 8 kboe/d in 2013. The drilling of development wells continues.

In March 2013, TOTAL and Sinopec concluded a joint study agreement relating to shale gas potential on the Xuancheng license (4,000 km^2) close to Nanjing. A 2D seismic survey covering 600 km was conducted from October 2013 to February 2014. The drilling of an initial exploration well started in late 2014.

In **Indonesia**, where TOTAL has had operations since 1968, the Group s production was 130 kboe/d in 2014 compared with 131 kboe/d in 2013 and 132 kboe/d in 2012.

TOTAL s operations in Indonesia are primarily concentrated on the Mahakam license (50%, operator), which covers in particular the Peciko and Tunu gas fields. TOTAL also has a stake in the Sisi-Nubi gas field (47.9%, operator). The Group delivers most of its natural gas production to the Bontang LNG plant. These volumes of gas accounted for approximately 80% of Bontang s LNG supply in 2014. This gas production is supplemented by condensate and oil production from the Handil and Bekapai fields, which are operated by the Group.

With regard to the Mahakam license:

- Tunu: in 2014, additional development wells were drilled in the main reservoir as well as in the shallow gas reservoirs;
- Peciko: phase 7 drilling operations continue;
- South Mahakam: production started in 2012 and development drilling operations continued. Phase 3 of the project, which includes the development of the Jempang and Metulang fields, is currently underway; and
- Sisi-Nubi: drilling operations are continuing within the framework of a second phase of development. The gas from Sisi-Nubi is produced through Tunu s processing facilities.

On the Sebuku license (15%), production started at the Ruby gas field in October 2013 with a capacity of approximately 100 Mcf/d. Ruby s production is transported by pipeline for processing and separation at the Senipah terminal operated by TOTAL.

On the Sadang (30%), Sageri (50%), Arafura Sea (24.5%) and Amborip VI (24.5%) blocks, the Group has applied to the authorities to withdraw from these blocks. In addition, and following the withdrawal of the other partners, the Group s stake in the South Sageri Block increased from 45% to 100% (operator), while its share in the South Mandar Block increased from 33% to 49.3%.

In December 2014, TOTAL sold a 20% stake in the Bengkulu I Mentawai Block (80%, operator). This exploration block is located in the Bengkulu offshore basin southwest of Sumatra. An exploration well was drilled on the block in 2014.

In early 2015, the Group sold its stakes in the two coal bed methane (CBM) blocks located in the province of East Kalimantan, Kutai II (18.4%) and Kutai Timur (50%).

The Group also holds a stake in the Telen block (100%, operator) located in East Kalimantan province.

The Group has decided to withdraw from the South East Mahakam exploration block (50%, operator) located in East Kalimantan province and the South West Bird s Head exploration block (90%, operator) located in West Papua.

In **Malaysia**, where TOTAL has been active since 2008, the Group holds stakes in three exploration licenses (SB-N, DW2E, SK 317 B).

In January 2014, the Group acquired a stake in the DW2E license (85%, operator) located in deep offshore. A 3D seismic campaign of 2,050 km^2 was completed late 2014.

On the SK 317 B exploration block (85%, operator) located in Sarawak s deep offshore, the first exploration well, Pelangi-1, started in December 2013, revealing gaseous hydrocarbons. A second exploration well, Pelangi-2, started in November 2014.

At the end of the exploration period, TOTAL withdrew from the PM324 Block (50%, operator), located in the Malay basin.

In **Myanmar**, the Group s production in 2014 was 17 kboe/d compared with 16 kboe/d in 2013 and 2012.

The Yadana field (31.2%, operator), located on the offshore Blocks M5 and M6, primarily produces gas for delivery to PTT (Thai state-owned company) for use in Thai power plants. The Yadana field also supplies the domestic market via two pipelines built and operated by MOGE, a Myanmar state-owned company. The LCP-Badamyar project, which includes the installation of the Badamyar compression and development platform, connected to the Yadana facilities, was launched in September 2014.

In 2014, the Group was awarded the deep offshore Block YWB (100%, operator) during the offshore round launched by the Burmese authorities. The PSC was signed in February 2015.

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On offshore Block M-11, located in the Martaban basin, the Group requested a new two-year exploration phase in October 2014 and, following the withdrawal of a partner, increased its stake from the 40% acquired in 2012 to approximately 47.06%. The first exploration well, Manizawta-1, was drilled in 2013.

In **Papua New Guinea**, where TOTAL has been active since 2012, the Group acquired a stake in Block PRL-15 (40.1%) in March 2014. The Papua New Guinea government retains the right to acquire a 22.5% stake in the block when the final investment decision is made. Following the government s entry, TOTAL s stake would be reduced to 31.1%.

Block PRL15 contains the two major discoveries of Elk and Antelope. A program to delineate these discoveries is currently underway with the drilling of two wells, the first of which started in October 2014, and the second of which started in December 2014. TOTAL has also launched pre-development studies of the Elk and Antelope fields, including the construction of an onshore gas liquefaction plant.

In 2012, TOTAL acquired a 40% stake in the PPL244 offshore license, and secured options to acquire 40% in the PPL234 offshore license, 50% in the PRL10 offshore license and 35% in the PPL338 and PPL339 onshore licenses.

- On the offshore PPL244 license, two exploration wells were drilled in 2013.
- The PPL234 option has not been exercised and the license expired in July 2014.
- On the onshore PPL338 and PPL339 licenses, a 2D seismic survey was conducted in 2013. A gradiometer survey was performed on the onshore PPL339 license. The option related to the onshore PPL338 license that expired in March 2014 was not exercised due to the minimal geological interest on the license.

In the **Philippines**, TOTAL has held since 2012 a 75% stake in the SC56 license located in the deep offshore of the southern Sulu Sea. Following interpretation of the data from a seismic campaign in 2013, TOTAL and its partner have decided to drill an exploration well on the block. In October 2014, TOTAL became the operator of the block.

In **Thailand**, the Group s production in 2014 was 60 kboe/d compared with 63 kboe/d in 2013 and 55 kboe/d in 2012. This production comes from the Bongkot (33.33%) offshore gas and condensate field. PTT purchases all of the natural gas and condensate production from this field.

- In the northern portion of the Bongkot field, new investments are in progress to maintain plateau and meet gas demand:
  - phase 3L (two wellhead platforms) was approved in 2012 and commenced production in 2014;
  - phase 3M (four wellhead platforms) was approved in 2013; and
  - phase 3N (three wellhead platforms) was approved in 2014.
- The southern portion of the field (Greater Bongkot South) is also being developed in several phases. This development is designed to include a processing platform, a living-quarters platform and thirteen production platforms:
  - phase 4A (six wellhead platforms) commenced production in 2012;
  - phase 4B (four wellhead platforms) commenced production in 2014; and
  - phase 4C (three wellhead platforms) is under development.

Exploration on these licenses is ongoing with wells drilled annually (two in 2014).

In **Vietnam**, the Group no longer holds any exploration interests following the sale in 2013 of its stake in offshore Block 15-1/05 (35%).

2.1.7.5. Commonwealth of Independent States (CIS)

In 2014, TOTAL s production in the CIS was 249 kboe/d, representing 12% of the Group s total production, compared with 227 kboe/d in 2013 and 195 kboe/d in 2012.

In **Azerbaijan**, where TOTAL has been present since 1996, production, coming entirely from the Shah Deniz field, was 14 kboe/d in 2014 compared with 20 kboe/d in 2013 and 16 kboe/d in 2012.

- In August 2014, TOTAL sold its stake in the Shah Deniz field (10%) as well as its 10% stake in the pipeline held by South Caucasus Pipeline Company (SCPC).
- In September 2014, the Group sold its 10% stake in the Trans Adriatic Pipeline (TAP).

TOTAL holds a 5% interest in the Baku-Tbilisi-Ceyhan (BTC) pipeline.
TOTAL is the operator for the exploration phase of the Absheron Block (40%) in the Caspian Sea, on which a discovery and commercial declaration was filed in 2012. The development plan for the field is currently being prepared.

In **Kazakhstan**, TOTAL has been active since 1992 in the North Caspian license (16.81%), which covers the Kashagan field.

First phase production from Kashagan (300 kb/d) started in September 2013 and was halted in October 2013 due to leaks detected on the gas export pipeline. Following investigations carried out by the consortium, a refurbishment plan for the pipelines was approved. The two oil and gas export pipelines will be replaced over 99 km.

In February 2015, TOTAL sold 23.9% of its 75% interest in the Northern and Southern Nurmunai onshore exploration blocks, located in the southwest of the country. The drilling of a well started at the end of February 2015 on Northern Nurmunai Block.

In **Russia**, where TOTAL has had operations since 1991 and where, as of December 31, 2014, the Group held 19% of its proved reserves, the Group s production in 2014 was 235 kboe/d compared with 207 kboe/d in 2013 and 179 kboe/d in 2012. This production comes from the Kharyaga field and from TOTAL s stake in the Russian company OAO Novatek (18.24%)[1], which is listed in Moscow and London (hereafter, Novatek). In 2014, international economic sanctions related to the situation in Ukraine were imposed by the United States, the EU and other countries. TOTAL complies with sanctions applicable to its activities. For additional information, refer to Item 3 C. Risk Factors , above.

On the Kharyaga field (40%, operator), the development of phases 3 and 4 is ongoing.
In addition to its shareholding in Novatek, TOTAL currently participates via a direct stake in two projects:

- Termokarstovoye (onshore gas and condensate field located in the Yamalo-Nenets district): The development and production license for the Termokarstovoye field is owned by ZAO Terneftegas, a joint venture between Novatek (51%) and TOTAL (49%). Development of the field started in late 2011 (estimated capacity of 65 kboe/d).

[1] *The Group held an 18.24% stake in OAO Novatek as of December 31, 2014.*

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Yamal LNG: Launched in December 2013, the aim of this project is the development of the onshore South Tambey field (gas and condensate) located in the Yamal Peninsula via the construction of a three-train LNG liquefaction plant with a capacity of 16.5 Mt/y. In order to comply with international economic sanctions, the financing plan for the Yamal LNG project is being reviewed, and the project s partners are engaged in efforts to develop a financing plan in line with the applicable regulations. In parallel, the development of the project is progressing in a satisfactory manner. The OAO Yamal LNG company is jointly owned by Novatek (60%), TOTAL E&P Yamal (20%) and, since January 2014, CNODC (20%), a subsidiary of CNPC.

In May 2014, TOTAL signed a strategic cooperation agreement with OAO LUKOIL in order to develop shale oil resources in the Bazhenov basin, located in the province of Kanthy Mansiysk. In addition to the licenses covered by this agreement, TOTAL acquired six new licenses in the basin in 2014. The international economic sanctions imposed in the summer of 2014 have led the partners to put this project on hold.

In January 2014, Novatek increased its stake in the Severenergia company by acquiring ENI s shares through Arcticgaz (50/50 joint venture between Novatek and Gazpromneft). In December 2013, Novatek exchanged its interest held in Sibneftegas for all of Rosneft s interests in Severenergia in which it now has a 54.9% stake. Novatek has held a 50% stake in the company ZAO Nortgaz since June 2013.

In **Tajikistan**, TOTAL launched its activities in the country by acquiring a 33.3% stake in the Bokhtar Block in the first half of 2013. Environmental and societal studies were carried out in 2014. A 2D seismic campaign covering 800 km started in 2014.

2.1.7.6. Europe

In 2014, TOTAL s production in Europe was 364 kboe/d, representing 17% of the Group s total production, compared with 392 kboe/d in 2013 and 427 kboe/d in 2012.

In **Bulgaria**, the Khan Asparuh license, which covers 14,220 km^2 in the Black Sea, was awarded to TOTAL in 2012. In March 2013, TOTAL sold 60% of its stake, retaining a 40% interest. A 2D and 3D seismic survey was performed from June 2013 to January 2014 and the data is currently being processed and interpreted. TOTAL became the operator of the block in April 2014.

In **Cyprus**, TOTAL has been present since 2013 in the deep offshore exploration Block 10 (100%, operator) and Block 11 (100%, operator) located southwest of the country. Following a 3D seismic survey carried out on Block 11 in 2013, a 2D seismic survey on Block 10 was conducted in February 2014.

In **Denmark**, TOTAL has since 2010 held an 80% stake and operated the 1/10 (Nordjylland) and 2/10 (Nordsjaelland) licenses. These onshore licenses, whose shale gas potential continues to be assessed, cover areas of 3,000 km^2 and 2,300 km^2, respectively.

Following geoscience surveys on license 1/10 in 2011, the decision was made to drill a well.

On license 2/10, a gravimetric survey was completed in 2013.

In **France**, the Group s production in 2014 was 2 kboe/d compared with 9 kboe/d in 2013 and 13 kboe/d in 2012.

In October 2013, TOTAL ended commercial gas operations on Lacq, which had begun in 1957. The transfer of the Lacq concession was approved by the French authorities in October 2014.

On the Lacq field, the CO_2 capture, injection and storage pilot commissioned in 2010 ended in 2013.

The Montélimar exclusive exploration license awarded to TOTAL in 2010 to assess, in particular, the shale gas potential of the area, was abrogated by the government in October 2011. This revocation stemmed from the law of July 13, 2011, prohibiting the exploration and extraction of hydrocarbons by drilling followed by hydraulic fracturing. An appeal filed in December 2011 with the administrative court requesting that the judge cancel the revocation of the license is pending.

In **Italy**, TOTAL holds a stake in two exploration licenses and in the Tempa Rossa field (50%, operator), discovered in 1989 and located on the Gorgoglione concession (Basilicate region). The final investment decision for Tempa Rossa was made in July 2012 and development is ongoing. The Gorgoglione well was tested in 2012 and confirmed the results obtained from the other wells. A sidetrack was drilled at the TR-2 well and another started in June 2014 on the TR-1 well.

In 2013, TOTAL sold 25% of its 75% stake in Tempa Rossa, thereby reducing its stake to 50%.

In **Norway**, where the Group has had operations since 1965, TOTAL has equity stakes in 96 production licenses on the Norwegian maritime continental shelf, 29 of which it operates. In 2014, the Group s production was 242 kboe/d, compared to 243 kboe/d in 2013 and 275 kboe/d in 2012. The decrease in production between 2012 and 2014 was mainly due to the natural decline of mature fields.

In the Norwegian North Sea, the most substantial contribution to the Group s production comes from the non-operated Greater Ekofisk Area (Ekofisk, Eldfisk, Embla, etc.).

In the southern Norwegian North Sea:
In the Greater Ekofisk Area, the Group owns a 39.9% stake in the Ekofisk and Eldfisk fields. Production started in October 2013 at Ekofisk South, and in January 2015 at Eldfisk II (capacity of 70 kboe/d each).

In the central part of the Norwegian North Sea:
The development of the Gina Krog field (30%) located north of Sleipner was approved in 2013.

In the northern part of the Norwegian North Sea:
The Islay field (100%, operator) started production in 2012. This field extends on each side of the Norwegian/UK border and the Group s interest in the Norwegian part is 5.51%.

The Stjerne field, located on license PL104 (14.7%), and the Visund South field, located on license PL120 (7.7%), were put into production in 2013 and 2012, respectively.

On license PL120 (7.7%), the fast-track development of Visund North allowed production to start in 2013.

On the Greater Hild Area (51%, operator), the Martin Linge development (capacity of 80 kboe/d) was approved by the authorities in 2012.

In 2013, the authorities approved the Oseberg Delta phase 2 project (14.7%), located on production licenses PL104 and PL79. The Oseberg East TSV project (14.7%) was approved in 2014.

In the Norwegian Sea, the Haltenbanken area includes the Tyrihans (23.2%), Mikkel (7.7%) and Kristin (6%) fields, as well as the Åsgard field (7.7%) and its satellites.

The Norwegian authorities approved the Åsgard sub-sea compression project in 2012. The main contracts have all been signed and various components were installed during the summer of 2014.

The Polarled project (5.11%), approved in 2012, involves the installation of a 481 km long pipeline from the Aasta Hansen field to the Nyhamna terminal, as well as expansion of the terminal.

- In the Barents Sea, a project intended to improve the performance of the Snøhvit gas liquefaction plant (18.4%, 4.2 Mt/y capacity) was launched in 2012. The plant is supplied with gas from the Snøhvit, Albatross and Askeladd fields.

Several exploration wells were drilled on a number of licenses during the 2012-2014 period with discoveries on Helene (PL120, 11%) and Trell (PL102G, 40%, operator) in 2014, on Smørbukk North (PL479, 7.68%) and Rhea (PL120, 7.68%) in 2013, as well as on Garantiana (PL554, 40%, operator) and King Lear (PL146 and 333, 22.2%) in 2012. In 2014, the well drilled on Garantiana enabled an increase in estimated oil volumes.

In addition, the Group continues to optimize its portfolio in Norway by obtaining new licenses and divesting a number of non-strategic assets. To this end, in October 2014, TOTAL concluded an agreement to sell an 8% stake in the Gina Krog field, thereby reducing its stake to 30%, and all of its interests in the Vilje (24.24%), Vale (24.24%) and Morvin (6%) fields. The transaction was approved by the Norwegian authorities in December 2014.

In **the Netherlands**, TOTAL has conducted natural gas exploration and production operations since 1964 and currently holds interests in twenty-four offshore production licenses, including twenty that it operates, and two offshore exploration licenses, E17c (16.92%) and K1c (30%). In 2014, the Group s production was 31 kboe/d compared with 35 kboe/d in 2013 and 33 kboe/d in 2012.

- In September 2014, the Dutch authorities awarded the F12 exploration block to TOTAL.
- Following the acquisition of additional stakes in 2013, TOTAL now holds a 50% stake in Block K5b and a 60% stake in Blocks K1b/K2a and K2c. TOTAL is the operator of these blocks.
- A 3D seismic survey of several offshore licenses covering an area of 3,500 km^2 was conducted in 2012.
- In August 2013, the K4-Z development project (50%, operator) started production.

In **Poland**, at the beginning of 2012, TOTAL signed an agreement to acquire a 49% stake in the Chelm and Werbkowice exploration concessions in order to assess their shale gas potential. In February 2014, the licenses were relinquished, and since then the Group no longer holds any exploration interests in the country.

In the **United Kingdom**, where TOTAL has had operations since 1962, the Group s production was 89 kboe/d in 2014 compared with 105 kboe/d in 2013 and 106 kboe/d in 2012. About 90% of production comes from operated fields located in two main zones: the Alwyn zone in the northern North Sea, and the Elgin/Franklin zone in the Central Graben.

- In the Alwyn zone (100%), the start-up of satellite fields or new reservoir compartments partially compensated for the natural decline in production. The N54 and N53 wells were put into production in 2012 and 2011, respectively. In addition, the N55 well, which was drilled in 2012 in the Brent South West panel, was put into production in the second quarter of 2014 and the N56 well (Alwyn Statfjord) in the third quarter of 2014.

On the Dunbar field (100%), a new development phase (Dunbar phase IV) including three well work-overs and the drilling of six new wells is underway.

The Islay field (100%, operator) was put into production in 2012. This field extends on either side of the border between the United Kingdom (94.49%) and Norway (5.51%). Production from the field is processed on the Alwyn North platform.

- In Central Graben, TOTAL holds stakes in the Elgin, Franklin and West Franklin fields (46.2%, operator). Production at the Elgin, Franklin and West Franklin fields was stopped following a gas leak on the Elgin field in March 2012. In May 2012, the G4 well was definitively secured. Production in the Elgin/Franklin area resumed in March 2013 following the approval of the safety case by the UK Health and Safety Executive (HSE). A redevelopment project involving the drilling of five new infill wells on Elgin and Franklin started in July 2013.

In 2014, TOTAL acquired an additional interest (9.5%) in the Glenelg field, thereby increasing its interest from 49.5% to 58.7%.

In addition, the West Franklin Phase II development project continued with the start-up of production of the first well in January 2015.

In addition to Alwyn and the Central Graben, a third hub, West of Shetland, is under development. This hub includes the Laggan and Tormore fields (80%, operator) and the P967 license (50%, operator), which includes the Tobermory gas discovery. Production on the Laggan and Tormore fields is expected to start in 2015 with an expected capacity of 90 kboe/d.

Close to Laggan and Tormore, the development of the Edradour East (80%, operator) gas and condensate discovery was sanctioned in 2012. A second well (Spinnaker), near the Edradour East discovery, was drilled in early 2014.

In July 2014, TOTAL acquired an 80% stake and the operatorship in the Glenlivet field located north of Edradour. The proximity of the two fields resulted in reduced costs, which enabled the launch of a joint development.

In addition, TOTAL purchased an additional 5% stake in the Edradour field in 2014 and now holds 80% of the four fields currently under development: Laggan, Tormore, Edradour and Glenlivet.

TOTAL also holds a stake in three non-operated fields: Bruce (43.25%), Keith (25%), and Markham (7.35%). The Group s stakes in other non-operated fields (Seymour, Alba, Armada, Maria, Moira, Mungo/Monan and Everest) were divested in 2012.

TOTAL was awarded six new licenses in the 28th Round in November 2014. Four of these licenses are in the West of Shetland area, one in the northern North Sea and one non-operated in the Central Graben.

In early 2014, TOTAL acquired a 40% stake in two onshore shale gas exploration and production licenses (PEDL 139 and 140) located in the Gainsborough Trough basin of the East Midlands, and signed an agreement enabling the Group to acquire a 50% stake in the PEDL 209 license located in the same area. A 70 km^2 3D survey campaign was carried out in March and April 2014.

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2.1.7.7. Middle East

In 2014, TOTAL s production in the Middle East was 391 kboe/d, representing 18% of the Group s total production, compared with 536 kboe/d in 2013 and 493 kboe/d in 2012.

In the **United Arab Emirates**, where TOTAL has had operations since 1939, the Group s production was 127 kboe/d in 2014 compared with 260 kboe/d in 2013 and 246 kboe/d in 2012. The decrease in production in 2014 was due to the expiry of the Abu Dhabi Company for Onshore oil Operations (ADCO) license in January 2014, in which TOTAL held a 9.5% interest. In January 2015, TOTAL signed an agreement granting it a 10% participation as from January 1, 2015 in the new ADCO concession for 40 years. This concession covers the fifteen main onshore fields of Abu Dhabi and represents more than half of the Emirate s production.

TOTAL holds a 75% stake (operator) in the Abu Al Bukhoosh field and a 13.3% stake in Abu Dhabi Marine Operating Company (ADMA-OPCO), which operates two fields offshore Abu Dhabi. TOTAL also holds a 15% stake in Abu Dhabi Gas Industries (GASCO), which produces NGL and condensates from the associated gas produced by ADCO as well as from the gas and condensates produced by ADMA-OPCO. In addition, TOTAL holds stakes of 5% in Abu Dhabi Gas Liquefaction Company (ADGAS), which processes the associated gas produced by ADMA-OPCO in order to produce LNG, NGL and condensates, and 5% in National Gas Shipping Company (NGSCO), which owns eight LNG tankers and exports the LNG produced by ADGAS.

The Group holds a 24.5% stake in Dolphin Energy Ltd. in partnership with Mubadala, a company owned by the government of Abu Dhabi, in order to market gas produced in Qatar primarily to the United Arab Emirates.

The Group also owns 33.33% of Ruwais Fertilizer Industries (FERTIL), which produces urea. The FERTIL 2 project commenced operations in July 2013, enabling FERTIL to more than double its production capacity to 2 Mt/y.

In **Iraq**, the Group s production in 2014 was 12 kboe/d compared with 7 kboe/d in 2013 and 6 kboe/d in 2012.

On the Halfaya field in Missan province, following the completion of a negotiation in October 2014, TOTAL s stake increased from 18.75% to 22.5% in the consortium that was awarded the development and production contract. Production of phase 1 of the project started in June 2012 and phase 2 started in August 2014, enabling production to reach 200 kb/d in the second half of 2014.

In early 2014, TOTAL increased its stake from 35% to 80% and became operator of the Safen Block (424 km^2) located northwest of Erbil in the Kurdistan region. A 2D seismic survey of 275 km was conducted in 2014.

In early 2013, TOTAL acquired an 80% stake and became operator of the Baranan exploration Block (729 km^2), southeast of Sulaymaniyah, in the Kurdistan region. A 2D seismic survey of 213 km was completed in January 2014.

Since 2012, TOTAL has held a 35% stake in the Harir exploration Block (705 km^2) located northeast of Erbil, as well as a 20% stake in the Taza Block (505 km^2), located southwest of Sulaymaniyah. Following three exploration wells in 2013 that led to two

discoveries on the Taza Block and on the Harir Block (Mirawa), an exploration well was drilled in 2014 resulting in the Jisik discovery.

In **Iran**, the Group has had no production since 2010. For additional information, refer to C. Other Matters 8. Cuba, Iran and Syria , below.

In **Oman**, the Group s production in 2014 was 36 kboe/d, stable compared with 2013 and 2012. TOTAL primarily produces oil on Block 6 (4%)[1] as well as on Block 53 (2%)[2]. The Group also produces LNG through its stake in the Oman LNG (5.54%)/Qalhat LNG (2.04%)[3] liquefaction plant, which has a capacity of 10.5 Mt/y. In December 2013, TOTAL obtained the license for ultra-deep offshore Block 41, in which a seabed core drilling campaign was carried out.

In **Qatar**, where TOTAL has had operations since 1936, the Group s production was 132 kboe/d in 2014 compared with 137 kboe/d in 2013 and 139 kboe/d in 2012.

The Group operates the Al Khalij field and participates in the production, processing and export of gas from the North Field through its stakes in the Qatargas 1 and Qatargas 2 liquefied natural gas (LNG) plants and in Dolphin Energy.

Al Khalij (40%, operator): in 2012, TOTAL and state-owned Qatar Petroleum signed a new agreement extending their partnership on the Al Khalij field for an additional 25-year period as of February 1, 2014. According to the terms of this contract, TOTAL will continue to be the operator (40%) alongside Qatar Petroleum (60%).

Qatargas 2 (16.7%): the production capacity of train 5 of Qatargas 2 is 8 Mt/y. TOTAL offtakes part of the LNG produced under the 2006 contracts which provide for the purchase of 5.2 Mt/y of LNG by the Group. In addition, the Group holds a stake in the Qatargas 1 liquefaction plant (10%), as well as a stake in the corresponding upstream block NFB (20%).

Dolphin Energy (24.5%): the production contract for the Dolphin gas project, signed in 2001 with Qatar Petroleum, provides for the sale of 2 Bcf/d of gas from the North Field for a 25-year period. The gas is processed in the Dolphin plant in Ras Laffan and exported to the United Arab Emirates through a 360 km gas pipeline.

The Group became a partner in the offshore BC exploration license (25%) in 2011. Drilling of the first exploration well started in May 2014 and was completed in December 2014.

In **Syria**, TOTAL has a 100% stake in the Deir Ez Zor license, which is operated by the joint venture company DEZPC in which TOTAL and the state-owned company SPC each have a 50% share. TOTAL also holds the Tabiyeh contract, which came into effect in 2009. The Group has had no production in the country since December 2011, when TOTAL suspended its hydrocarbon production activities in Syria in compliance with the European Union s regulations regarding this country. For additional information, refer to Item 4 C. Other Matters 8. Cuba, Iran and Syria , below.

In **Yemen**, where TOTAL has had operations since 1987, the Group s production was 84 kboe/d in 2014 compared with 95 kboe/d in 2013 and 65 kboe/d in 2012.

The security situation in Yemen remains unstable, however this had only a marginal effect on the production from the Group s assets in 2014. Security measures are regularly reviewed in view of the evolving risks.

(1) *TOTAL holds an indirect 4% stake in Petroleum Development Oman LLC, operator of Block 6 via its 10% stake in Private Oil Holdings Oman Ltd.*
(2) *TOTAL holds a 2% stake in Block 53.*
(3) *TOTAL has an indirect stake via Oman LNG s stake in Qalhat LNG.*

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TOTAL owns a 39.62% stake in the Yemen LNG liquefaction plant (capacity of 6.7 Mt/y), which is located in Balhaf on the country s southern coast. This plant is supplied with the gas produced on Block 18, located near Marib in the center of the country, and connected via a 320 km gas pipeline. Rockets were launched towards the Balhaf plant in December 2013, January 2014 and December 2014. However, production was not impacted and security measures have been strengthened.

TOTAL also has stakes in two oil blocks: Block 10 East Shabwa license (28.57%, operator) in the Masila basin and Block 5 Jannah license (15%) in the Marib basin.

TOTAL owns stakes in five onshore exploration licenses: Block 69 (40%, the exploration period has expired and the block is in the process of being relinquished), Block 71 (40%), Block 70 (50.1%, operator), Block 72 (36%, operator), and Block 3 (40%, operator).

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2.1.8. Oil and gas acreage

As of December 31, (in thousands of acres)		2014 Undeveloped acreage[(a)]	2014 Developed acreage
Europe	Gross	10,601	692
	Net	5,197	143
Africa	Gross	122,385	1,306
	Net	79,562	350
Americas	Gross	25,081	962
	Net	11,375	299
Middle East	Gross	34,375	1,215
	Net	9,908	129
Asia (excl. Russia)	Gross	50,076	705
	Net	26,930	253
Russia	Gross	3,419	1,370
	Net	1,334	215
Total	**Gross**	**245,937**	**6,250**
	Net[(b)]	**134,306**	**1,389**

(a) *Undeveloped acreage includes leases and concessions.*
(b) *Net acreage equals the sum of the Group s equity stakes in gross acreage.*

2.1.9. Number of productive wells

As of December 31,		2014 Gross productive wells	2014 Net productive wells[(a)]
Europe	Oil	370	101
	Gas	279	82
Africa	Oil	2,297	619
	Gas	158	49
Americas	Oil	961	295
	Gas	3,817	782
Middle East	Oil	5,540	355
	Gas	107	20
Asia (excl. Russia)	Oil	140	57
	Gas	2,063	732
Russia	Oil	137	31
	Gas	410	67
Total	**Oil**	**9,445**	**1,458**
	Gas	**6,834**	**1,732**

(a) *Net wells equal the sum of the Group s equity stakes in gross wells.*

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2.1.10. Number of net productive and dry wells drilled

As of December 31,		2014			2013			2012		
		Net productive wells drilled[(a)(b)]	Net dry wells drilled[(a)(c)]	Net total wells drilled[(a)(c)]	Net productive wells drilled[(a)(b)]	Net dry wells drilled[(a)(c)]	Net total wells drilled[(a)(c)]	Net productive wells drilled[(a)(b)]	Net dry wells drilled[(a)(c)]	Net total wells drilled[(a)(c)]
Exploratory	Europe	1.4	0.2	1.6	1.5	0.2	1.7	0.9	3.3	4.2
	Africa	2.0	3.3	5.3	1.5	5.1	6.6	4.9	2.8	7.7
	Americas	2.1	0.3	2.4	2.9	1.4	4.3	3.9	0.6	4.5
	Middle East	0.3	0.3	0.6	0.6	0.7	1.3			
	Asia (excl. Russia)	1.2	1.1	2.3	1.6	4.3	5.9	2.4	1.4	3.8
	Russia		0.3	0.3						
	Total	**7.0**	**5.5**	**12.5**	**8.1**	**11.7**	**19.8**	**12.1**	**8.1**	**20.2**
Development	Europe	8.8		8.8	6.9	0.3	7.2	6.0	0.7	6.7
	Africa	24.6	1.0	25.6	19.7	0.4	20.1	22.7		22.7
	Americas	128.1	0.2	128.3	98.0		98.0	70.6		70.6
	Middle East	36.1	0.2	36.3	42.7	0.3	43.0	43.3		43.3
	Asia (excl. Russia)	106.2	0.5	106.7	184.2		184.2	121.5		121.5
	Russia	28.8	0.8	29.6	13.8		13.8	6.3		6.3
	Total	**332.6**	**2.7**	**335.3**	**365.3**	**1.0**	**366.3**	**270.4**	**0.7**	**271.1**
Total		**339.6**	**8.2**	**347.8**	**373.4**	**12.7**	**386.1**	**282.5**	**8.8**	**291.3**

(a) *Net wells equal the sum of the Group s fractional interests in gross wells.*
(b) *Includes certain exploratory wells that were abandoned, but which would have been capable of producing oil in sufficient quantities to justify completion.*
(c) *For information: service wells and stratigraphic wells drilled within oil sands operations in Canada are not reported in this table (90.0 wells in 2014, 86.2 wells in 2013 and 131.7 in 2012).*

2.1.11. Wells in the process of being drilled (including wells temporarily suspended)

As of December 31,		2014	
		Gross	Net[(a)]
Exploratory	Europe	6	2.1
	Africa	32	9.6
	Americas	12	4.0
	Middle East	13	4.2
	Asia (excl. Russia)	12	3.4
	Russia		
	Total	**75**	**23.3**
Other wells[(b)]	Europe	36	13.9
	Africa	47	12.6
	Americas	370	159.3
	Middle East	128	14.0
	Asia (excl. Russia)	797	206.4
	Russia	203	32.5
	Total	**1,581**	**438.7**
Total		**1,656**	**462.0**

(a) *Net wells equal the sum of the Group s equity stakes in gross wells. Includes wells for which surface facilities permitting production have not yet been constructed. Such wells are also reported in the table Number of net productive and dry wells drilled , above, for the year in which they were drilled.*
(b) *Other wells are development wells, service wells, stratigraphic wells and extension wells.*

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2.1.12. Interests in pipelines

The table below sets forth interests of the Group s entities (excluding equity affiliates) in oil and gas pipelines as of December 31, 2014.

Pipeline(s)	Origin	Destination	% interest	Operator	Liquids	Gas
EUROPE						
Norway						
Frostpipe (inhibited)	Lille-Frigg, Froy	Oseberg	36.25		x	
Heimdal to Brae Condensate Line	Heimdal	Brae	16.76		x	
Kvitebjorn pipeline	Kvitebjorn	Mongstad	5.00		x	
Norpipe Oil	Ekofisk Treatment center	Teeside (UK)	34.93		x	
Oseberg Transport System	Oseberg, Brage and Veslefrikk	Sture	12.98		x	
Sleipner East Condensate Pipe	Sleipner East	Karsto	10.00		x	
Troll Oil Pipeline I and II	Troll B and C	Vestprosess (Mongstad refinery)	3.71		x	
Vestprosess	Kollsnes (Area E)	Vestprosess (Mongstad refinery)	5.00		x	
Polarled	Asta Hansteen/Linnorm	Nyhamna	5.11			x
The Netherlands						
Nogat pipeline	F3-FB	Den Helder	5.00			x
WGT K13-Den Helder	K13A	Den Helder	4.66			x
WGT K13-Extension	Markham	K13 (via K4/K5)	23.00			x
United Kingdom						
Alwyn Liquid Export Line	Alwyn North	Cormorant	100.00	x	x	
Bruce Liquid Export Line	Bruce	Forties (Unity)	43.25		x	
Central Graben Liquid Export Line (LEP)	Elgin-Franklin	ETAP	15.89		x	
Frigg System : UK line	Alwyn North, Bruce and others	St. Fergus (Scotland)	100.00	x		x
Ninian Pipeline System	Ninian	Sullom Voe	16.00		x	
Shearwater Elgin Area Line (SEAL)	Elgin-Franklin, Shearwater	Bacton	25.73			x
SEAL to Interconnector Link (SILK)	Bacton	Interconnector	54.66	x		x
AFRICA						
Gabon						
Mandji Pipes	Mandji fields	Cap Lopez Terminal	100.00[(a)]	x	x	
Rabi Pipes	Rabi fields	Cap Lopez Terminal	100.00[(a)]	x	x	
AMERICAS						
Argentina						
TGN	Network (Northern Argentina)		15.40			x
TGM	TGN	Uruguyana (Brazil)	32.68			x
Brazil						
TBG	Bolivia-Brazil border	Porto Alegre via São Paulo	9.67			x
ASIA-PACIFIC						
Yadana	Yadana (Myanmar)	Ban-I Tong (Thai border)	31.24	x		x
REST OF WORLD						
BTC	Baku (Azerbaijan)	Ceyhan (Turkey, Mediterranean)	5.00		x	

(a) *Interest of Total Gabon. The Group has a financial interest of 58.28% in Total Gabon.*

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2.2. Gas & Power

Gas & Power s primary objective is to contribute to the growth of the Group by ensuring sales outlets for its current and future natural gas reserves and production.

In order to optimize these gas resources, particularly liquefied natural gas (LNG), Gas & Power s activities include the trading and marketing of natural gas, LNG, liquefied petroleum gas (LPG) and electricity as well as shipping. Gas & Power also has stakes in infrastructure companies (re-gasification terminals, natural gas transport and storage, power plants) necessary to implement its strategy.

2.2.1. Liquefied natural gas

A pioneer in the LNG industry, TOTAL today is one of the world s leading players[1] in the sector and has sound and diversified positions both in the upstream and downstream portions of the LNG chain. LNG development is a key element of the Group s strategy, with TOTAL strengthening its positions in most major production zones and markets.

Through its stakes in liquefaction plants[2] located in Qatar, the United Arab Emirates, Oman, Nigeria, Norway, Yemen and Angola and its gas supply agreement with the Bontang LNG plant in Indonesia, TOTAL markets LNG in all global markets. The share of LNG production sold by TOTAL in 2014 remained stable at 12.2 Mt, (12.3 Mt in 2013). The Group s upcoming liquefaction projects, in particular in Australia and Russia, are aimed at increasing TOTAL s share of LNG sold over the coming years.

Gas & Power is responsible for LNG operations downstream from liquefaction plants. It is in charge of marketing LNG on behalf of Exploration & Production and developing the Group s downstream LNG portfolio for its trading, marketing and transport operations as well as re-gasification terminals.

2.2.1.1. Long-term Group LNG purchases

TOTAL acquires long-term LNG volumes most frequently from liquefaction plants in which the Group holds a stake. These volumes support the expansion of the Group s worldwide LNG portfolio.

In **Nigeria**, as part of the Nigeria LNG project in which the Group has a 15% interest, TOTAL signed an LNG purchase agreement, initially intended for deliveries to the United States and Europe, for 1.17 Mt/y over a 20-year period starting in 2009.

TOTAL also holds a 20.48% stake in the Brass LNG project, on which studies are ongoing for a gas liquefaction plant with two LNG trains with a capacity of about 4.5 Mt/y each. In 2006, TOTAL signed a preliminary agreement with Brass LNG Ltd setting forth the principal terms of an LNG purchase agreement for 2.15 Mt/y. This purchase agreement is subject to the final investment decision for the project.

In **Norway**, as part of the Snøhvit project, in which the Group holds an 18.4% stake, TOTAL signed in 2004 a purchase agreement for 0.78 Mt/y of LNG over a 20-year period primarily intended for North America and Europe. LNG deliveries started in 2007.

In **Qatar**, TOTAL signed purchase agreements in 2006 for up to 5.2 Mt/y of LNG from train 5 (16.7%) of Qatargas 2 over a 25-year period. This LNG was initially marketed in France, the United Kingdom and the United States. LNG deliveries started in 2009.

In **Yemen**, TOTAL signed a contract with Yemen LNG Ltd (39.62%) in 2005 to purchase 2 Mt/y of LNG over a 20-year period, initially intended for delivery to the United States and Europe. LNG deliveries started in 2009.

Since 2009, a growing part of the volume purchased by the Group pursuant to its long-term contracts related to the LNG projects mentioned above has been diverted to more buoyant Asian markets.

The new LNG sources described below are expected to support the growth of the Group s LNG portfolio.

In **Australia**, TOTAL increased its stake in the Ichthys LNG project in early 2013 from 24% to 30%. Launched in early 2012, this project involves the construction of two LNG trains, each with a capacity of 4.2 Mt/y. In addition, TOTAL signed in 2011 an LNG purchase agreement amounting to 0.9 Mt/y over a 15-year period. The start of production is scheduled for the end of 2016 and the first LNG deliveries to long-term customers are expected to start in 2017.

In **Russia**, TOTAL owns a 20% direct stake in Yamal LNG, which is developing the South Tambey gas and condensates field and building a gas liquefaction plant with three trains and an LNG production capacity of 16.5 Mt/y. The final investment decision was made in December 2013. Concurrently, TOTAL signed two LNG purchase agreements with the project, amounting respectively to 3 Mt/y over a 23-year period and 1 Mt/y over a 15-year period.

In the **United States**, TOTAL entered into an agreement in 2012 with Kogas (Korea Gas Corporation) for the purchase of 0.7 Mt/y of LNG over a 20-year period from train 3 of the Sabine Pass gas terminal in Louisiana. LNG deliveries are expected to start in 2017. At the same time, TOTAL also entered into an agreement with Sabine Pass Liquefaction LLC for the purchase of 2 Mt/y of LNG over a 20-year period from train 5 of the Sabine Pass terminal. LNG deliveries will begin on the date on which train 5 is commissioned, which is scheduled for 2019. This agreement is conditional on, among other things, the final investment decision for the project and the obtaining of export and construction permits by Sabine Pass Liquefaction LLC, the entity which owns and operates the terminal. Finally, TOTAL concluded a contract with Mitsui in 2014 for the purchase of 0.5 Mt/y of LNG from the Cameron gas terminal in Louisiana over a 10-year period starting from the date of commissioning of train 1, scheduled for 2018.

2.2.1.2. Long-term Group LNG sales

TOTAL has signed agreements for the sale of LNG from the Group s global LNG portfolio:

In **Spain**, TOTAL signed an LNG sales agreement with Cepsa Gas Comercializadora (CGC). Under this agreement, TOTAL supplies 0.74 Mt/y to CGC over a 17-year period starting from 2006.

In **China**, TOTAL signed an LNG sales agreement with China National Offshore Oil Corporation (CNOOC). Under this agreement, which became effective in 2010, TOTAL supplies up to 1 Mt/y of LNG to CNOOC over a 15-year period.

In **South Korea**, TOTAL signed an LNG sales agreement in 2011 with Kogas. Under this agreement, TOTAL will deliver up to 2 Mt/y of LNG to Kogas between 2014 and 2031.

(1) *Company data, based on upstream and downstream LNG portfolios in 2014.*
(2) *Exploration & Production is in charge of the Group s natural gas liquefaction and production operations.*

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In **Japan,** TOTAL signed an LNG sales agreement in 2011 with Inpex. Under this agreement, TOTAL will deliver up to 0.2 Mt/y of LNG to Inpex over a 15-year period. Deliveries are expected to start in 2017.

In **Singapore,** TOTAL signed an LNG sales agreement in 2014 with Pavilion. Under this agreement, TOTAL will supply up to 0.7 Mt/y of LNG to Pavilion from 2018 over a 10-year period, as well as several cargoes before 2018. This agreement is subject to Pavilion obtaining an import license.

2.2.1.3. LNG shipping

With regard to LNG transport operations, TOTAL has been using since 2006 a 145,000 m^3 capacity LNG tanker, the Arctic Lady, under a long-term charter, to ship its share of production from the Snøhvit liquefaction plant in Norway. In late 2011, TOTAL signed a second long-term contract for the chartering of a 165,000 m^3 LNG tanker, the Meridian Spirit, in order to strengthen its transport capacities with regard to its purchase commitments in Norway, as mentioned above.

The Group continues to develop its fleet. TOTAL signed a long-term charter agreement in April 2013 in this regard with SK Shipping and Marubeni for two 180,000 m^3 LNG tankers. The vessels will serve in fulfilling the purchase agreements of Total Gas & Power, including commitments relating to the Ichthys LNG project in Australia and the Sabine Pass project in the United States. These tankers, scheduled for delivery in 2017, will be among the largest to navigate the Panama Canal following the canal s expansion due to be completed in 2015.

As of December 31, 2013, the Group held a 30% stake in Gaztransport & Technigaz (GTT), which focuses mainly on the design and engineering of membrane cryogenic tanks for LNG tankers. Since then, TOTAL has sold its entire stake through the initial public offering (IPO) of GTT s shares on Euronext Paris at the end of February 2014 and through a direct sale agreement in December 2014.

2.2.2. Trading

In 2014, TOTAL continued to pursue its strategy of developing operations downstream from natural gas and LNG production. The aim of this strategy is to optimize access for the Group s current and future production to markets with long-term contracts and to markets open to international competition (with short-term contracts and spot sales). In the context of deregulated markets, which allow customers to access suppliers more freely, in turn leading to marketing arrangements that are more flexible than traditional long-term contracts, TOTAL is developing trading, marketing and logistics businesses to market its natural gas and LNG production directly to customers.

The Group also has operations in electricity trading and the marketing of LPG and coal. Furthermore, TOTAL has marketed the petcoke produced at the Port Arthur refinery in the United States since 2011 and a part of the petcoke produced at the Jubail refinery in Saudi Arabia since 2014.

Gas & Power s trading teams, which are located in London, Houston, Geneva and Singapore, conduct most of their business through the Group s wholly-owned subsidiaries Total Gas & Power, Total Gas & Power North America and Total Gas & Power Asia.

2.2.2.1. Gas and electricity

TOTAL s gas and electricity trading operations in Europe and North America sell the Group s production, supply its gas marketing subsidiaries and support other activities of the Group.

In **Europe**, TOTAL marketed 911 Bcf (25.8 Bm^3) of natural gas in 2014 compared to 1,194 Bcf (33.8 Bm^3) in 2013 and 1,488 Bcf (42.1 Bm^3) in 2012, including approximately 12.1% from its own production in 2014. TOTAL also supplied 44.8 TWh of electricity primarily from external resources in 2014, compared to 53.0 TWh in 2013 and 53.3 TWh in 2012.

In **North America**, TOTAL marketed 593 Bcf (16.8 Bm^3) of natural gas from its own production or external resources in 2014, compared to 938 Bcf (26.6 Bm^3) in 2013 and 1,256 Bcf (36 Bm^3) in 2012.

2.2.2.2. LNG

TOTAL has LNG trading operations through spot sales and fixed-term contracts as described in section 2.2.1. of this chapter. Major purchase and sale agreements have significantly helped develop the Group s LNG marketing operations, particularly in Asia s most buoyant markets: China, India, Japan, and South Korea. This spot and fixed-term LNG portfolio allows TOTAL to supply gas to its main customers worldwide, while retaining a sufficient degree of flexibility to react to market opportunities.

In 2014, TOTAL purchased 87 contractual cargoes from Qatar, Yemen, Nigeria and Norway and 7 spot cargoes from France, Trinidad & Tobago and Nigeria, compared to, respectively, 89 and 9 in 2013 and 87 and 8 in 2012.

2.2.2.3. LPG

TOTAL traded and sold approximately 5.5 Mt of LPG (butane and propane) worldwide in 2014, compared to 5.6 Mt in 2013 and 6 Mt in 2012. Approximately 20% of these quantities came from fields or refineries operated by the Group. LPG trading involved the use of 10 time charters, 290 voyages were necessary in 2014 to transport the negotiated quantities, of which 195 voyages were by TOTAL time charters, and 95 by spot charters.

2.2.2.4. Coal

TOTAL marketed 8.5 Mt of coal on the international market in 2014, the same quantity as in both 2013 and 2012. More than 70% of this coal came from South Africa. Approximately 70% of the volume was sold in Asia, where coal is used primarily to generate electricity. The remaining volume was marketed primarily in Europe.

2.2.2.5. Petcoke

TOTAL began to market the petcoke produced by the coker at the Port Arthur refinery in the United States in 2011. Approximately 1.3 Mt of petcoke was sold on the international market in 2014, compared to 1.2 Mt in 2013 and 1.1 Mt in 2012, to cement plants and electricity producers mainly in India, Turkey, Mexico, Brazil and other Latin American countries.

In 2014, TOTAL began to market the petcoke produced by the Jubail refinery in Saudi Arabia. Approximately 100 kt was sold mainly in the Asian market.

2.2.3. Marketing

To consolidate its position throughout the value chain and to leverage the synergies of the Group s other activities, TOTAL has been developing an activity to market gas as well as electricity and coal to end consumers in the United Kingdom, France, Spain, Germany, Belgium and the Netherlands.

In the **United Kingdom**, TOTAL markets gas and electricity to the industrial and commercial segments through its subsidiary Total Gas & Power Ltd. In 2014, volumes of gas sold amounted to 135 Bcf (3.8 Bm^3), compared to 142 Bcf (4.0 Bm^3) in 2013 and

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146 Bcf (4.2 Bm^3) in 2012. Sales of electricity totaled approximately 5.3 TWh in 2014, compared to 4.7 TWh in 2013 and 3.9 TWh in 2012.

In **France**, TOTAL markets natural gas through its subsidiary Total Énergie Gaz (TEGAZ), the overall sales of which were 95 Bcf (2.7 Bm^3) in 2014, compared to 141 Bcf (4.0 Bm^3) in 2013 and 176 Bcf (5.0 Bm^3) in 2012. This decrease is a consequence of TEGAZ s strategic repositioning on the SME market due to deteriorating margins and a more stringent regulatory environment. The Group also markets coal to its French customers through its subsidiary CDF Energie, with sales of approximately 0.7 Mt in 2014, compared to 0.81 Mt in 2013 and 0.97 Mt in 2012.

In **Spain**, TOTAL markets natural gas to the industrial and commercial segments through Cepsa Gas Comercializadora, in which it holds a 35% stake. In 2014, volumes of gas sold amounted to 94 Bcf (2.7 Bm^3), compared to 101 Bcf (2.9 Bm^3) in 2013 and 2012.

In **Germany**, Total Energie Gas GmbH, TOTAL s marketing subsidiary created in 2010, marketed 24 Bcf (0.7 Bm^3) of gas in 2014 to industrial and commercial customers, compared to 14 Bcf (0.4 Bm^3) in 2013 and 5 Bcf (0.15 Bm^3) in 2012.

At the end of 2012, the Group enlarged its European marketing coverage by creating two marketing subsidiaries: Total Gas & Power in **Belgium**, and Total Gas & Power Nederland B.V. in **the Netherlands**. These two subsidiaries began to market natural gas to industrial and commercial customers in 2013, whereas the marketing of electricity has not yet started. The volume of gas supplied in 2014 was not substantial.

The Group also holds stakes in the marketing companies that are associated with the Altamira and Hazira LNG re-gasification terminals located in Mexico and India, respectively.

2.2.4. Gas facilities

TOTAL holds stakes in natural gas transport networks, gas storage facilities (both liquid and gaseous) and LNG re-gasification terminals downstream from its natural gas and LNG production.

2.2.4.1. Natural gas transport, natural gas and LPG storage

In **France**, TOTAL, through its 28.05% direct stake in Géométhane, owns natural gas storage in a salt cavern in Manosque with a capacity of 10.5 Bcf (0.3 Bm^3). A 7 Bcf (0.2 Bm^3) increase in storage capacity is scheduled to be commissioned in 2018.

In **South America**, TOTAL owns interests in several natural gas transport companies in Argentina and Brazil. These natural gas transport companies face a difficult operational and financial environment in Argentina stemming from the absence of an increase in transport tariffs and restrictions imposed on gas exports. GasAndes, a company in which TOTAL held a 56.5% stake, was sold in October 2014.

In **India**, TOTAL holds a 50% stake in South Asia LPG Limited (SALPG), a company that operates an LPG import and underground storage terminal located on the east coast of the country. This cavern, the first of its kind in India, has a storage capacity of 60 kt. In 2014, inbound vessels transported 1,069 kt of LPG, compared to 940 kt in 2013 and 950 kt in 2012.

2.2.4.2. LNG re-gasification

TOTAL has entered into agreements to obtain long-term access to LNG re-gasification capacity on the three continents that are the largest consumers of natural gas: North America (United States and Mexico), Europe (France and the United Kingdom), and Asia (India). This diversified market presence allows the Group to

access new liquefaction projects by becoming a long-term buyer of a portion of the LNG produced at these plants, thereby strengthening its LNG supply portfolio.

In **France**, TOTAL holds a 27.54% stake in the company Fosmax and has, through its subsidiary Total Gas & Power Ltd., a re-gasification capacity of 78 Bcf/y (2.25 Bm^3/y). The terminal received 46 vessels in 2014, compared to 53 in 2013 and 56 in 2012.

In 2011, TOTAL acquired a 9.99% stake in Dunkerque LNG in order to develop a methane terminal project with a capacity of 459 Bcf/y (13 Bm^3/y). Trade agreements have also been signed that allow TOTAL to reserve up to 2 Bm^3/y of re-gasification capacity over a 20-year period. The project is underway and commissioning of the terminal is scheduled for the end of 2015.

In the **United Kingdom**, through its equity interest in the Qatargas 2 project, TOTAL holds an 8.35% stake in the South Hook LNG re-gasification terminal with a total capacity of 742 Bcf/y (21 Bm^3/y) and an equivalent right of use to the terminal. In 2014, the terminal re-gasified 67 cargoes, compared to 52 in 2013 and 68 in 2012.

In **Mexico**, TOTAL has reserved 25% of the capacity of the Altamira re-gasification terminal, *i.e.*, 59 Bcf/y (1.7 Bm^3/y), through its 25% stake in Gas del Litoral.

In the **United States**, TOTAL has reserved a re-gasification capacity of approximately 353 Bcf/y (10 Bm^3/y) at the Sabine Pass terminal in Louisiana over a 20-year period ending in 2029. In 2012, the Sabine Pass terminal received the authorization to export LNG from four liquefaction trains, which would involve converting the re-gasification plants into liquefaction plants in the future. As a result, TOTAL negotiated a modification to the conditions of the financial compensation owed to Cheniere, the terminal s operator, in relation to the commissioning of the successive liquefaction trains for the reservation of re-gasification capacity.

In **India**, TOTAL holds a 26% stake in the Hazira terminal, where the natural gas re-gasification capacity was increased in 2013 to 244 Bcf/y (6.9 Bm^3/y). The terminal, located on the west coast of India in Gujarat state, is a merchant terminal with operations that cover both LNG re-gasification and gas marketing. Due to the Indian market s strong prospects for growth, a potential expansion project is under study to increase the terminal s capacity to 343 Bcf/y (9.7 Bm^3/y).

2.2.5. Electricity generation

In a context of increasing global demand for electricity, TOTAL has developed expertise in the power generation sector, especially through cogeneration and combined-cycle power plant projects.

In **Abu Dhabi**, the Taweelah A1 gas-fired power plant, which is owned by Gulf Total Tractebel Power Company (20%), combines electricity generation and water desalination. The plant, in operation since 2003, currently has a net power generation capacity of 1,600 MW and a water desalination capacity of 385,000 m^3 per day. The plant s production is sold to Abu Dhabi Water and Electricity Company (ADWEC) as part of a long-term agreement.

In **Nigeria**, TOTAL holds a stake in the Afam VI power plant through its 10% interest in the Shell Petroleum Development Company (SPDC) joint venture. This plant is part of the government s plan to develop power generation and increase the share of natural gas production for domestic use.

In **Thailand**, TOTAL owns 28% of Eastern Power and Electric Company Ltd, which operates the combined-cycle gas power plant in Bang Bo with a capacity of 350 MW and has been in operation since 2003. The plant s production is sold to the Electricity Generating Authority of Thailand under a long-term agreement.

2.2.6. Coal production

For nearly thirty years, TOTAL, through its subsidiary Total Coal South Africa (TCSA), has produced and exported coal from South Africa primarily to Europe and Asia. In 2014, TCSA produced 3.3 Mt of coal.

The South African coal produced by TCSA or bought from third-parties mines is either marketed locally or exported through the port of Richard s Bay, in which TCSA holds a 4.8% interest.

In July 2014, TOTAL signed an agreement for the sale of TCSA with Exxaro, a mining company based in South Africa. The sale is pending approval of the relevant authorities. This transaction is expected to be finalized in 2015.

3. Refining & Chemicals segment

The Refining & Chemicals segment constitutes a large industrial group that encompasses refining, petrochemicals, and specialty chemicals operations. This segment was created on January 1, 2012, following the reorganization of the Downstream and Chemical segments, also includes Trading & Shipping activities.

3.1. Refining & Chemicals

Refining & Chemicals includes the Group s refining, petrochemicals and specialty chemicals businesses. The petrochemicals business includes base petrochemicals (olefins and aromatics) and polymer derivatives (polyethylene, polypropylene, polystyrene and hydrocarbon resins). The specialty chemicals business includes elastomer processing and electroplating chemistry. The volume of its Refining & Chemicals activities places TOTAL among the top ten integrated chemical producers in the world(1).

Against the backdrop of rising worldwide demand for oil and petrochemicals driven by non-OECD countries and the entry of new capacities into the market, the strategy of Refining & Chemicals, in addition to the priority given to safety and environmental protection, involves:

- adapting production capacity to changes in demand in Europe by concentrating investments on large integrated platforms;
- consolidating industrial means of production and searching for opportunities for growth in the United States; and
- strengthening TOTAL s positions in Asia and the Middle East, in particular to gain access to advantaged oil and gas feedstocks and to benefit from market growth.

This strategy is underpinned by an effort to differentiate through the technology used and innovation found in its products and processes, while pursuing portfolio management to focus on core businesses.

Since 2012, Refining & Chemicals has launched a comprehensive program to improve operational efficiency and to generate synergies between its refining and petrochemicals activities. In particular, four industrial priorities were set: safety, availability of facilities, cost control, and energy efficiency. These ongoing action plans, combined with development projects on the major integrated platforms, perimeter changes and the growth of specialty chemicals, have already boosted Refining & Chemicals results and should continue to improve the profitability of operations with the goal of making the most of the division s assets.

In December 2014, TOTAL completed the divestment of its subsidiary CCP Composites (100%), a player in the composite resins segment. In June 2013, TOTAL completed the divestment of its Fertilizers activity (Base Chemicals) in Europe, mainly through the

sale of all of its shares in GPN S.A., a leading producer of nitrogen fertilizers in France, and in the Belgian company Rosier S.A.(2)

On February 2, 2015, TOTAL finalized the divestment of its wholly-owned subsidiary Bostik, specialized in adhesive chemicals, to the Arkema group. This divestment follows the offer received in September 2014. Bostik has approximately 4,900 employees over forty-eight production sites in the world and its sales were €1.5 billion ($2 billion) in 2014.

3.1.1. Refining & Petrochemicals

TOTAL s refining capacity was 2,187 kb/d as of December 31, 2014, compared to 2,042 kb/d at year-end 2013 and 2,048 kb/d at year-end 2012. The Group s worldwide refined products sales (including trading operations) in 2014 were 3,769 kb/d, compared to 3,521 kb/d in 2013 and 3,561 kb/d in 2012.

TOTAL has equity stakes in twenty-one refineries (including nine operated by companies of the Group), located in Europe, the United States, the French West Indies, Africa, the Middle East and China.

The Refining & Chemicals segment manages the refining operations located in Europe (excluding the TotalErg joint venture in Italy), the United States, the Middle East and Asia, with a capacity of 2,098 kb/d at year-end 2014 (*i.e.*, 96% of the Group s total capacity[3]).

The petrochemicals businesses are located mainly in Europe, the United States, Qatar, South Korea and Saudi Arabia. Most of these sites are either adjacent or connected by pipelines to Group refineries. As a result, TOTAL s petrochemical operations are integrated within its refining operations.

The year 2014 was marked by the end of the startup period of the SATORP complex in Saudi Arabia, now fully operational. Through this project, approved in 2009, the Group holds a stake, alongside Saudi Aramco, in one of the most competitive refining & petrochemicals platforms in the world.

Moreover, through its equity interest in Samsung Total Petrochemicals Co. Ltd (50%), which operates the Daesan petrochemical complex, TOTAL completed the construction of two new EVA[4] and aromatics production units in 2014.

Finally, in Europe, TOTAL continued to develop its major investment project launched in 2013 on the Antwerp platform in Belgium, and completed the modernization of the Normandy

(1) *Based on publicly available information, production capacities at year-end 2013.*

(2) *The divestment did not include TOTAL s interest in Grande Paroisse S.A., through which TOTAL has retained all liabilities related to the former activities of Grande Paroisse, and in particular those related to the AZF site in Toulouse.*

(3) *Earnings related to the refining assets in Africa, the French West Indies and the TotalErg joint venture are reported in the results of the Marketing & Services segment.*

(4) *Ethylene and vinyl acetate copolymers.*

platform in France with a new desulphurization unit that started up in August 2014. In February 2015, the Group announced a plan to adapt and secure the future of its Lindsey refinery in the United Kingdom.

3.1.1.1. Europe

TOTAL is the largest refiner in Western Europe[(1)].

Western Europe accounts for 79% of the Group s refining capacity, *i.e.*, 1,736 kb/d at year-end 2014 and year-end 2013 compared to 1,742 kb/d at year-end 2012. The Group operates eight refineries in Western Europe (one in Antwerp, Belgium, five in France in Donges, Feyzin, Gonfreville, Grandpuits and La Mède, one in Immingham in the United Kingdom and one in Leuna, Germany) and owns stakes in the Schwedt refinery in Germany, the Zeeland refinery in the Netherlands and the Trecate refinery in Italy through its interest in TotalErg.

The Group s main petrochemical sites are located in Belgium, in Antwerp (steam crackers, aromatics, polyethylene) and Feluy (polyolefins, polystyrene), and in France, in Carling (steam cracker, aromatics, polyethylene, polystyrene), Feyzin (steam cracker, aromatics), Gonfreville (steam crackers, aromatics, styrene, polyolefins, polystyrene) and Lavéra (steam cracker, aromatics, polypropylene). Western Europe accounts for 50% of the Group s petrochemicals capacity, *i.e.*, 10,909 kt at year-end 2014 compared to 10,899 kt at year-end 2013 and 11,803 kt at year-end 2012. The decrease in 2013 was due essentially to the closure of one steam cracker in Antwerp.

In **France**, the Group owns five refineries and continues to adapt its refining capacities by shifting the production emphasis to diesel and improving operational efficiency against the backdrop of a structural decline in the demand for petroleum products in Europe and an increase in gasoline surpluses.

The Group implemented its industrial plan intended to reconfigure the Gonfreville refinery in Normandy, France, between 2009 and 2014 to upgrade the refinery and shift the production emphasis to diesel. For this purpose, the investments resulted in reducing the annual distillation capacity to 12 Mt from 16 Mt, upsizing the hydrocracker unit for heavy diesel cuts and improving energy efficiency by lowering carbon dioxide emissions. Most of the new configuration was rolled out at the beginning of 2013 after a complete shutdown of the refinery. The project was completed in August 2014 with the startup of a new diesel desulfurization unit. Lastly, in November 2014, the Group announced a project to modernize the specialties production scheme of the Normandy complex, including a decrease in the base oils production capacity and an investment in the linear polyethylene (LPE) production line.

At the same time, the project to modernize petrochemical operations on the Normandy platform was completed in early 2012. This project improved the energy efficiency of the steam cracker and the high-density polyethylene unit.

In petrochemicals, the Group announced an investment plan in September 2013 for the Carling platform in Lorraine, France, to adapt its capacity and restore its competitiveness. The project provides for the development of new hydrocarbon resin and polymer production activities and the shutdown of the steam cracking activity in the second half of 2015.

In **Germany**, TOTAL holds equity stakes in the Leuna (100%) and Schwedt (16.7%)[(2)] refineries.

In petrochemicals, in February 2015, the Group acquired the majority stake in Polyblend, a German manufacturer of polyolefin compounds used in the automotive industry. This acquisition will enable synergies to be developed with the Carling site, located 150 km away.

In **Belgium**, the Group announced the launch of a major project in 2013 to modernize its Antwerp platform. This project consists of two parts:

- the construction of new conversion units in response to the shift in demand towards lighter oil products with a very low sulfur content; and
- the construction of a new unit to convert part of the combustible gases recovered from the refining process into raw materials for petrochemical units.

As part of this modernization plan, two of the site s oldest production units were shut down: a steam cracker in 2013 and a polyethylene production line in November 2014.

TOTAL built a unit in Feluy, which started up in 2014, that produces latest-generation expandable polystyrene for the fast-growing insulation market.

Moreover, in 2012, TOTAL acquired 35% of Fina Antwerp Olefins, thus becoming the sole owner of Europe s second largest base petrochemicals (monomers) production plant[(3)], renamed Total Olefins Antwerp.

In the **United Kingdom**, in February 2015, TOTAL launched a plan to adapt and secure the future of its Lindsey refinery. In addition to shutting down one of the two crude distillation units and associated units, which will reduce its capacity by 5 Mt/y, the plan entails revamping the conversion block, adapting logistics operations and simplifying the refinery s organization. The initial outlay will be $50 million, followed by an investment of $220 million over the next five years for maintenance and other improvements required to comply with changing regulations.

In 2013, TOTAL shut down its 70 kt/y polystyrene production site at Stalybridge, while continuing its commercial activity for polymers.

In **Italy**, TotalErg (49%) holds a 24.45% stake in the Trecate refinery. The Rome refinery, which was wholly-owned by TotalErg, was converted into a depot in 2012.

3.1.1.2. North America

The Group s main sites are located in Texas, in Port Arthur (refinery, steam cracker), Bayport (polyethylene) and La Porte (polypropylene), and in Louisiana, in Carville (styrene, polystyrene).

Located on the same site in Port Arthur, TOTAL wholly owns a 169 kb/d capacity refinery as well as a 40% stake in a steam cracker (BASF Total Petrochemicals, BTP). The Group is working to strengthen the synergies between these two plants.

The new pipeline connecting the Port Arthur refinery with the Sun terminal in Nederland was commissioned in 2014, allowing easy access to all domestic crudes, at an advantage compared with the international market.

As a result of the investments made to adapt its furnaces and build a tenth ethane furnace, which was commissioned in March 2014,

(1) *Based on publicly available information, 2013 refining capacities.*
(2) *End 2014, the Group signed a memorandum of understanding to sell this stake in the Schwedt refinery.*
(3) *Based on publicly available information, capacities at year-end 2013.*

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Item 4 - B.3. Refining & Chemicals Segment

the BTP cracker is now able to produce more than 1 Mt/y of ethylene, including more than 85% from advantaged feedstock (mainly ethane, propane, butane). BTP thus benefits from favorable market conditions in the United States. Furthermore, TOTAL has initiated studies regarding the construction of a new ethane steam cracker on the Port Arthur site, in synergy with the refinery and BTP steam cracker. The investment decision is expected to be made in 2016.

3.1.1.3. Asia and the Middle East

TOTAL is continuing to expand in growth areas and is developing sites in countries with favorable access to raw materials.

In **Saudi Arabia**, the joint venture Saudi Aramco Total Refining and Petrochemical Company (SATORP), created in 2008 by TOTAL (37.5%) and Saudi Aramco (Saudi Arabian Oil Company, 62.5%), built and operates a 400 kb/d refinery in Jubail. Saudi Aramco plans to retain a 37.5% interest in SATORP, with the remaining 25% expected to be listed on the Saudi stock exchange. Most of the various units of SATORP were gradually commissioned in 2013 and the commercial exports of petroleum products started in September 2013. The startup phase was successfully completed in the first half of 2014 and production reached full capacity in mid-2014.

The configuration of this refinery is designed for processing heavy crudes produced in Saudi Arabia and selling fuels and other light products that meet strict specifications and that are mainly intended for export. The refinery is also integrated with petrochemical units: a 700 kt/y paraxylene unit, a 200 kt/y propylene unit, and a 140 kt/y benzene unit.

In **China**, TOTAL holds a 22.4% stake in WEPEC, a company that operates a refinery located in Dalian and that also produces polypropylene.

The Group is also active through its 200 kt/y capacity polystyrene plant in Foshan in the Guangzhou region. A new polystyrene compounds unit started up on this site in the first quarter of 2013. In September 2014, TOTAL also successfully began production on a new 200 kt/y polystyrene plant in Ningbo in the Shanghai region.

Finally, TOTAL is continuing to study a project in Inner Mongolia to produce polyolefins from coal (refer to 3.1.1.8.1. Coal to polymers , below).

In **South Korea**, TOTAL holds a 50% stake in Samsung Total Petrochemicals Co. Ltd. (STC), which operates the petrochemical complex in Daesan (condensate splitter, steam cracker, styrene, paraxylene, polyolefins). To keep up with growth in Asian markets, two major construction projects were completed in 2014, thereby doubling the site s capacity compared to 2011. The following two units were thus started up successfully in February and July 2014, respectively:

- a new EVA unit with about 240 kt/y capacity; and
- a new aromatics unit with a capacity of 1.5 Mt/y of paraxylene and benzene, the raw material of which is supplied by a new condensate splitter that also produces kerosene (1.5 Mt/y) and diesel (1.0 Mt/y).

The site s paraxylene production capacity increased as a result of these new units to 1.8 Mt/y.

In November 2014, Samsung, which holds a 50% stake in STC, announced the divestment of 81% of its interest in the SGC company, which holds of its interest in STC. This divestment is

expected to be completed by mid-2015. The Group does not expect this transaction to have a material impact on the joint venture s operations.

In **Qatar**, the Group holds interests[1] in two ethane-based steam crackers (Qapco, Ras Laffan Olefin Cracker (RLOC)) and four polyethylene lines (Qapco, Qatofin), including the Qatofin linear low-density polyethylene plant in Messaied with a capacity of 450 kt/y and a new 300 kt/y low-density polyethylene line operated by Qapco, which started up in 2012.

TOTAL holds a 10% stake in the Ras Laffan condensate refinery, which has a capacity of 146 kb/d. The construction project to double the refinery s capacity started in April 2014 and is expected to be completed in 2016. The project also includes a new diesel hydrotreating unit, which was commissioned in May 2014.

In **Singapore**, the Group sold its 95 kt/y capacity polystyrene production site in November 2014.

3.1.1.4. Crude oil refining capacity

The table below sets forth TOTAL s crude oil refining capacity[a]:

As of December 31, (kb/d)	2014	2013	2012
Nine refineries operated by Group companies:			
Normandy (100%)	247	247	247
Provence-La Mède (100%)	153	153	153
Donges (100%)	219	219	219
Feyzin (100%)	109	109	109
Grandpuits (100%)	101	101	101
Antwerp (100%)	338	338	338
Leuna (100%)	227	227	227
Lindsey Immingham (100%)	207	207	207
Port-Arthur (100%)	169	169	169
Subtotal	**1,770**	**1,770**	**1,770**
Other refineries in which the Group has equity stakes[(b)]	417	272	278
Total	**2,187**	**2,042**	**2,048**

[(a)] *Capacity data based on refinery process unit stream-day capacities under normal operating conditions, less the impact of shutdown for regular repair and maintenance activities averaged over an extended period of time.*

[(b)] *TOTAL s share in the twelve refineries in which it has equity stakes ranging from 10% to 55% (one each in the Netherlands, Germany, China, Qatar, Saudi Arabia, Italy and Martinique and five in Africa). In September 2014, TOTAL signed an agreement to sell its 50% stake in Société Anonyme de la raffinerie des Antilles (SARA) in Martinique. This transaction is subject to the approval of the relevant competition authorities.*

3.1.1.5. Refined products

The table below sets forth by product category TOTAL s net share of refined quantities produced at the Group s refineries[(a)]

(kb/d)	2014	2013	2012
Gasoline	344	340	351
Aviation fuel[(b)]	148	146	153
Diesel and heating oils	787	739	734
Heavy fuels	134	133	160
Other products	329	322	338
Total	**1,742**	**1,680**	**1,736**

[(a)] *For refineries not 100% owned by TOTAL, the production shown is TOTAL s equity share of the site s overall production.*

[(b)] *Avgas, jet fuel and kerosene.*

[(1)] *TOTAL interests: Qapco (20%); Qatofin (49%); RLOC (22.5%).*

3.1.1.6. *Utilization rate*

The tables below(1) set forth the utilization rate of the Group s refineries:

On crude and other feedstock[(a)(b)]	2014	2013	2012
France	77%	78%	82%
Rest of Europe	88%	87%	88%
Americas	106%	100%	99%
Asia and the Middle East	50%	75%	67%
Africa	77%	78%	75%
Average	**81%**	**84%**	**86%**

(a) *Including equity share of refineries in which the Group has a stake.*

(b) *Crude + crackers feedstock/capacity and distillation at the beginning of the year (2014: SATORP s capacity included from January 1).*

On crude[(a)(b)]	2014	2013	2012
Average	**77%**	**80%**	**82%**

(a) *Including equity share of refineries in which the Group has a stake.*

(b) *Crude/distillation capacity at the beginning of the year (2014: SATORP s capacity included from January 1).*

3.1.1.7. *Petrochemicals: breakdown of TOTAL s main production capacities*

	2014				2013	2012
As of December 31, (in thousands of tons)	Europe	North America	Asia and Middle East[(a)]	Worldwide	Worldwide	Worldwide
Olefins[(b)]	4,949	1,345	1,498	7,791	7,654	8,039
Aromatics[(c)]	2,893	1,512	2,368	6,773	5,635	5,795
Polyethylene	1,120	445	773	2,338	2,289	2,239
Polypropylene	1,350	1,200	400	2,950	2,895	2,875
Polystyrene	597	700	508	1,805	1,530	1,595
Other[(d)]			63	63	63	358
Total	**10,909**	**5,202**	**5,609**	**21,720**	**20,065**	**20,900**

(a) *Including interests in Qatar, 50% of Samsung Total Petrochemicals Co. Ltd. and 37.5% of SATORP in Saudi Arabia.*

(b) *Ethylene + propylene + butadiene.*

(c) *Including monomer Styrene.*

(d) *Mainly monoethylene glycol (MEG) and cyclohexane.*

3.1.1.8. *Development of new avenues for the production of fuels and polymers*

In addition to optimizing existing processes, TOTAL is exploring new ways for monetizing carbon resources, conventional or otherwise (natural gas, coal, biomass, waste). A number of innovative projects are being examined that entail defining access to the resource (nature, location, supply method, transport), the nature of the molecules and target markets (fuels, lubricants, petrochemicals, specialty chemicals), and the most appropriate, efficient and environmentally-friendly conversion processes.

3.1.1.8.1. *Coal to polymers*

TOTAL has developed know-how in the various processes used to convert coal into higher value products by gasification. These efforts allow a better understanding of the technological issues specific to each targeted market (*e.g.*, fuels through Fischer-Tropsch process, methanol, or syngas), particularly in terms of energy optimization, water consumption and carbon capture.

TOTAL is studying a coal-to-olefin (CTO) conversion project that would be located in Inner Mongolia in China in partnership with the China Power Investment Corporation utility company. This project, with a capacity of about 800 kt/y of olefins, would use the innovative methanol-to-olefins/olefins cracking process (MTO/OCP), which the Group successfully tested in 2013 on a demonstration unit at Feluy, Belgium. The Chinese authorities gave their initial approval of the project in November 2013. The project anticipates submitting its environmental impact assessment to the Ministry of the Environment mid-2015, followed by the start of its FEED studies.

3.1.1.8.2. Natural gas to liquids

TOTAL continues to develop its know-how in the conversion of natural gas to fuel. For large-scale projects (more than 10 kboe/d), TOTAL is consolidating its know-how in the most efficient conversion processes and is studying innovative potential routes of gas monetization. TOTAL is also conducting research into small-scale concepts, such as flared gas solutions.

3.1.1.8.3. Biomass to polymers

TOTAL is involved in the development of processes dedicated or related to the conversion of biomass to polymers. The main area of focus is the development of a polylactic acid (PLA) production technology through Futerro, a joint venture with Galactic, a lactic acid producer, as well as developing a technology for dehydration of bio-alcohols into olefins (monomers for the manufacture of large conventional polymers), in collaboration with IFPen/Axens. Several projects are under study based on these technologies.

3.1.1.8.4. Biomass to fuels

In Europe, TOTAL produces biofuel, namely hydrogenated vegetable oils for incorporation into diesel, and ether produced from ethanol and isobutene for incorporation into gasoline.

TOTAL is a member of the BioTFuel consortium, the objective of which is to develop a chain for converting lignocellulose into fungible, sulfur-free liquid products through gasification and synthesis using the Fischer-Tropsch process. To benefit from economies of scale, it is envisaged to convert lignocellulosic feedstock into a blend with fossil fuel resources. This development

(1) *NB: Ras Laffan refinery contribution is included in utilization rates from 2013.*

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involves an initial pilot demonstration phase located on the Dunkirk site in France for which construction was started in September 2014.

In 2014, the Group incorporated:

in gasoline, 473 kt of ethanol[(1)] at its European refineries and several depots[(2)]; and
in diesel, 1,800 kt of VOME or HVO[(3)] at its European refineries and several depots[(2)].

3.1.2. Specialty chemicals

The specialty chemicals businesses include elastomer processing (Hutchinson) and electroplating chemistry (Atotech). They primarily serve the automotive, construction, electronics, aerospace and convenience goods markets, for which marketing strategy, innovation and customer service are key drivers. TOTAL markets specialty products in more than sixty countries and intends to develop by combining organic growth and targeted acquisitions. This development is focused on high-growth markets and the marketing of innovative products with high added value that meet the Group s sustainable development approach.

In 2014, consolidated worldwide sales of specialty chemicals activities (excluding Bostik) totaled €4.4 billion ($5.9 billion), a 6% increase compared to 2013 and up 7% compared to 2012.

On February 2, 2015, TOTAL finalized the divestment of its wholly-owned subsidiary Bostik, specialized in adhesive chemicals, to the Arkema group. This divestment follows the offer received from Arkema in September 2014. Bostik counts approximately 4,900 employees over forty-eight global production sites with sales of €1.5 billion ($2 billion) in 2014.

3.1.2.1. Elastomer processing

Hutchinson designs and provides innovative and tailor-made solutions to support automotive and aircraft manufacturers and major industries (defense, energy) across the world. Among the industry s leaders worldwide[(4)], the company mainly develops anti-vibration and fluid management systems as well as sealing solutions that combine performance and energy efficiency.

Hutchinson has more than ninety production sites and 28,900 employees across the world to cater to its customers.

Hutchinson s sales were €3.5 billion in 2014 ($4.6 billion), up 6% compared to 2013.

This growth was due to the strong performance of the world s automotive markets, especially German and Asian manufacturers. In July 2013, Hutchinson entered into a joint venture with the Japanese company, Nichirin, in the automobile brake hose segment at Palamos in Spain.

In 2014, Hutchinson also performed well on its other markets, particularly civil aeronautics and helicopters. To consolidate its position, at the end of 2012, Hutchinson acquired Marquez, a

Canadian company specializing in composite air-conditioning circuits. Moreover, to enhance its product portfolio for the oil and gas industry, Hutchinson acquired Gasket International in July 2013, a company that specializes in the production of sealing parts for valves.

Since 2014, all Hutchinson entities that previously operated under twenty-six different brand names have been marketed under a unique Hutchinson brand name for greater consistency and visibility.

3.1.2.2. Electroplating

Atotech is the leading company in the electroplating sector based on worldwide sales[(4)]. It is active in the markets for electronics (printed circuits, semiconductors) and general surface treatments (automotive, construction, furnishing).

Atotech has seventeen production sites worldwide, including seven in Asia, six in Europe, three in North America and one in South America.

The company s sales totaled €0.95 billion in 2014 ($1.3 billion), up by 7% compared to 2013, primarily due to the growth in sales of electroplating equipment for the electronics market.

In 2014, Atotech successfully pursued its strategy to differentiate its products through a comprehensive service provided to its customers in terms of equipment, processes, design of facilities and chemical products and through the development of green, innovative technologies to reduce environmental footprint. This strategy relies on global coverage provided by its technical centers located near customers.

Atotech intends to continue to grow in Asia, which already represents approximately 67% of its global sales.

In order to strengthen its position in the electronics market, Atotech plans to increase and modernize its production capacity in Asia with two major projects in Malaysia and China. By relocating production as close as possible to its markets, these two projects are also part of its cost-cutting strategy.

3.2. Trading & Shipping

Trading & Shipping focuses on serving the Group by:

- selling and marketing the Group s crude oil production;
- providing a supply of crude oil for the Group s refineries;
- importing and exporting the appropriate petroleum and refined products for the Group s refineries to be able to adjust their production to the needs of local markets;
- chartering appropriate ships for these activities; and
- undertaking trading on various derivatives markets.

Trading & Shipping conducts its activities worldwide through various wholly-owned subsidiaries, including TOTSA Total Oil Trading S.A., Atlantic Trading & Marketing Inc., Total Trading Asia Pte, Total Trading and Marketing Canada L.P., Total European Trading, and Chartering & Shipping Services S.A.

(1) Including ethanol from ETBE (ethyl-tertio-butyl-ether) and biomethanol from bio-MTBE (methyl-tertio-butyl-ether), expressed in ethanol equivalent and biomethanol. Reference for bio content of ETBE and bio-MTBE is the EU Renewable Energy Directive.
(2) Zeeland refinery included (TOTAL share).
(3) VOME: vegetable-oil-methyl-ester. HVO: hydrotreated vegetable oil.
(4) Based on publicly available information, 2014 consolidated sales.

3.2.1. Trading

TOTAL is one of the world s largest traders of crude oil and refined products on the basis of volumes traded. Trading of physical volumes of crude oil and refined products amounted to 4.9 Mb/d in 2014.

The table below sets forth selected information for each of the past three years with respect to Trading s worldwide crude oil sales and supply sources, and refined products sales.

Trading s crude oil sales and supply and refined products sales[a]

(kb/d)	2014	2013	2012
Group s worldwide liquids production	**1,034**	**1,167**	**1,220**
Purchased by Trading from Exploration & Production	791	916	976
Purchased by Trading from external suppliers	2,227	1,994	1,904
Total of Trading s supply	**3,018**	**2,910**	**2,880**
Sales by Trading to Refining & Chemicals and Marketing & Services segments	1,520	1,556	1,569
Sales by Trading to external customers	1,498	1,354	1,311
Total of Trading s sales	**3,018**	**2,910**	**2,880**
Total of Trading s refined products sales	**1,854**	**1,628**	**1,608**

(a) *Including condensates.*

Trading operates extensively on physical and derivatives markets, both organized and over the counter. In connection with its trading activities, TOTAL, like most other oil companies, uses derivative energy instruments (futures, forwards, swaps and options) with the aim of adjusting its exposure to fluctuations in the price of crude oil and refined products. These transactions are entered into with various counterparties.

For additional information concerning derivatives transactions by Trading & Shipping, see Notes 30 (Financial instruments related to commodity contracts) and 31 (Market risks) to the Consolidated Financial Statements.

All of TOTAL s Trading activities are subject to strict internal controls and trading limits.

		2014	2013	2012	2014/13	min 2014		max 2014	
Brent ICE 1st Line[a]	($/b)	99.45	108.70	111.68	-8.5%	57.33	(Dec 29)	115.06	(Jun 19)
Brent ICE 12th Line[b]	($/b)	98.30	103.04	106.66	-4.6%	65.50	(Dec 16)	109.19	(Jun 24)
Backwardation time structure (12th 1st)	($/b)	1.15	5.67	5.01	-79.7%	7.00	(Jun 13)	-8.37	(Dec 30)
WTI NYMEX 1st Line[a]	($/b)	92.91	98.05	94.15	-5.2%	53.27	(Jun 24)	107.26	(Jan 02)
WTI vs. Brent 1st Line	($/b)	-6.54	-10.66	-17.53	-38.7%	-14.95	(Jan 13)	1.11	(Nov 27)
Gasoil ICE 1st Line[a]	($/t)	840.09	918.98	953.42	-8.6%	512.25	(Dec 30)	940.75	(Jan 01)
ICE Gasoil vs ICE Brent	($/b)	13.31	14.65	16.30	-9.1%	6.85	(Jun 12)	18.00	(Nov 28)
VLCC Ras Tanura Chiba BITR[c]	($/t)	13.32	11.83	12.82	12.7%	8.98	(May 30)	22.64	(Dec 17)

(a) *1st Line: prices on ICE (Intercontinental Exchange) or NYMEX (New York Mercantile Exchange) Futures for delivery in month M+1.*

(b) *12th Line: prices on ICE Futures for delivery in month M+12.*
(c) *VLCC: Very Large Crude Carrier. BITR: Baltic International Tanker Routes.*

In 2014, the activities of Trading were affected by the economic environment and the world oil market situation as described below.

The increasing surplus supply in the world oil market led to a steady drop in prices from mid-year, decreasing by more than 40% by the end of December. The surplus caused crude prices to flip from backwardation[1] in the first half of the year to contango thereafter. The surplus resulted from continued strong growth in North American oil production in 2014, which substantially outstripped weak growth in global oil demand. North America accelerated the construction of infrastructure (pipelines and rail networks) to move rising supply from the center of the continent and the southwest of Texas to refineries located on the American coast of the Gulf of Mexico and the east coast of the United States.

In a less favorable world economic context, the growth in world demand for oil slowed from +1.2 Mb/d[2] in 2013 to +0.5 Mb/d[2] in 2014, due notably to slower growth in natural gas liquids (NGL) demand in the United States and slower growth in demand for

gasoil east of the Suez and in Europe, as well as the slowdown in the growth in demand for gasoline in the United States and the Middle East. Demand for fuel oil continued its decline both in onshore uses and in marine bunkers. The wave of extreme cold that gripped North America in the first quarter of 2014 stimulated demand for heating oil but depressed demand for other products (notably NGL) as the cold-snap slowed economic activity. In Europe, the mild temperatures recorded in the first quarter of 2014 decreased heating oil consumption. The slowdown in economic activity and the drop in coal mining and related transportation of coal led to a decline in the use of diesel in China. In the Middle East, diesel and gasoline consumption fell as the conflict in northern Iraq interrupted supply to local consumers.

Estimated global oil supply increased to +1.6 Mb/d in 2014 compared to +0.6 Mb/d in 2013. Non-OPEC production grew by approximately +1.9 Mb/d, with an increase of +1.6 Mb/d in North America (United States, Canada and Mexico), +0.2 Mb/d in Latin America, and +0.1 Mb/d in the North Sea. In the other regions,

(1) *Backwardation is a term used to describe an energy market in which the value of the spot, or prompt, price is higher than the value of the forward or futures contracts trading concurrently. The reverse situation is referred to as contango.*
(2) *TOTAL estimates.*

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production either declined or stagnated. Overall OPEC crude oil production continued to contract (-0.3 Mb/d compared with -1.0 Mb/d in 2013), as the losses recorded in Libya and Iraq were not offset by the increases generated in other member countries. During most of the year, crude oil production capacity of approximately 2.5 Mb/d was rendered unavailable in several OPEC and non-OPEC countries by political tensions, conflicts and sanctions imposed on certain countries. Saudi production, at approximately 9.6 Mb/d, was stable in 2014 compared to 2013.

As supply growth greatly exceeded demand growth in 2014, surplus supply *vis-à-vis* demand increased to reach approximately +1.0 Mb/d versus +0.1 Mb/d in 2013. This imbalance contributed to the fall in prices in the second half of the year.

In the first half of the year, prompt prices for Brent ICE (1st line) fluctuated primarily between \$105/b and \$110/b, peaking at \$115.1/b in mid-June and averaging around \$109/b. Subsequently, Brent ICE prices fell steadily, reaching \$57.3/b on December 31 and this drop continued in January 2015 before climbing back to \$60/b in February. As prices declined, the ICE Brent price structure flipped from backwardation to contango, supporting commercial storage of crude and better refinery margins in the second half of 2014.

The continuing development of rail and pipeline infrastructure in the United States to move the increasing supply surplus from the mid-continent to refineries on the coasts contributed to a marked contraction in the price spread between WTI and Brent in 2014

(from -\$10.7/b in 2013 to -\$6.5/b in 2014). In 2014, the launch between January and April of the Marketlink pipeline connecting Cushing (Oklahoma) to the Gulf of Mexico in Texas and the commissioning in the third and fourth quarters of other pipelines in the Permian region in west Texas to the Gulf of Mexico helped restore balance to the crude market in the center of the United States. WTI was discounted by only -\$3.9/b vs. Brent in the fourth quarter of 2014.

While global refining capacity grew by approximately +1.3 Mb/d in 2014, estimated crude throughputs increased by only about +0.6 Mb/d, held back by the slowdown in demand growth and weaker refining margins outside of North America in the first half of the year. Margins increased with the flip in crude oil prices to contango, leading to a slight growth in throughputs in the second half of 2014 compared to 2013. Most new refining capacity was concentrated in China (+0.9 Mb/d) and the Middle East (+0.5 Mb/d). Structurally robust, refining margins in the United States pushed local refineries to maximize their throughputs to reach exceptionally high operating rates, which supported a high level of diesel exports. The ICE gasoil premium to Brent in northwest Europe began the year at a sustained level due to the wave of extreme cold in North America, but then deteriorated considerably in mid-year due to the weakness in demand and substantial international supply. It closed the year much stronger as demand improved late in the year while refinery maintenance tightened supply.

3.2.2. Shipping

The transportation of crude oil and refined products necessary for the activities of the Group is coordinated by Shipping. These requirements are fulfilled through balanced use of the spot and time-charter markets. Shipping maintains a rigorous safety policy, mainly through a strict selection of chartered vessels. Like a certain number of other oil companies and ship owners, in its Shipping activity the Group uses freight rate derivative contracts to adjust its exposure to freight rate fluctuations.

In 2014, Shipping chartered nearly 3,000 voyages to transport approximately 122 Mt of crude oil and refined products, compared to 115 Mt in 2013. As of December 31, 2014, Shipping employed a fleet of forty-eight vessels (including seven LPG carriers), none of which were single-hulled, that were chartered under long-term or medium-term agreements. The fleet has an average age of less than six years.

Freight rate averages of three representative routes for crude transportation

		2014	2013	2012	min 2014		max 2014	
VLCC Ras Tanura Chiba BITR[a]	(\$/t)	13.32	11.83	12.82	8.98	(May 30)	22.64	(Dec 17)
Suezmax Bonny Philadelphia BITR	(\$/t)	16.29	13.41	14.44	11.36	(Feb 13)	31.83	(Nov 19)
Aframax Sullom Voe Wilhemshaven BITR	(\$/t)	8.46	7.02	6.48	6.44	(Mar 7)	17.01	(Jan 22)

(a) *VLCC: Very Large Crude Carrier. BITR : Baltic International Tanker Routes.*

In 2014, the shipping market witnessed a positive turnaround in oil transport activities, especially for larger crude and product tankers. Conditions were less favorable, meanwhile, for medium-sized petroleum product carriers, although year-end brought a slight improvement to the economic environment. During the second half of 2014, marine bunker prices, driven by decreasing crude prices, substantially dropped, which considerably improved ship owners results. However, transport costs benefited little from this situation.

After contracting in 2013, global demand for the transport of crude oil maintained the same level in 2014. The decrease in North American imports, driven by the sharp increase in domestic production, was once again offset by the growing transport needs in Asia. This continent continued to diversify its supplies from more distant regions (South America, West Africa). At the same time, the

growth in the fleet slowed to a level that had not been seen for many years. This context rebalanced supply and demand and resulted in a return to high volatility and freight rates that were, on average, higher than in 2013.

The situation in the petroleum product maritime shipping market continued to be good overall for larger vessels, which benefited from the lengthening of trips. On the one hand, arbitrages in favor of routes to Asia, particularly the flows of naphtha from Europe which continued at the same pace as in 2013, and on the other hand, exports from new Middle-East and Far-East refineries, contributed to a strong growth in demand. The freight rates were somewhat weaker for medium-size product carriers due to the delivery of many new tankers.

4. Marketing & Services segment

The Marketing & Services segment was created on January 1, 2012, following the reorganization of the Downstream and Chemicals segments, and includes worldwide supply and marketing activities in the oil products field, as well as, since July 1, 2012, the activity of New Energies.[1]

4.1. Marketing & Services

Since January 1, 2012, the Marketing & Services (M&S) business segment has been a coherent structure dedicated to the development of TOTAL s oil products distribution activities (and related services) throughout the world. Present in more than 150 countries[2], M&S relays TOTAL s brand image to its customers, both private and professional. TOTAL s highly visible, innovative and assertive lineup of solutions is presented to its customers through large advertising campaigns, substantial R&D expenses and an ambitious digital transformation plan.

M&S follows a proactive, primarily organic, development strategy involving a geographic repositioning towards high-growth areas. This repositioning is accelerated by the sale of certain business activities in Europe (sale in progress of the LPG marketing subsidiary in France and the LPG/commercial sales activity in Switzerland).

TOTAL is one of the leading distributors of petroleum products in Western Europe[3] and the leading distributor[4] on the African continent.

M&S three main areas of activity are:

- A network of slightly more than 15,500 service stations. M&S aims to consolidate its market share in the mature areas of Western Europe and further develop its position in high-growth markets. The network s market share in Africa increased from 15% in 2012 to 18% in 2014;
- The production and sales of lubricants, areas in which M&S is expanding its partnerships internationally to support growth. The M&S global market share has increased from 4.2% in 2012 to 4.5%[5] in 2014; and
- The distribution of products and services for professional markets: M&S is a major player in the market for jet fuel, special fluids, bitumen, heavy fuel oils, marine bunker and LPG.

As part of its activities, M&S holds stakes in five refineries in Africa, one in Europe through its share in TotalErg (49%) and one in the Caribbean through its 50% stake in SARA (Société anonyme de la raffinerie des Antilles), which is in the process of being sold.

4.1.1. Sales of refined products

The following table presents the Group s refined products sales by geographic area:

(kb/d)	2014	2013	2012
Europe	1,100	1,139	1,160
France	*547*	*575*	*566*
Europe, excluding France	*553*	*564*	*594*
Americas	78	86	53
Africa	380	326	307
Rest of the World[a]	211	198	190

Total excluding international trading and refinery bulk sales	**1,769**	**1,749**	**1,710**
International trading	1,385	1,155	1,161
Refinery bulk sales[b]	615	617	690
Total including international trading and refinery bulk sales	**3,769**	**3,521**	**3,561**

[a] *Includes Asia-Pacific and Middle East.*
[b] *Data for UK procurement/exchange reprocessed for 2012 and 2013.*

For data on biofuels, refer to 3. Refining & Chemicals segment 1.1.8. Development of new avenues for the production of fuels and polymers , above.

[1] *As a result of the reorganization, certain information has been restated.*
[2] *Including via national distributors.*
[3] *Publicly available information, based on quantities sold in 2014.*
[4] *PFC Energy and Company data 2014.*
[5] *Company data.*

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4.1.2. Service stations

The table below sets forth the number of Group service stations:

As of December 31,	2014	2013	2012
Europe[(a)]	8,557	8,875	9,111
France[(b)]	*3,727*	*3,813*	*3,911*
Europe, excluding France	*4,830*	*5,062*	*5,200*
of which TotalErg	*2,749*	*3,017*	*3,161*
Africa	3,991	3,726	3,601
Rest of the world[(c)]	2,281	2,219	2,013
AS24 network	740	731	700
Total	**15,569**	**15,551**	**15,425**

(a) *Excluding AS24 network.*
(b) *TOTAL, Total Access, Elf and Elan-branded service stations.*
(c) *Including the Americas, Asia-Pacific and the Middle East.*

4.1.3. Europe

In Europe, the Group continues to optimize its Marketing activities while growing in growth markets and segments.

In **Western Europe**, TOTAL has a network of more than 8,500 service stations[(1)] spread over France, Belgium, the Netherlands, Luxembourg, Germany and Italy. TOTAL is regaining market share in these areas (+1%[(2)] over the 2012-2014 period) by developing an innovative and diversified line of products and services.

In **France**, the dense retail network includes 1,570 TOTAL-branded service stations, more than 650 Total Access stations (service station concept combining low prices and premium TOTAL-branded fuels and services) and approximately 1,500 Elan service stations, which are located mainly in rural areas. Since its launch in 2011, Total Access has led to the Group regaining more than 2%[(2)] market share.

In addition, TOTAL offers an expanded fuel and service offering to 131,000 vehicle fleets (*i.e.*, 1.9 million GR card holders).

TOTAL holds stakes in twenty-eight depots in France, five of which are operated by Group companies.

In **Germany**, TOTAL is the country s fourth largest operator and continues to expand its network. With more than 1,160 service stations at year-end 2014, the Group has gained 1% in market share in two years.

In **Italy**, TOTAL holds a 49% stake in TotalErg, which is the country s fourth largest operator with close to 2,800 service stations. As part of an asset optimization strategy, TotalErg ceased production at its Rome refinery in late 2012 and subsequently converted that site into a logistics hub for petroleum products storage.

To distribute its specialty products, the Group benefits from an extensive network in Europe and relies on numerous industrial facilities to produce lubricants (mainly Rouen in France and Ertvelde in Belgium), special fluids (Oudalle in France) and bitumen (Brunsbüttel in Germany).

In **Northern, Central and Eastern Europe**, TOTAL accelerated the growth of its positions in 2014 in the growing markets of Eastern Europe, especially for lubricants and specialty bitumen products.

In Europe, the Group is a major player in the market for fuel-payment cards, with nearly 3.3 million cards issued.

With the AS24 card, TOTAL has a dedicated offering for the heavy-duty vehicles segment in twenty-nine European countries. Bolstered by a network of more than 740 service stations, AS24 is expected to continue to grow primarily through expansion in the Mediterranean basin and Eastern Europe and through its toll payment card service, which covers nearly twenty countries.

4.1.4. Africa and the Middle East

TOTAL is the leading marketer of petroleum products on the African continent and select Middle Eastern countries, with a market share averaging 16%[3] in 2014. The Group s networks in these high-growth markets grew from 4,500 service stations in 2013 to 4,800 in 2014, spread over close to fifty countries. The Group operates major networks in South Africa, Turkey, Nigeria, Kenya, Egypt and Morocco.

In **Egypt**, TOTAL acquired the Shell and Chevron service station networks and wholesale business in 2013, allowing the Group to become in 2014 the second largest private operator in Africa s largest market, with a 14% network market share[4].

In **Jordan**, TOTAL continued developing its service station network and wholesale business following its acquisition of a distribution license in 2012, enabling the Group to reach a market share of 33.8%[2] in 2014 (159 service stations).

In **Côte d Ivoire**, **Senegal** and **Burkina Faso**, M&S acquired in 2014 the networks of independent oil and gas companies to increase its market share in these countries.

Finally, to strengthen its local presence, M&S began a process of opening up the share capital of select subsidiaries to regional investors, particularly in Morocco and Senegal.

TOTAL is pursuing a strategy for growth in specialty products markets in Africa and the Middle East. M&S, which relies in

(1) *Excluding AS24 network.*
(2) *Company data.*
(3) *Market share in the countries where the Group operates, based on 2013 publicly available information on quantities sold.*
(4) *PFC Energy 2013.*

particular on a lubricants blending plant in Dubai, started up new plants of this type in Egypt in 2012 and in Saudi Arabia in 2013.

Moreover, TOTAL has become a leading partner for mining customers in Africa by delivering supply chain and management solutions for fuels and lubricants.

Finally, TOTAL continued to develop its *Awango by Total* solar solutions, expanding this line to four new countries on the African continent in 2014 (for additional information, refer to C. Other Matters 7.3.4.7. Developing the *Awango by Total* offer , below).

4.1.5. Asia-Pacific

At year-end 2014, TOTAL was present in more than twenty countries in the Asia-Pacific region and continues to strengthen its position in the distribution of fuels and specialty products. TOTAL operates service station networks in China, Pakistan, the Philippines, Cambodia and Indonesia, and is a significant player in the Pacific islands. The Group s network continued to grow, reaching slightly more than 1,000 service stations at year-end 2014. Ground transportation lubricant sales in the area increased by 2.5% in 2014 compared with 2013.

In **China**, the Group was operating approximately 200 service stations at year-end 2014 through two joint ventures with Sinochem and a wholly-owned subsidiary. In October 2013, the Group opened its third lubricants blending plant in China. Located in Tianjin, this state-of-the-art plant has a capacity of 200 kt/y.

In **Pakistan**, TOTAL, with its local partner PARCO, is in the process of acquiring Chevron s distribution network. This acquisition should expand TOTAL s network by more than 500 service stations and strengthen the Group s distribution and logistics capacities in Pakistan.

In **Singapore**, one of the Group s largest lubricants blending plants, featuring a capacity of 310 kt/y, is currently under construction. Operations are scheduled to start in mid-2015.

In **India**, TOTAL continued to strengthen its positions in the lubricants and LPG sectors with the expansion of its LPG network to 48 stations. In 2012, TOTAL inaugurated its first lubricants, bitumen, special fluids and additives technical center outside of Europe.

In **Vietnam**, TOTAL continued to strengthen its presence in the specialty products market. The Group became one of the leaders in the Vietnamese LPG market with the acquisition of Vinagas in 2012.

4.1.6. Americas

In the **Americas**, TOTAL is active directly in more than twenty countries and indirectly (via distributors) in approximately twenty additional countries. TOTAL operates a large number of industrial units in these countries including, in particular, the production of lubricants and the storage and bottling of LPG. In addition, since 2012, the Group has opened new distribution subsidiaries in Colombia, Peru and the Dominican Republic, in 2012, 2013 and 2014, respectively.

In the **Caribbean**, the Group operates on several islands and has a significant position in the fuel distribution business with more than 400 service stations.

In **Latin America**, TOTAL continues to pursue its specialty products (primarily lubricants and special fluids) growth strategy.

In the **United States** and **Canada**, TOTAL mainly markets specialty products, particularly lubricants, jet fuels and special

fluids. To strengthen its special fluids business, the Group took on a project to build a special fluids production plant near Houston, Texas, which is expected to be operational in 2015.

4.1.7. Product and services developments

In 2014, TOTAL continued its technical partnerships in racing, in particular with Renault (Renault Sport F1) and PSA Citroën (WRC and WTCC). These partnerships demonstrate TOTAL s technical excellence in the formulation of fuels and lubricants under extreme conditions and requirements to reduce fuel consumption. At end-2014, TOTAL and Renault renewed their global partnership for the next five years, in the areas of R&D, business relations with Renault after-sales networks and Formula 1.

In order to respond to developments in world markets and prepare tomorrow s growth opportunities, TOTAL develops energy solutions in collaboration with its consumer and professional customers that optimize their energy bills, such as the Total Écosolutions product and service label (refer to C. Other Matters 7.2.2.4. Sustainable use of resources , below). These solutions integrate a diversified range of energy sources (fuels, gas, photovoltaics and wood pellets, the sales capacities of which increased in Europe in 2014) as well as consumption auditing, monitoring and management services. In 2012, TOTAL launched the Tenag joint venture in Germany, in which the Group holds 49%, and in 2014 acquired BHC Energy in France, both devoted to energy efficiency.

TOTAL also supports the development of alternative fuels other than conventional fossil energies:

Hydrogen: Through its Clean Energy Partnership (CEP) in Germany, TOTAL participates in the development of a network of hydrogen stations with the goal of developing fifty hydrogen stations by year-end 2015. In addition, TOTAL and its partners in the *H2 Mobility Germany*[(1)] initiative signed an agreement to create a joint venture with the aim of constructing a network of approximately 400 hydrogen stations by 2023, subject to deployment of more than 250,000 fuel-cell electric vehicles.
Electro-mobility: TOTAL has approximately twenty prototype electric vehicle refueling stations in the Netherlands, Belgium and Germany. The development and demonstration of the distribution of electricity (fast charge) intended for electric vehicles continued in 2014 in TOTAL s European subsidiaries through industrial partnerships with Renault, Nissan, BMW, Volkswagen, EDF and Tesla.
LNG: TOTAL s European subsidiaries continued to monitor the potential of LNG as a fuel for heavy duty vehicles in 2014.

4.2. New Energies

New Energies is committed to developing renewable energies that will, in combination with hydrocarbons, help respond to the challenge of climate change by developing a diversified energy mix while also generating lower CO_2 emissions. To this end, TOTAL is focusing on two main themes of development: solar energy, which benefits from unlimited energy resources, particularly in certain geographical areas where the Group has a significant presence, and the conversion of biomass through biotechnology, which aims to develop new biosourced product solutions for transport and chemicals. In addition, the Group actively monitors other renewable energies it does not currently prioritize for development.

(1) *Daimler, Shell, OMV, Air Liquide and Linde.*

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Item 4 - B.4. Marketing & Services Segment

4.2.1. Solar energy

TOTAL is developing upstream operations through industrial production and downstream marketing activities in the photovoltaic sector based on crystalline silicon technology. The Group is furthermore pursuing R&D investments in this field through several industrial and academic partnerships.

Photovoltaic solar energy has come of age and its growth is accelerating. The steady reduction in photovoltaic electricity costs is increasing solar competitiveness in an ever-growing number of markets, in solar farms and residential and commercial applications.

4.2.1.1. SunPower

As of December 31, 2014, TOTAL held 59.77% of SunPower, an American company listed on NASDAQ and based in San Jose, California. SunPower is an integrated player that designs, manufactures and supplies cells as well as the highest-efficiency crystalline silicon-based solar panels in the market. SunPower is also active in the design and construction of large turnkey power plants and the marketing of integrated solar solutions for decentralized electricity generation.

Upstream, SunPower manufactures all of its cells in Asia (Philippines, Malaysia) and has a total production capacity of 1,300 MW/y. The company is constantly optimizing its production to reduce costs while maintaining its technological leadership through its significant R&D program. The cells are assembled into modules, or solar panels, in plants located in Asia, the United States, Mexico, Europe and South Africa. A 350 MW/y expansion in capacity was approved at the end of 2013 for a production start-up in 2015.

Downstream, SunPower markets its panels worldwide for applications ranging from residential and commercial roof tiles to large solar power plants.

In 2014, SunPower pursued the construction, in the United States, of the world s largest solar farm, Solar Star (709 MWp), and continued its international development, building solar power plants in Chile (70 MWp), in which TOTAL has a 20% stake, and South Africa (33 MWp). In South Africa, the construction of another 86 MWp solar farm will start in early 2015.

SunPower is pursuing its development in residential and commercial markets, in particular in the United States, by increasing its service offerings for solar power production, management and financing. Sunpower is also developings its Smart Energy activity to allow its residential customers to optimize their power consumption. In 2014, SunPower signed several agreements with companies developing solutions in this domain. The acquisition in 2014 of SolarBridge Technologies, Inc., a micro-inverter producer, will allow the conversion of direct current into alternating current at the panel level and monitoring of each panel s production, thus optimizing power production.

4.2.1.2. Other solar assets

In Abu Dhabi, the Shams 1 solar power plant (109 MW of parabolic concentrated solar power) was commissioned in September 2013 with production being sold to the Abu Dhabi Water Electricity Company (ADWEC). TOTAL (20%) is involved in its operation for a 25-year period.

TOTAL owns a 50% interest in the French company Sunzil, which markets photovoltaic panels in French overseas territories.

Elsewhere, the Group is continuing initiatives to install solar solutions as part of decentralized rural electrification projects in a number of countries, including in South Africa via Kwazulu Energy Services Company (KES), in which TOTAL holds a 35% stake (for more information, see C. Other Matters 7.3.4. Creating local value , below).

4.2.1.3. New solar technologies

In order to strengthen its technological leadership in the crystalline silicon value chain, and in addition to its cooperation with SunPower in the R&D field, New Energies partners with leading laboratories and research institutes in France and abroad. The aim of these partnerships is to develop and optimize the photovoltaic solar power chain (silicon, wafers, cells, modules and systems) by cutting production costs and multiplying its applications, while increasing the efficiency and reliability of the components, as well as developing downstream energy systems, products and services beyond solar power production. New Energies is also strengthening its expertise in solar resource evaluation and prediction.

In this regard, TOTAL is working with the Interuniversity MicroElectronics Center (IMEC) in Belgium and the École Polytechnique s Laboratory of physics of interfaces and thin layers (LPICM) in France, which specializes in low-temperature plasma deposition processes. Further to this partnership, TOTAL participates in the Institut Photovoltaïque d Île-de-France (IPVF) project, which aims to eventually become one of the reference centers worldwide conducting research into latest-generation photovoltaic devices.

With respect to electricity storage, TOTAL is continuing its R&D program with renowned institutions such as the Massachusetts Institute of Technology (MIT) in the United States notably to develop new battery technologies, and is also investing in start-ups such as Ambri (12.3%), founded by MIT.

4.2.2. Biotechnologies and the conversion of biomass

TOTAL is exploring a number of opportunities for developing biomass depending on its nature, accessibility and sustainability. The Group s objective is to sell high-performance molecules in targeted markets (fuel, lubricants, special polymers, chemicals, etc.). The focus of New Energies is on the biochemical conversion process for this biomass.

In 2010, Amyris Inc., an American company listed on NASDAQ, was TOTAL s first significant equity investment in biotechnology. At year-end 2014, TOTAL held 17.2% of the company. A collaboration agreement with Amyris was signed covering research, development, production and marketing of biosourced molecules. Amyris owns a cutting-edge industrial synthetic biology platform designed to improve and optimize microorganisms that can convert sugars into molecules of interest through fermentation. Amyris also owns a research laboratory and pilot units in California and Brazil. Amyris has successfully started and operates a plant in Brazil that converts 30 million liters of sugarcane juice into molecules of interest for perfumes and cosmetics as well as farnesene, a molecule of interest for a number of chemical or downstream oil markets, including specialty products and fuels (diesel or jet). In June 2014, the bio-sourced jet fuel produced by Amyris received the certification required to be sold to airlines (for blends of up to 10% in jet fuel derived from hydrocarbons), allowing its use in commercial flights in the second half of 2014, in partnership with Air France and KLM, as well as GOL between the

[1] *Fraunhofer study.*

United States and Brazil, thereby providing the technical demonstration of this new jet fuel source. Large-scale deployment will take several years, as a cost reduction program is necessary to make the molecule competitive with fossil jet fuel.

In addition, the Group continues to develop a global network of R&D partnerships in technology segments that are complementary to Amyris platform (deconstruction of lignocellulose, synthetic biology, metabolism engineering), including with Joint BioEnergy Institute (JBEI, United States), Novogy (now wholly-owned, United States), the University of Wageningen (the Netherlands) and the Toulouse White Biotechnology consortium (TWB, France).

The Group is also studying the longer-term potential for developing a cost-effective phototrophic process for producing biomolecules through microalgae bioengineering and associated processes.

4.2.3. Other renewable energies

In the field of wind power, TOTAL owns a 12 MW wind farm in Mardyck near Dunkirk, France, which was commissioned in 2003.

In marine energy, TOTAL holds a 24.1% share in Scotrenewables Tidal Power, located in the Orkney Islands in Scotland. Following successful tests on a 250 kW prototype completed in 2013, a 2 MW commercial model is currently under construction.

5. Investments

5.1. Major investments over the 2012-2014 period[1]

(M$)	2014	2013	2012
Upstream	26,520	29,750	25,200
Refining & Chemicals	2,022	2,708	2,502
Marketing & Services	1,818	1,814	1,671
Corporate	149	159	102
Total	**30,509**	**34,431**	**29,475**

Organic investments, including net investments in equity affiliates and non-consolidated subsidiaries, amounted to $26.4 billion in 2014 compared with $28.3 billion in 2013, a 7% decrease. The Group s organic investments reached a high in 2013, as provided in the Group s roadmap, and the commitment made to reduce investments was fulfilled. Most of the major projects that will support the Group s production growth through 2017 were launched, with investments reducing as projects start up.

In 2014, most investments in the Upstream segment were geared toward the development of new hydrocarbon production facilities and exploration operations. Development expenditure mainly pertained to major projects that drive the Group s growth, such as GLNG and Ichthys in Australia, Surmont in Canada, the Ekofisk and Eldfisk areas in Norway, the Laggan-Tormore project in the United Kingdom, Moho North in the Republic of the Congo, CLOV in Angola, Ofon II and Egina in Nigeria and Yamal in Russia.

In the Refining & Chemicals segment, investments were made in facilities maintenance and safety, as well as in projects aimed at improving the plants competitiveness, particularly their energy efficiency. 2014 was marked by the startup of the new SATORP refinery in Saudi Arabia and the new petrochemicals plants in Daesan, South Korea. In addition, the investment project in Antwerp, Belgium and the adaptation project in Carling, France are currently underway. In the Marketing & Services segment, investments in 2014 mainly concerned the network, logistics and specialty products production and storage facilities.

While mobilizing its teams for the startups in the Upstream segment over the next two years, the Group is preparing for the future beyond 2017 by expanding its acreage and acquiring stakes in new promising assets. Acquisitions were $2.5 billion, comprised principally of the acquisition of an interest in the Elk and Antelope discoveries in Papua New Guinea, the acquisition of an additional stake in OAO Novatek[2] and the carry on the Utica gas and condensate field in the United States.

Gross investments (including acquisitions and changes in non-current loans) therefore fell by 12% to $29.0 billion in 2014 compared with $32.8 billion in 2013.

The Group also continued its asset sale program with the finalization of sales totaling $4.65 billion in 2014, comprised essentially of the sale of interests in Shah Deniz and the associated pipelines in Azerbaijan, Block 15/06 in Angola, GTT (Gaztransport et Technigaz) and the Cardinal midstream assets in the United States. Asset sales were $4.75 billion in 2013.

The 2012-14 asset sale target of $15 to $20 billion was met with the completion of $17.5 billion in sales during the period. In addition, the sale of Bostik was completed in February 2015 and the pending sales of the coal mines in South Africa and Totalgaz are awaiting approval from the authorities.

Net investments were therefore $24.1 billion in 2014, compared to $25.9 billion in 2013, a decrease of 7%. This decrease was mainly due to the reduction in investments[1], since asset sales varied by only 2% between 2013 and 2014.

5.2. Major planned investments

Taking into account the current economic environment, the organic investment budget has decreased by more than 10% from $26.4 billion in 2014 to $23-24 billion in 2015. In particular, the Group has reduced investments in brownfield developments that have become less profitable due to the decline in Brent. The decrease in investments is part of the Group s strong and immediate response to reduce its cash break-even point by $40/b without compromising the priority to safety.

Investments in the Upstream segment are expected to amount to $20 billion and will mainly be allocated to major development projects, including Ichthys in Australia, Surmont and Fort Hills in Canada, Moho North in the Republic of the Congo, Kaombo in Angola, Egina in Nigeria and Yamal in Russia. A significant portion of the segment s budget will also be allocated to maintenance and integrity work on assets already in production.

(1) *Including acquisitions. The main acquisitions in fiscal years 2012-2014 are detailed in Note 3 to the Consolidated Financial Statements.*
(2) *The Group held an 18.24% stake in OAO Novatek as of December 31, 2014.*

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Item 4 - C. Other Matters

The Refining & Chemicals segment has an investment budget of approximately $1.5 billion in 2015, which is expected to be allocated to the refining, petrochemicals and specialty chemicals businesses. The modernization of the integrated platform in Antwerp, Belgium is the largest investment in the segment in 2015. A significant portion of the segment s budget will also be allocated to the maintenance and safety investments required for these types of industrial activities.

The Marketing & Services segment has an investment budget of approximately $1.5 billion, which is expected to finance, in particular, the service station network, logistics, specialty products production and storage facilities (lubricants, LPG, etc.) and the development of its activities in New Energies. Most of the Marketing & Services budget will be allocated to growth areas (Africa, Middle East, Asia and Latin America).

After 2015, TOTAL expects investments to be in line with more moderate post-2017 growth from a larger production base. The Group monitors the evolution of the Brent price and will consequently adapt its investments without compromising its medium-term objectives.

TOTAL self-finances most of its investments from its excess cash from operations (refer to the Consolidated Statement of Cash Flows), which is mainly supplemented by accessing the bond market on a regular basis, when conditions on the financial markets are favorable (refer to Note 20 to the Consolidated

Financial Statements). However, investments for certain joint ventures between TOTAL and external partners are funded through specific project financing.

Active management of the asset portfolio, which is fully integrated into the Group s strategy, creates value and TOTAL has confirmed its 2015-17 asset sale program of $10 billion. In addition, the Group makes targeted acquisitions. As the first international company to enter the new ADCO concession in Abu Dhabi, TOTAL demonstrated its ability to access resources under good conditions and create strong partnerships in a strategic region offering various development opportunities.

As part of certain project financing arrangements, TOTAL S.A. has provided guarantees. These guarantees (Guarantees given on borrowings) as well as other information on the Group s off-balance sheet commitments and contractual obligations appear in Note 23 to the Consolidated Financial Statements. The Group currently believes that neither these guarantees nor the other off-balance sheet commitments of TOTAL S.A. or of any other Group company have, or could reasonably have in the future, a material effect on the Group s financial position, income and expenses, liquidity, investments or financial resources.

The sale of TOTAL s stake in offshore Block OML 138 in Nigeria, including the Usan field, announced in November 2012 was not able to close. The Group is actively pursuing efforts to sell this asset.

C. OTHER MATTERS

Various factors, including certain events or circumstances discussed below, have affected or may affect TOTAL s business and results.

1. Management and monitoring of industrial and environmental risks

1.1. TOTAL policies regarding health, safety and the environment

TOTAL has developed a Safety Health Environment Quality Charter (refer to 7.2. Safety, health and environment information , below.) that sets out the basic principles applicable within the Group regarding the protection of people, property and the environment. This charter is implemented at several levels within the Group by means of its management systems.

Along these lines, TOTAL has developed safety, environmental and quality management systems that it seeks to have certified or assessed (*e.g.*, standards such as the International Safety Rating System, ISO 14001 and ISO 9001).

In most countries, TOTAL s operations are subject to laws and regulations concerning health, safety and environmental protection to which TOTAL ensures compliance (see 3.3. Health, safety and environmental regulations , below).

1.2. Assessment

As part of its policy, TOTAL performs regular assessments, following various procedures, of risks and impacts in the areas of industrial safety (particularly process safety), the environment and the protection of workers and local residents, including:

- prior to approving new projects, investments, acquisitions and disposals;
- periodically during operations (safety studies, environmental impact assessments, health impact studies and Technological Risk Prevention Plan PPRT in France);
- prior to releasing new substances on the market (toxicological and ecotoxicological studies and life cycle analyses); and
- based on the regulatory requirements of the countries where these activities are carried out and generally accepted professional practices.

In countries where prior administrative authorization and supervision is required, projects are not undertaken without the authorization of the relevant authorities based on the studies provided to the authorities.

In particular, TOTAL has developed a common methodology for analyzing technological risks that is being gradually applied to all activities carried out by the companies of the Group (refer to 7.2.2.3. Incident risk , below).

1.3. Management

TOTAL develops risk management measures based on risk and impact assessments. These measures involve facility and structure design, the reinforcement of safety devices and environmental remediation.

In addition to developing management systems as described above, TOTAL strives to minimize industrial and environmental risks inherent in its operations by conducting thorough inspections and audits, training personnel and raising awareness among all those involved.

In addition, performance indicators (particularly in the areas of HSE) and risk monitoring have been put in place, objectives have been set and action plans have been implemented to achieve these objectives.

Although the emphasis is on preventing risks, TOTAL takes regular steps to prepare for crisis management based on identified risk scenarios.

The Group has a crisis management process that relies on a permanent on-call system, regular exercises conducted at the industrial sites of its main entities, a benchmark of the best practices of international companies and training courses in crisis management, as well as procedures, emergency booklets and tools that can be used in the event of a crisis.

The organization set up in the event of a crisis is deployed at two closely-coordinated levels:

- at the local level (country, site or entities), a crisis unit is responsible for ensuring operational management and implementations of emergency plans; and
- at the head office level, a crisis unit consisting of a multi-disciplinary team is tasked with assessing the situation and overseeing crisis management. This central unit provides the necessary expertise and mobilizes additional resources to assist the local crisis unit when necessary.

In addition, TOTAL has developed emergency plans and procedures to respond to an oil spill or leak. These plans and procedures are specific to each TOTAL affiliate and adapted to its organization, activities and environment and are consistent with the Group s plan. They are reviewed regularly and tested through exercises (see 7.2.2.3. Incident risk , below).

At the Group level, TOTAL has set up an organization structured around the Plan to Mobilize Resources Against Pollution (PARAPOL) alert scheme to facilitate crisis management and

provide assistance without geographical restriction by mobilizing both internal and external resources in the event of pollution of marine, coastal or inland waters. The PARAPOL procedure is made available to entities of the Group and its main goal is to facilitate access to internal experts and physical response resources.

Furthermore, the Company and its subsidiaries are currently members of certain oil spill cooperatives that are able to provide expertise, resources and equipment in all geographic areas where the Group has operations, including, in particular, Oil Spill Response Limited and Centre for Documentation, Research and Experimentation on Accidental Water Pollution (CEDRE).

Following the blow-out on the Macondo well in the Gulf of Mexico in 2010 (in which the Group was not involved), TOTAL created three task forces in order to analyze risks and issue recommendations.

The task forces have now finalized their work and the Group continues to roll out solutions to minimize such risks. Detailed information on TOTAL s initiatives in the fields of safety and protection of the environment is provided in 7. Social and environmental information , below.

TOTAL believes that it is impossible to guarantee that the contingencies or liabilities related to the above mentioned concerns will not have a material impact on its business, assets and liabilities, consolidated financial situation, cash flow or income in the future.

2. Insurance and risk management

2.1. Organization

TOTAL has its own reinsurance company, Omnium Reinsurance Company (ORC). ORC is integrated within the Group s insurance management and is used as a centralized global operations tool for covering the Group companies insurable risks. It allows the Group s worldwide insurance program to be implemented in compliance with the specific requirements of local regulations applicable in the countries where the Group operates.

Some countries may require the purchase of insurance from a local insurance company. If the local insurer accepts to cover the subsidiary of the Group in compliance with its worldwide insurance program, ORC negotiates a retrocession of the covered risks from the local insurer. As a result, ORC enters into reinsurance contracts with the subsidiaries local insurance companies, which transfer most of the risk to ORC.

At the same time, ORC negotiates a reinsurance program at the Group level with oil industry mutual insurance companies and commercial reinsurance markets. ORC allows the Group to better manage price variations in the insurance market by taking on a greater or lesser amount of risk corresponding to the price trends in the insurance market.

In 2014, the net amount of risk retained by ORC after reinsurance was a maximum of $53 million per onshore third-party liability insurance claim, or $77 million per offshore third-party liability insurance claim, on the one hand, and $75 million per property damage and/or business interruption insurance claim, on the other hand.

Accordingly, in the event of any loss giving rise to an aggregate insurance claim, the effect on ORC would be limited to its maximum retention of $152 million per occurrence.

2.2. Risk and insurance management policy

In this context, the Group risk and insurance management policy is to work with the relevant internal department of each subsidiary to:

- define scenarios of major disaster risks (estimated maximum loss);
- assess the potential financial impact on the Group should a catastrophic event occur;
- help to implement measures to limit the probability that a catastrophic event occurs and the financial consequences if such event should occur; and
- manage the level of financial risk from such events to be either covered internally by the Group or transferred to the insurance market.

2.3. Insurance policy

The Group has worldwide property insurance and third-party liability coverage for all its subsidiaries. These programs are contracted with first-class insurers (or reinsurers and oil and gas industry mutual insurance companies through ORC).

The amounts insured depend on the financial risks defined in the disaster scenarios and the coverage terms offered by the market (available capacities and price conditions).

More specifically for:

- Third-party liability: since the maximum financial risk cannot be evaluated by a systematic approach, the amounts insured are based on market conditions and oil and gas industry practice. In 2014, the Group s third-party liability insurance for any liability (including potential accidental environmental liabilities) was capped at $900 million (onshore) and $800 million (offshore).
- Property damage and business interruption: the amounts insured vary by sector and by site and are based on the

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estimated cost and scenarios of reconstruction under maximum loss situations and on insurance market conditions. The Group subscribed for business interruption coverage in 2014 for its main refining and petrochemical sites.

For example, for the Group s highest risks (North Sea platforms and main refineries and petrochemical plants), in 2014 the insurance limit for the Group share of the installations was approximately $1.7 billion for the Refining & Chemicals segment and approximately $2 billion for the Upstream segment.

Deductibles for property damage and third-party liability fluctuate between €0.1 and €10 million depending on the level of risk and liability, and are borne by the relevant subsidiaries. For business interruption, coverage is triggered sixty days after the occurrence giving rise to the interruption. In addition, the main refineries and

petrochemical plants bear a combined retention for property damage and business interruption of $50 million per insurance claim.

Other insurance contracts are bought by the Group in addition to property damage and third-party liability coverage, mainly in connection with car fleets, credit insurance and employee benefits. These risks are mostly underwritten by outside insurance companies.

The above-described policy is given as an example of a situation as of a given date and cannot be considered as representative of future conditions. The Group s insurance policy may be changed at any time depending on the market conditions, specific circumstances and on the General Management s assessment of the risks incurred and the adequacy of their coverage.

3. Certain legal aspects of the Group s activities

3.1. Exploration and production legal considerations

TOTAL s Upstream segment conducts activities in various countries that are subject to a broad range of regulations. These cover virtually all aspects of exploration and production operations, including leasehold rights, production rates, royalties, environmental protection, exports, taxes and foreign exchange rates.

Licenses, permits and contracts governing the Group s ownership of oil and gas interests have terms that vary from country to country and are generally granted by or entered into with a government entity or a state-owned company and are sometimes entered into with private owners. These arrangements usually take the form of concessions or production sharing contracts.

In the framework of oil concession agreements, the oil company owns the assets and the facilities and is entitled to the entire production. In exchange, the operating risks, costs and investments are the oil company s responsibility and it agrees to remit to the relevant host country, usually the owner of the subsoil resources, a production-based royalty, income tax, and possibly other taxes that may apply under local tax legislation.

The production sharing contract (PSC) involves a more complex legal framework than the concession agreement: it defines the terms and conditions of production sharing and sets the rules governing the cooperation between the company or consortium in possession of the license and the host country, which is generally represented by a state-owned company. The latter can thus be involved in operating decisions, cost accounting and production allocation.

The consortium agrees to undertake and finance all exploration, development and production activities at its own risk. In exchange, it is entitled to a portion of the production, known as cost oil , the sale of which is intended to cover its incurred expenses (capital and operating costs). The balance of production, known as profit oil , is then shared in varying proportions, between the company or consortium, on the one hand, and the host country or state-owned company, on the other hand.

In some instances, concession agreements and PSCs coexist, sometimes in the same country or even on the same block. Even though there are other contractual models, TOTAL s license portfolio is comprised mainly of concession agreements.

On most licenses, the partners and/or the authorities of the host country, often assisted by international accounting firms, perform joint venture and PSC cost audits and ensure the observance of contractual obligations.

In some countries, TOTAL has also signed contracts called risked service contracts , which are similar to PSCs. However, the profit oil is replaced by a defined cash monetary remuneration, agreed by contract, which depends notably on field performance parameters such as the amount of barrels produced.

Oil and gas exploration and production activities are subject to authorization granted by public authorities (licenses), which are granted for specific and limited periods of time and include an obligation to relinquish a large portion, or the entire portion in case of failure, of the area covered by the license at the end of the exploration period.

TOTAL pays taxes on income generated from its oil and gas production and sales activities under its concessions, PSCs and risked service contracts, as provided for by local regulations. In addition, depending on the country, TOTAL s production and sales activities may be subject to a number of other taxes, fees and withholdings, including special petroleum taxes and fees. The taxes imposed on oil and gas production and sales activities is generally substantially higher than those imposed on other industrial or commercial businesses.

The legal framework of TOTAL s exploration and production activities, established through concessions, licenses, permits and contracts granted by or entered into with a government entity, a state-owned company or, sometimes, private owners, is subject to certain risks that, in certain cases, can reduce or challenge the protections offered by this legal framework. In addition to the uncertainties surrounding enforcement of contractual rights, new regulations requiring detailed disclosure of payments made by the Group s companies to public entities in connection with its mining operations (including hydrocarbons) may adversely impact the activities of the Group, its results or its reputation.

3.2. Competition law

Competition laws apply to the Group s companies in the vast majority of countries in which it does business. Violations of competition laws carry fines and expose the Group and its employees to criminal sanctions and civil suits. Furthermore, it is now common for persons or corporations allegedly injured by violations of competition laws to sue for damages.

Some of the Group s business segments have already been implementing competition law conformity plans for a long time. In 2012, a Group policy for compliance with competition law and prevention of violations in this area was adopted. Its implementation is based on a dedicated organization, the involvement of hierarchies and staff, and an alert procedure.

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3.3. Health, safety and environmental regulations

TOTAL is subject to extensive and increasingly strict health, safety and environmental (HSE) regulations in the European Union (EU), the United States and the rest of the world.

3.3.1. European Union

The following is a non-exhaustive list of major HSE regulations and directives that affect TOTAL s operations and products in the EU:

Risk prevention

- The Seveso III Directive (2012/18/EU), which entered into force in August 2012, updated and replaced the Major Hazards Directive Seveso II of 1996 that required emergency planning, public disclosure of emergency plans, assessment of hazards and emergency management systems. This Directive strengthened rules on the control of major accident hazards and integrated provisions on EU chemicals law (integration into the Seveso III Directive of the Classification, Labelling and Packaging (CLP) regulation and adapting the EU system to the UN s international chemicals classification Globally Harmonized System, or GHS). This Directive also clarified and updated other provisions, including introducing stricter inspection standards, improving the level and quality of information available to the public in the event of an accident, and public participation in decision-making and access to justice. EU Member States must transpose and implement this Directive by June 2015, which is also the date on which the new UN GHS becomes fully applicable in Europe.
- The EU adopted the Safety of offshore oil and gas operations Directive on June 10, 2013. The new regulatory framework aims at reducing the occurrence of major accidents related to offshore oil and gas operations and to limit their consequences by establishing minimum conditions for safe offshore exploration and exploitation and improving the response mechanisms in the event of a major accident. This Directive sets clear rules that cover the whole lifecycle of all exploration and production activities from design to the final removal of an oil or gas installation. In addition, the Directive also provides rules for transparency and sharing of information, cooperation between EU Member States, emergency response plans and transboundary emergency preparedness and response. EU Member States must transpose and implement this Directive by July 2015.
- The regulation REACH (Registration, Evaluation and Authorization and Restriction of Chemicals) came into force in June 2007 and required the pre-registration of chemical substances manufactured or imported into the EU by December 2008, to qualify for full registration under a phase-in during the period 2010-2018. This regulation requires the registration and identification of chemical substances manufactured or imported in EU Member States in a central database in the European Chemical Agency (ECHA) in Helsinki, and can result in restrictions on the sales or uses of such substances. REACH requires TOTAL to evaluate the hazards of its chemicals and products and may result in future changes to warning labels and material safety data sheets. To date, the Group has registered more than 220 substances.

Protection of the natural environment

- The Industrial Emissions Directive (2010/75/EU) (IED) entered into force in January 2011 and replaced the Integrated Pollution Prevention and Control Directive (IPPC) and numerous sectorial directives as of January 2014, with the exception of the Large Combustion Plants (LCP) Directive of 2001, which will be repealed with effect from January 2016. The IED was required to be transposed by EU Member States into their national legislations by early January 2013. France transposed this Directive into its national legislation in May 2013.

By imposing the reduction of emissions from industrial installations, the IED will progressively result in stricter emission limits on certain facilities of TOTAL by making compulsory certain rules described in the Best Available Techniques (BAT) Reference Documents (BREFs). The BREFs and related BAT documents are published by the European Commission (EC) after exchanges of information between experts from the EU Member States, industry and environmental organizations to determine BATs. This exchange is coordinated by the European IPPC Bureau of the Institute for Prospective Technology Studies at the European Joint Research Centre in Seville, Spain.

- Among other things, the Air Quality Framework Directive (2008/50/EC) (AQFD) and related directives on ambient air quality assessment and management limit emissions of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, carbon monoxide, benzene and ozone. The EC adopted in December 2013 a Clean Air Package including a Clean Air Programme for Europe with measures to ensure that existing targets of the AQFD are met in the short term and to introduce new air quality objectives for the period up to 2030, a revised National Emission Ceilings Directive with stricter national emission ceilings for the six main pollutants and a proposal for a new directive to reduce pollution from medium-sized combustion installations.
- Certain maritime safety directives implemented in France between 2011 and 2012 require tankers to have double hulls and ship owners to acquire improved insurance coverage, mandate improvements to traffic monitoring, accident investigations and in-port vessel inspection, and further regulate organizations that inspect and confirm conformity to applicable regulations.

Numerous EU directives impose water quality standards based on the various uses of inland and coastal waters, including ground water, by setting limits on the discharges of many dangerous substances and by imposing information gathering and reporting requirements.

Adopted and effective since 2000, a comprehensive Water Framework Directive (2000/60/EC) is progressively replacing numerous existing directives with a comprehensive set of requirements, including additional regulations obligating EU Member States to classify all water courses according to their biological, chemical and ecological quality, and to completely ban the discharges of approximately thirty toxic substances by 2017.

Concerning the exploitation of shale gas, the EC launched in 2013 the initiative for the Environmental, Climate and Energy Assessment Framework to Enable a Safe and Secure Unconventional Hydrocarbon Extraction . This initiative, which is subject to an impact assessment, is intended to provide a framework to manage risks, address regulatory shortcomings and provide maximum legal clarity and predictability concerning the exploration and operation of shale gas to both market operators and citizens across the EU. In January 2014, the EC adopted a (non-binding) Recommendation setting minimum core principles for the exploration and production of hydrocarbons using high-volume hydraulic fracturing, which EU Member States were invited to apply

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within six months. In October 2014, EU Member States were invited to inform the EU Commission by the end of 2014 of measures adopted in response to the Recommendation.

See B. Business Overview 2.1.7.6. Europe France for an overview of TOTAL s Montélimar exclusive exploration license and related government revocation.

The EU framework Directive on Waste Disposal, which entered into force in December 2008, ensures that waste is recovered or disposed of without endangering human health and without using processes or methods that could unduly harm the environment. Numerous related EU directives regulate specific categories of waste. In July 2014, the EU Commission published Towards a circular economy: a zero waste programme for Europe . The circular economy refers to re-using, repairing, refurbishing and recycling existing materials and products. The EU Commission also adopted in July 2014 a legislative proposal to review recycling and other waste related targets in the EU.

Biodiversity issues are being given increasing regulatory consideration. Following the 2010 Nagoya summit, the UN s 65th General Assembly decided to form the Intergovernmental Science-Policy Platform on Biodiversity (IPBES) in order to share knowledge and future policies on biodiversity and ecosystem services. In April 2014, the EU adopted a regulation on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union. The implementing regulation is currently being elaborated and is expected to enter into force in the second half of 2015. It is expected to address registered collection and best practices as well as the monitoring of user compliance.

The EU is committed to the protection of biodiversity and to halting biodiversity loss within the EU by 2020. The EU has identified a need for action to promote a wider no-net-loss approach to biodiversity and ecosystems in order to achieve the overall 2020 objective of the EU Biodiversity Strategy. As a result, the EU Commission is expected to develop in 2015 an impact assessment on the policy options for a No Net Loss initiative.

Climate protection

With respect to the Kyoto protocol, which expired in 2012, the 2011 UN Climate Conference in Durban extended the Kyoto principles beyond 2012 in order to permit negotiations for the possible adoption by 2015 of a new legally-binding international agreement. The latest UN Climate Conference, held in Lima in December 2014, was an important precursor to a possible adoption of a global climate agreement in Paris in 2015. The Lima conference agreed on two deliverables: the Lima Call for Climate Action (Lima Call) focusing on the nature of the intended national determined commitments and its annex, the elements text, with these two documents constituting the basis for the 2015 agreement. The Lima Call requires countries to describe their proposed emissions reduction targets in a clear, transparent and understandable way. In order to assess these proposals, the UNFCCC secretariat will publish the national contributions and prepare a report prior to the 2015 meeting in Paris.

The Climate Action and Renewable Energy Package imposes an EU objective referred to as 3 x 20 , which commits EU Member States by 2020 to reduce overall GHG emissions to at least 20% below 1990 levels, to improve energy efficiency by 20% and to increase renewable energy usage by 20% compared to the projections for 2020.

In 2011, the EC published a Roadmap for moving to a competitive low-carbon economy in 2050 to look beyond these 2020 objectives and to set out a plan to meet the long-term target of reducing domestic emissions by 80% to 95% by mid-century. In 2013, the EC published a Green Paper entitled A 2030 Framework for Climate and Energy Policies to propose to review European climate objectives for 2030. In January 2014, the EC proposed a new EU framework on climate and energy for 2030. EU leaders agreed on October 23, 2014 the domestic 2030 greenhouse gas reduction target of at least 40% compared to 1990 and on a target of at least 27% for renewable energy and energy savings by 2030.

To achieve the defined targets, the ETS Directive will be reformed and strengthened: a 43% greenhouse gas reduction target in 2030 in the ETS translates into the cap declining by 2.2% annually from 2021, compared to the rate of 1.74% up to 2020.

The sectors most responsible for emissions in the EU (*i.e.*, power generation, industry, transport, buildings and construction, as well as agriculture) are charged with making the transition to a low-carbon economy over the coming decades, and these issues could affect TOTAL s operations in the future.

The 2009 Directive on Carbon Capture and Storage (CCS) (2009/31/EC) (CCS Directive) forms the basis for developing CCS projects that are expected to help provide solutions for the reduction of CO_2 emissions. The EC issued four guidance documents in 2011 to support coherent implementation of the CCS Directive with respect to the geological storage of CO_2 across EU Member States. The Directive requires the EU Commission to review the application of the Directive and to submit an implementation report to the EU Parliament and Council by March 31, 2015.

The 2009 Fuel Quality Directive (2009/30/EC) (Fuel Quality Directive), which applies to all petrol, diesel and biofuels used in road transport as well as to gasoil used in non-road-mobile machinery, requires by 2020 a reduction by 6% of the greenhouse gas levels of fuels used in vehicles, and regulates the sustainability of biofuels. According to this Directive, the EU Commission may adopt implementing measures concerning mechanisms to monitor and reduce greenhouse gas emissions. The EU Commission proposed in October 2014 a draft Directive concerning such calculation methods and related reporting requirements regarding the quality of petrol and diesel fuels. This proposal could be adopted during the first half of 2015.

CO_2 emission allowances

The regulations concerning the market for CO_2 emission allowances in Europe, the European Union Emissions Trading System (EU-ETS), entered a third phase on January 1, 2013. This phase marks the end of the overall free allocation of emission allowances: certain emissions, such as those related to electricity production, no longer benefit from free allowances, while for others, free allowances have been significantly reduced. Free allocations are now established based on the emission level of the top-performing plants within the same sector (top 10 benchmark) and lower-performing plants must purchase, at market price, the necessary allowances to cover their emissions over and above these free allocations. Moreover, the Group s plants will need to indirectly bear the cost of allowances for all electricity consumed (including electricity generated internally at its own facilities).

Given these new rules and the European Commission s decision to apply a cross-sectoral correction factor (CSCF) that reduces the total amount of free allocations for all sectors combined by an average of 11.6% over phase 3 (2013-2020), the Group estimates that approximately 30% of its emissions subject to the EU-ETS will not be covered by free allowances during the 2013-2020 period.

The revision in 2014 to the list of sectors exposed to carbon leakage confirmed that the refining sector in Europe is an exposed sector and, as such, it may continue to benefit from free allowances. However, performance for 2013 showed that this sector, which produces significant amounts of CO_2, is almost the only sector with a free allowance deficit exceeding 20%. This deficit resulted mainly from effects of an ambitious sectoral benchmark and the CSCF, which is expected to become more severe year by year, thereby increasing the refining sector s deficit to more than 30% by 2020.

The Group has taken legal actions in relevant local courts having jurisdiction for its concerned industrial sites to contest national decisions granting free allowances. In addition, the courts of different Member States brought the matter before the Court of Justice of the European Union for a preliminary ruling on the procedures for determining the free allowances.

The financial risk related to the foreseeable purchase of these allowances on the market should remain low for the Group if prices for emission allowances remain close to their current level (€7/t CO_2). Nevertheless, due to important regulatory changes that occurred in phase 3, such as the authorization given to the European Commission to intervene at its own discretion in the allowance auction calendar (backloading), or due to possible future regulatory changes, such as the establishment of a market reserve , prices for CO_2 allowances could increase substantially, which could cause a significant adverse impact on the results of the Group s refining operations.

Environmental liability

The Directive on Environmental Liability (2004/35/EC) (ELD) seeks to implement a strict liability approach for damage to water resources, soils and protected species and habitats by authorized industrial activities. The ELD, which came into force in 2004, has since been amended several times in order to broaden the scope of strict liability by adding the management of extractive waste and the operation of storage sites pursuant to Directive 2009/31/EC to the list of dangerous occupational activities in Annex III of the ELD, and to extend the scope of damage to marine waters .

EU Member States reported to the EC in 2013 their experiences concerning the application of the amended ELD. Based on these reports, the EC was supposed to have submitted a report reviewing the amended ELD to the European Parliament and to the European Council by April 2014. However, due to delays in reporting and evaluation and changes at the EU political level (*i.e.*, a new European Parliament and new Commission), the report has not yet been completed.

Directive 2008/99/EC, which concerns the protection of the environment through criminal law, obliges EU Member States to provide for criminal penalties in respect of serious infringements of EC regulations. In France, such obligation was transposed in July 2013.

Public information

EU directives implementing the Aarhus International Convention of 1998 were adopted in 2003 and provide public information and participation rights in a variety of activities affecting the environment. French regulations on public inquiry and impact assessment were adopted in 2011 and entered into force in June 2012. These regulations reinforce public participation and information rights concerning projects that could affect the environment. In December 2012, September 2013 and December 2013, French regulations were published on public participation modalities in public decision-making processes on projects affecting the environment.

The Directive on Environmental Impact Assessment (EIA) (2014/52/EU) amending EIA Directive 2011/92/EU came into force in May 2014. The amended Directive simplified the rules for assessing the potential effects of projects on the environment and strengthened the provisions on the quality of EIAs.

3.3.2. United States

In the United States, where TOTAL s operations are less extensive than in Europe, TOTAL is also subject to significant HSE regulations at both the state and federal levels. Of particular relevance to TOTAL s lines of business are:

Protection of the natural environment

The Clean Air Act and its regulations, which require, among other measures: stricter phased-in fuel specifications and sulfur reductions; enhanced emissions controls and monitoring at major sources of volatile organic compounds, nitrogen oxides, and other designated hazardous and non-hazardous air pollutants; GHG regulation; stringent pollutant emission limits; construction and operating permits for major air emission sources at chemical plants, refineries, marine and distribution terminals and other facilities; and risk management plans for the handling and storage of hazardous substances.

The Clean Water Act, which regulates the discharge of wastewater and other pollutants from both onshore and offshore operations and, among other measures, requires industrial facilities to obtain permits for most wastewater and surface water discharges, install control equipment and treatment systems, implement operational controls, and preventative measures, including spill prevention and control plans and practices to control storm water runoff.

The Resource Conservation and Recovery Act, which regulates the generation, storage, handling, treatment, transportation and disposal of hazardous waste and imposes corrective action requirements on regulated facilities requiring investigation and remediation of potentially contaminated areas at these facilities.

Environmental liability

The Comprehensive Environmental Response, Compensation, and Liability Act (also known as CERCLA or Superfund), under which waste generators, former and current site owners and operators, and certain other parties can be held jointly and severally liable for the entire cost of remediating sites contaminated by releases of hazardous substances regardless of fault or the amount or share of hazardous substances sent by a party to a site. The

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U.S. Environmental Protection Agency (EPA) has authority under Superfund to order responsible parties to clean up contaminated sites and may seek recovery of the government s response costs from responsible parties. States have similar legal authority to compel site investigations and cleanups and to recover costs from responsible parties. The U.S. government and states may also sue responsible parties under CERCLA for damage to natural resources (*e.g.*, rivers and wetlands) arising from releases of hazardous substances.

Risk prevention

National and international maritime oil spill laws, regulations and conventions, including the Oil Pollution Act of 1990 (OPA 90) and certain coastal state laws impose significant operational, compliance and liability regimes. OPA 90 imposes significant oil spill prevention requirements, spill response planning and training obligations, ship design requirements (including phased in double hull requirements for tankers), operational restrictions, spill liability for tankers and barges transporting oil, offshore oil platform facilities and onshore terminals and establishes an oil liability spill fund paid for by taxes on imported and domestic oil.

Offshore oil and gas operations are regulated by the Bureau of Ocean Energy Management, which is responsible for managing development of offshore resources, and the Bureau of Safety and Environmental Enforcement (BSEE), which is responsible for safety and environmental oversight of offshore oil and gas operations. The BSEE has implemented more stringent permitting requirements and oversight of offshore drilling. Among other changes, well design, casing and cementing standards have been upgraded and compliance must be certified by a professional engineer. In addition, plans must describe containment resources available in case of an underwater blowout and worst case discharge, and operators in the Gulf of Mexico are required to develop and implement a Safety and Environmental Management Systems program.

Other significant U.S. environmental legislation includes the Toxic Substances Control Act, which regulates the development, testing, import, export and introduction of new chemical products into commerce, and the Emergency Planning and Community Right-to-Know Act, which requires emergency planning and spill notification as well as public disclosure of chemical usage and emissions. The Hazardous Materials Transportation Act (HMTA) regulates material designations, packaging requirements, and operation rules and procedures for the transport of hazardous materials within the United States.

TOTAL s facilities in the United States are also subject to extensive workplace safety regulations promulgated by the Occupational Safety and Health Administration (OSHA). Most notable among OSHA regulations is the Process Safety Management of Highly Hazardous Chemicals standard, a comprehensive regulatory program that requires major industrial sources, including petroleum refineries and chemical manufacturing facilities, to undertake significant hazard assessments during the design of new industrial processes and modifications to existing processes, as well as a comprehensive and continual monitoring and management process for these chemicals.

Climate protection

EPA regulation of greenhouse gas (GHG) emissions from industrial sources under the Clean Air Act s Prevention of Significant Deterioration and Title V operating permit programs
formally commenced in January 2011. The Group s U.S. subsidiaries may be required to obtain GHG permits to construct new facilities or to modify existing facilities. As a result, TOTAL s U.S. subsidiaries could incur additional capital and operating costs to comply with control technology and/or facility upgrade requirements to reduce GHG emissions.

Proposed revised ozone standard

In December 2014, the EPA proposed to revise the ozone national ambient air quality standard from the current 0.075 parts per million (ppm) to a level within the range of 0.065 - 0.070 ppm. If revised to that level, the ozone standard could result in higher emissions offset requirements for facility expansions and modifications, and stricter controls on emissions of nitrogen oxides and volatile organic compounds. As a result, the Group s U.S. refining and chemical facilities located in areas designated as not attaining the revised ozone standard could incur additional capital and operating costs. The EPA s final decision on revising the standard is expected by October 1, 2015.

Proposed refinery sector regulations

In June 2014, the EPA proposed changes to existing Clean Air Act regulations affecting the petroleum refinery sector. Included in the proposed rules are requirements for fenceline monitoring and stricter control measures to reduce emissions of hazardous air pollutants from processing units, flares and storage tanks. As a result, the Group s U.S. petroleum refinery is expected to require capital upgrades and incur additional operating costs to comply with new requirements. Promulgation of the final rule is expected in June 2015.

Unconventional gas production

TOTAL has investments in unconventional gas plays in the states of Texas and Ohio that utilize hydraulic fracturing, or fracking, a process that involves pumping water, sand and chemicals underground at high pressure to fracture rock formations and release natural gas and liquids that are otherwise inaccessible. Currently, regulation of these practices occurs at the state level, although there are a number of federal agency proposals that could alter this framework, including proposed regulations governing operations on federal lands. Various state initiatives could also result in stricter control of fracking, impacting TOTAL s operating costs, profitability and future investments in these unconventional gas plays. Additionally, the EPA is phasing in rules governing the emission of volatile organic compounds (VOCs) from oil and natural gas production and processing operations that may have a similar impact. On January 14, 2015, the Obama administration announced a new initiative to cut methane emissions from the oil and gas sector by 40-45 percent from 2012 levels by 2025. Future EPA rulemaking to implement this initiative can be expected to impact TOTAL s unconventional gas production and other oil and gas operations.

Legal proceedings

Proceedings instituted by governmental authorities are pending or known to be contemplated against certain U.S.-based subsidiaries of TOTAL under applicable environmental laws that could result in monetary sanctions in excess of $100,000. No individual proceeding is, nor are the proceedings as a whole, expected to have a material adverse effect on TOTAL s consolidated financial position or profitability.

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4. Research & Development

Certain R&D initiatives of the Group are set forth below. For additional information on the Group s R&D, see Item 5 G. Research and Development .

4.1. Upstream segment

In Exploration & Production, in addition to continuously optimizing the development of deep offshore projects and gas resources, TOTAL continues to improve its exploration, seismic acquisition and imagery technologies over the long term as well as those for the initial appraisal of hydrocarbon reservoirs and simulation of field evolution during operations, especially for tight, very deep or carbonate reservoirs.

A new direction is being taken to carry out deep offshore operations in even deeper waters, on the one hand, and at greater distances for multiphase production transport, on the other hand, which is fully in line with the ambitious goals of Exploration & Production and supports major technology-intensive assets such as Libra in Brazil.

Enhancing oil recovery from mature reservoirs and recovery of heavy oil and bitumen with lower environmental impacts are also subjects involving active research.

R&D activity has been intensified in the field of unconventional resources, with a strong focus on water management throughout the production cycle and the search for alternatives to hydraulic fracking. In addition, new technologies for the exploitation of oil shales by pyrolysis are being developed, both *in situ* and *ex situ*.

The CO_2 oxycombustion capture and storage project in the depleted Rousse reservoir in Lacq (France) is now in the monitoring phase following the injection phase, which ended in April 2013. The Group now has a strong command of the methods used to characterize reservoirs for this type of injection. New projects will look into new capturing solutions.

Finally, R&D continues to devote considerable efforts to technologies for water management associated to the production of hydrocarbons. This subject is now part of a larger program dedicated to sustainable development.

In Gas & Power, the program to develop new LNG (Liquefied Natural Gas) solutions is ongoing.

4.2. Refining & Chemicals segment

4.2.1. Refining & Chemicals (excluding Specialty Chemicals)

The aim of R&D is to support the medium and long-term development of Refining & Chemicals. In doing so, it contributes to the technological differentiation of this business through the development, implementation and promotion of effective R&D programs that pave the way for the industrialization of knowledge, processes and technologies.

In line with Refining & Chemicals strategy, R&D places special emphasis on the following four major challenges: take advantage of different types of feedstock, optimize the value of assets, continue to develop innovative products, and develop bio-sourced products. The medium-term strategy of the project portfolio and its deployment plan will facilitate Refining & Chemicals technological differentiation.

To take advantage of different types of feedstock, R&D activities related to the processing of more diversified crudes have increased significantly through a better understanding of the effect that feedstocks have on equipment and processes at the molecular level. R&D is launching ambitious new programs to develop various technologies for producing liquid fuels, monomers and intermediates from gas.

R&D is developing know-how and technologies with a view to optimizing the value of assets. Its efforts mainly involve programs focusing on the flexibility and availability of facilities. Advanced modeling of feedstocks and processes helps the units overcome their processing-related constraints and operate in real time with these constraints in mind. Research conducted on catalysts is helping to increase their resistance to poisons, improve catalytic stability and extend cycle time at a lower cost. Programs are being set up to maximize the value of heavy residues.

In response to concerns related to social and environmental acceptability, R&D focuses its efforts on reducing emissions, with the aim of ensuring that the facilities environmental impact is limited. In anticipation of problems that arise over the long term and the value of CO_2 R&D is developing technologies to reduce greenhouse gas emissions through carbon capture and recovery by conversion.

Product innovation is a key aspect of research on polymers. R&D draws on its knowledge of metallocenes and bimodality to develop different types of mass consumption polymers which have exceptional properties that allow them to replace heavier materials and compete with technical polymers. Value-added niche polymers are also being developed, whether in the form of blends, compounds or composites. Efforts to diversify into green products are focused mainly on bioproducts endorsed by the market: biomonomers, biointermediates and biopolymers. R&D is banking on polylactic acid for the market launch of new polymers that boast improved properties. In addition, the development of blends, compounds and composites broadens the scope of application of polylactic acid-based polymers.

With regard to biofuels, R&D has focused its efforts on gasification and coprocessing to produce liquid fuels from biomass. R&D is also particularly mindful of issues related to blends and product quality raised by the use of biomolecules.

The efficient use of resources and the management of plastics at the end of their useful life are topics of growing interest. R&D is therefore developing technologies that enable plastics to be used more efficiently as feedstock.

4.2.2. Specialty Chemicals

R&D has strategic importance for Specialty Chemicals. It is closely linked to the needs of subsidiaries and industrial customers.

Material innovation at Hutchinson is opening up new growth opportunities: development of advanced rubber or thermoplastic formulas, development of new material formulations based on composite structures, or thermal applications.

In addition, growth and R&D focus on topics such as weight reduction, more electric vehicles, mechatronics and energy efficiency. Hutchinson set up two new platforms in 2014 within its research center: CTeC dedicated to composite structures, and MHuST dedicated to embedded mechatronic developments.

Atotech is one of the world leaders in integrated production systems (chemicals, equipment, know-how and service) for industrial surface finishing and the manufacturing of integrated circuits. Given the environmental challenges related to electroplating, nearly half of Atotech s R&D projects are intended

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to develop cleaner technologies and create conditions for the sustainable development of these industries.

4.3. Marketing & Services segment

4.3.1. Marketing & Services

In 2014, Marketing & Services R&D fine-tuned its roadmap in line with its ambitions and revised its internal organization.

Two major thematic platforms were identified: reducing the environmental footprint of products and improving the durability of its end users equipment. They include the following development work: fuel economy for customers (fuels, lubricants, additives), competitiveness and new offers (lubricants, bitumens, special fluids), anticipation of regulatory developments (marine lubricants, aviation lubricants), and incorporation of bio-sourced molecules (lubricants, racing fuels).

Fundamental research provides the ideas necessary for designing and developing breakthrough products, which are one of the objectives that Marketing & Services has set for R&D. International secondments were put in place for the first time to incorporate the best scientific expertise into Marketing & Services know-how.

The number of international scientific cooperations grew sharply in 2014, and several researchers of foreign nationalities were recruited for the Solaize Research Center.

The Technical Center of Asia-Pacific, based in India, yielded results for the first time in 2014, mainly for lubricants, but also for special fluids, bitumens, fuel additives and fuels themselves. It is also the global competence center for textile lubricants and two-wheeled vehicles.

In 2014, the development of a new *Excellium* fuel formulas was completed and the benefits for customers were demonstrated. These developments focused on engine cleanliness and incorporate a new detergent technology developed internally. UTAC-CERAM Group s assessment of the *Excellium* formula on trucks, in compliance with the Energy Economy Certificate (CEE) protocol, showed a 4% consumption savings.

The results produced by *Excellium* development work also served as basis for the new *Total Traction Premier* formulation developed for Total France.

In the field of Refining specification additives, new block copolymers were synthesized to improve the cold flow properties of distillates at low temperatures.

The *Fuel Economy* range of lubricants continues to expand with many new products added to comply with the specifications of manufacturers targeted by the Total Lubricants business line in all fields of application (automotive, marine and industries). New marine lubricants for two-stroke engines are being developed to anticipate changes in fuel (very low sulfur in coastal areas) and emissions requirements. Research in lubricants also seeks to drive international development and the growth of the volume of lubricants sold. The number of manufacturers whose engines are being installed on the research center s engine test benches for the assessment of their lubricants is growing constantly with a peak for German manufacturers in 2014.

To meet the challenges of competitiveness, sustainable logistics and geographic development, researchers focused on optimizing bitumen formulas for roads, undertaking studies on the possibility of transporting bitumen in solid form and developing Styrelf formulas in Russia. Work on the formulation and industrialization of a specialty bitumen for industrial application was pursued successfully.

The Federal Aviation Administration (FAA) has selected the proposed unleaded Avgas, which will be assessed comparatively with three other competing proposals.

With a better understanding of the fluid catalytic production process and its applications, new patent applications were filed.

Lastly, thanks to their know-how and responsiveness, the researchers achieved success in racing fuels by developing products suitable for the new Renault V6 Formula 1 engine, particularly fuels containing biohydrocarbons which were instrumental in the victories at the Canadian, Belgian and Hungarian Grands Prix.

4.3.2. New Energies

New Energies R&D effort is focused on the solar value chain from silicon to photovoltaic electricity management systems and on the development of biotechnological methods of converting biomass into products for the Group s markets.

In the field of solar energy, R&D is striving to improve SunPower s methods of producing cells and modules, in order to reduce costs while enhancing their efficiency and reliability. It is also preparing future generation photovoltaic cells within the framework of several strategic partnerships between TOTAL and renowned academic research institutes. In particular, TOTAL is the founding partner of the Ile de France Photovoltaic Institute, an ambitious project set up in the Paris-Saclay campus.

Downstream in the solar value chain, R&D is monitoring the development of low-cost stationary storage technologies. It is also preparing solutions for supplying solar power and associated services to residential markets, by developing software tools and algorithms for the intelligent management of domestic electricity production and consumption, but also by integrating and testing systems combining photovoltaics, storage, control of demand as well as pilots for assessing and improving systems and algorithms in contact with customers.

With regard to biotechnologies, the Group is developing methods for converting sugars into biofuels and molecules of interest for chemicals, as well as processes for the deconstruction of lignocellulose into sugars. The Group has set up its own laboratories, including a competence center on fermentation and a joint laboratory with Marketing & Services devoted to bio-sourced specialties, and a dedicated research team. This research team manages a network of partnerships with research laboratories and startups in the United States and in Europe. The Group s leading partner is Amyris, a U.S. company listed on NASDAQ, in which the Group held a 17.23% stake as of December 31, 2014.

4.4. Environment

Environmental issues are important throughout the Group and are taken into account in all R&D projects. R&D s effort is to ensure optimum management of environmental risk, particularly with regard to:

- water management, notably by reducing the use of water from natural continental environments and by lowering emissions in compliance with local, national and international regulations;
- reduction of greenhouse gas emissions by improving energy efficiency and the monitoring of carbon capture and storage and the potential effects of CO_2 on the natural environment;
- detection and reduction of discharges into the air and simulation of their dissemination;
- prevention of soil contamination and regulatory compliance with regard to historical aspects and the remediation of sites;

changes in the Group s different products and management of their life cycle, in particular in compliance with the Registration, Evaluation, Authorisation and Restriction of Chemicals Directive (REACH).

For more details, refer to 7.2. Safety, health and environment information , below.

5. Competition

TOTAL s main competitors are comprised of national oil companies and international oil companies. The evolution of the energy sector has opened the door to new competitors, increased market price volatility and called the viability of long-term contracts into question.

TOTAL is subject to competition in the acquisition of assets and licenses for the exploration and production of oil and natural gas as well as for the sale of manufactured products based on crude and refined oil. In the gas sector, major producers increasingly compete in the downstream value chain with established distribution companies, including those that belong to the Group. Increased competitive pressure could have a significant negative effect on the prices, margins and market shares of the Group s companies.

The pursuit of unconventional gas development, particularly in the United States, has contributed to falling market prices and a marked difference between spot and long-term contract prices. The competitiveness of long-term contracts indexed to oil prices could be affected if this discrepancy persists and if it should prove difficult to invoke price revision clauses.

The major international oil companies in competition with TOTAL include ExxonMobil, Royal Dutch Shell, Chevron and BP. As of December 31, 2014, TOTAL ranked fourth among these companies in terms of market capitalization.[1]

6. Significant changes in the Group s interests in listed companies in 2012, 2013 and 2014

6.1. TOTAL s interest in OAO Novatek

In March 2011, TOTAL signed an agreement in principle to acquire a 12.09% capital interest in OAO Novatek (hereinafter Novatek), a Russian company listed on the Moscow Interbank Currency Exchange and the London Stock Exchange, with both parties intending for TOTAL to increase its stake to 15% within 12 months and to 19.40% within 36 months.

TOTAL acquired its 12.09% capital interest in Novatek in April 2011 by purchasing shares from Novatek s two major shareholders. Further to this transaction, TOTAL is now represented on the Novatek Board of Directors.

TOTAL raised its stake to 14.09% in December 2011, by acquiring an additional 2% capital interest in Novatek from its two major shareholders, in the framework of the agreement concluded in March 2011.

In 2012, 2013 and 2014, TOTAL proceeded to the acquisition of shares in Novatek on a gradual basis.

As of December 31, 2014, TOTAL held, through its subsidiary Total E&P Holdings Russia, 553,878,690 shares out of a total of 3,036,306,000 outstanding shares, representing 18.24% of Novatek s share capital and voting rights.

6.2. TOTAL s interest in SunPower

In April 2011, SunPower, an American company listed on the NASDAQ, and TOTAL signed a strategic agreement for the acquisition by TOTAL, through a friendly takeover bid, of 60% of SunPower s outstanding shares for a price of $23.25 per share, totaling around $1.4 billion. The friendly takeover bid was concluded successfully in June 2011.

TOTAL also signed in 2011 a five-year financial guarantee agreement with SunPower for a maximum amount of $1 billion, as well as a liquidity support agreement for a maximum amount of $600 million that expired on March 11, 2014.

In January 2012, TOTAL s interest in SunPower increased to 66% as the result of a capital increase coinciding with the Tenesol transaction.

As of December 31, 2014, TOTAL held, through its subsidiary Total Energies Nouvelle Activités USA S.A.S, 78,576,682 shares out of a total of 131,466,777 outstanding shares, representing 59,77% of SunPower s share capital and voting rights.

6.3. TOTAL s interest Sanofi

In fiscal year 2012, TOTAL sold the remainder of its holding in Sanofi, held indirectly through its subsidiary Elf Aquitaine.

7. Social and environmental information

TOTAL puts Corporate Social Responsibility (CSR) at the heart of its activities and adheres to the following principles:

- to protect the safety of people and its facilities;
- to limit its environmental footprint;
- to ensure that its Code of Conduct is applied in its spheres of operations;
- to incorporate the challenges of sustainable development in the exercise of its activities;
- to increase its local integration by placing dialogue with its stakeholders at the heart of its policy and contributing to the economic and social development of the regions where the Group has operations; and
- to promote equal opportunities and foster diversity and cultural mix among its personnel.

TOTAL follows the IPIECA (the global oil and gas industry association for environmental and social issues) reporting guidance and the GRI (Global Reporting Initiative). More details on these reporting frameworks can be found on the Group s website (csr-analysts.total.com).

TOTAL s CSR performance is measured by non-financial rating agencies. TOTAL has been included continuously in the FTSE4Good index (London Stock Exchange) since 2001 and in the Dow Jones Sustainability Indexes (DJSI New York Stock Exchange). In 2014, TOTAL was listed in the DJSI World for the eleventh consecutive year and has been the only major in this index since 2010. TOTAL has also been listed in the DJSI Europe since 2005.

The data provided in this section are provided on a current-scope basis.

[(1)] *Based on market capitalization (in dollars) as of December 31, 2014.*

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7.1. Social information

The quantitative information set out below regarding TOTAL s employees worldwide covers all the entities consolidated under the global integration method. However, some of the data comes from the Worldwide Human Resources Survey (WHRS), which uses almost one hundred indicators to measure the important factors of the Group s employee policy. This annual survey is performed on a sample of employees from the consolidated companies, representative of their distribution by business segment and region; when such WHRS data is mentioned in this document, reference is made to this sample, which represents 91% of the Group s headcount in 2014 (90% in 2013 and 82% in 2012).

7.1.1. Group employees

7.1.1.1. Group employees as of December 31, 2014: Refer to Item 6 D.1. Group employees , below.

7.1.1.2. Employees joining and leaving TOTAL: Refer to Item 6 D.1. Group employees , below.

7.1.1.3. Compensation: Refer to Item 6 B. Compensation Approach to overall compensation , below.

7.1.2. Organization of work

The average work week is determined by applicable local law. It is less than forty hours in most of the subsidiaries in Europe, Japan, Qatar and Australia. It is forty hours in the United States, China, Canada and most Asian and African countries. It is longer in Latin America (Argentina, Mexico, Brazil), in Turkey and in some Asian (India, South Korea) and African countries (South Africa, Equatorial Guinea, Morocco).

Depending on current local law, there are several programs that aim to create a better balance between work and private life and/or to encourage equal career opportunities. In France, teleworking was introduced in 2012. As of December 31, 2014, there were 346 teleworkers in the WHRS France perimeter, 36% of whom were men.

	WHRS 2014	WHRS 2013	WHRS 2012
% of companies implementing part-time work	50%[(a)]	63%[(b)]	69%[(b)]
% of employees, within these companies, working part-time following their request	6%	5.2%	5%
% of companies offering the option of teleworking	16%[(a)]	22%	19%
% of employees involved in teleworking of those given the option	2.1%	2.3%	2%

[(a)] *Since 2014, only companies implementing part-time work following employee requests are included.*
[(b)] *The reduction in this percentage from 2012 to 2013 was due to the difference in the scope of the WHRS.*

The sickness absenteeism rate is one of the indicators monitored in the WHRS:

	WHRS 2014	WHRS 2013	WHRS 2012
Sickness absenteeism rate	2.3%	2.5%	2.6%

7.1.3. Dialogue with employees

TOTAL s employees and their representatives have a privileged position and role among the numerous stakeholders with which the Group has and intends to develop regular dialogue (see also 3.1. TOTAL s societal approach , below). In countries where employee representation is not required by law (for example in Myanmar and Brunei), TOTAL strives to set up such representation. There are therefore employee representatives in the majority of Group companies, most of whom are elected. The subjects covered by dialogue with employees vary from company to company, but there are common major themes such as health, safety, work time, compensation, training and equal opportunity.

As in 2013, organizational changes were carried out in the Group in 2014 in consultation with employee representatives, such as the creation of a new entity (Total Global Services) dedicated to shared IT and telecommunications services, in order to optimize costs while improving the quality of services provided to users. These changes paved the way for a constructive social dialogue, leading to agreements such as that regarding commitments in the context of the proposed disposal of Totalgaz and its subsidiaries. In France, within the scope of the Common Social Framework (approximately 19,000 employees), thirty-one agreements were signed with employee representatives in 2014, covering in particular supplemental health insurance, life insurance, teleworking and compensation systems.

	WHRS 2014	WHRS 2013	WHRS 2012
% of companies with employee representation	75.5%	71.6%[(a)]	79.9%
% of employees covered by collective agreements	67.8%	67.0%	67.7%

(a) *The reduction in this percentage from 2012 to 2013 was due to the differences in the scope of the WHRS.*

TOTAL maintains an ongoing dialogue with employees on a European scale through negotiations with European trade union federations.

Several agreements have been signed, including, for example, the convention on labor relations and equal opportunities that aims to set up a common social platform applicable to all the Group s European entities.

A single Work Committee representing European personnel has been set up at the Group-wide level in order to inform employees and hold discussions on the Group s strategy, its social, economic and financial situation, as well as questions of sustainable development, CSR and safety on a European scale. It also examines any significant proposed organizational change concerning at least two companies in two European countries, to express its opinion, in addition to the procedures initiated before the national representative bodies.

In addition, every other year TOTAL carries out an internal survey (Total Survey) amongst its employees to gather their views and

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expectations with regard to their work situation and perception of the Company, locally and as a Group. The results of the survey conducted in 2013 amongst more than 70% of the Group employees, on 498 sites in 118 countries, show that they have a commitment rate of 73% and that 85% of them are proud to work for TOTAL. The next survey will be conducted at the end of 2015.

Negotiations aimed at reaching a global agreement on Corporate Social Responsibility (CSR) were held in 2014 and resulted in the signing of an agreement on January 22, 2015 with IndustriALL Global Union (IGU). This agreement marks a new stage in the development of the Group s social dialogue, which started many years ago at the European level (ten years of European negotiations, more than fifteen years through the European Committee) and strengthens the Group s commitment as a responsible employer.

By signing this agreement with IndustriALL Global Union, TOTAL is committing to maintain minimum CSR standards and guarantees in all its activities worldwide (companies in which the Group has more than a 50% stake): human rights at work, occupational health and safety, strengthening of the social dialogue, life insurance, professional equality, social responsibility, assisting in the Group s evolution.

The implementation of this agreement will be monitored annually with representatives who are members of trade unions affiliated with IndustriALL Global Union and appointed by this federation.

7.1.4. Training

The Group has four priorities in the field of training:

- sharing TOTAL s corporate values, in particular with respect to corporate HSE and ethics;
- increasing key skills in all business areas and maintaining a high level of operating performance;
- promoting employees integration and career development through induction, management and personal development training; and
- supporting the policy of diversity and mobility within the Group through language and inter-cultural training.

The Group s efforts in the field of training continued in 2014 (78% of employees followed at least one training course) and, within the scope of the WHRS, 380,000 days of training were offered for a total training budget of about €235 million. Technical training or training that meets the specific activity needs are implemented by the operational business divisions in order to better meet the needs of personnel.

In 2014, the Group provided further HSE training, with programs focusing on HSE culture (refer to 7.2.2. Environmental protection 7.2.2.1. General policy , below). This year also marked an acceleration in the development of managerial programs abroad, particularly to strengthen equal career opportunities in the Group. Moreover, the Group has continued the large-scale deployment of business-specific e-learning modules and cross-functional programs on diversity, compliance, competition law, knowledge of the oil and gas chain, etc. In 2014, 30,000 people attended at least one module.

Total University offers Group integration programs as well as courses aimed specifically at developing leadership among managers and executive officers. In addition, Total University presents special theme-based conferences, some of which are open to those outside the Company. These conferences cover strategic topics in the field of energy ranging from technologies to geopolitics and societal issues.

Average number of training days/year per employee (excluding Companion apprenticeships and e-learning)	**WHRS 2014**	**WHRS 2013[(a)]**	**WHRS 2012[(a)]**
Group average	**4.2**	**4.0**	**4.3**
By segment			
Upstream	10.4	10.7	9.6
Exploration & Production	10.8	11.2	10.1
Gas & Power	2.6	2.3	5.3
Refining & Chemicals	3.5	2.9	3.2
Refining & Chemicals	3.6	2.9	3.2
Trading & Shipping	1.4	1.6	1.7
Marketing & Services	2.2	2.7	3.3
Marketing & Services	2.9	3.4	3.7
New Energies	0.3	0.6	1.6

Corporate	6.0	5.5	4.7
By region			
Africa	7.6	8.6	8.4
North America	3.1	3.0	6.1
Latin America	5.3	4.1	3.6
Asia-Pacific	4.6	4.1	5.2
Europe	3.5	3.2	3.4
Middle East	6.9	9.4	5.2
Oceania	0.1	2.3	2.9
French Overseas Departments and Territories	1.6	2.2	2.4
Breakdown by type of training given			
Technical	35%	34%	35%
Health, Safety, Environment, Quality (HSEQ)	21%	22%	26%
Language	14%	16%	14%
Other (management, personal development, inter-cultural, etc.)	30%	28%	26%

(a) *2012 and 2013 data was restated to exclude Companion apprenticeships.*

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7.1.5. Equal opportunity

TOTAL is an international Group in terms of both its operations and its team members. The diversity of its employees and management is crucial to its competitiveness, its innovative capacity, its attractiveness and its acceptability.

For this reason, TOTAL develops its employees skills and careers and prohibits any discrimination related to origin, gender, sexual orientation, disability, age or affiliation with a political, labor or religious organization.

In addition to non-discrimination and respect for differences, the Group promotes proactive behaviors that enable everyone to feel welcome as well as an integral part of the Company.

This diversity entails a commitment at the ground level along with leadership at the highest level. Each entity is responsible for defining its own areas of focus based on the legal context and its requirements. Two areas are managed at the global level:

- gender diversity: offering women and men the same career opportunities;
- nationalities: offering all employees the same career opportunities regardless of their nationality.

Since 2004, the Group s Diversity Council, chaired by a member of the Executive Committee, has overseen activities with a view to increasing the number of women employees, local employees and international employees up to the highest levels of management.

To this end, indicators and quantified goals are in place. The Group s target for 2020 is to have women represent 25% (they were 5% in 2004 and 17.6% in 2014) and non-French nationals 40% (they were 19% in 2004 and 27.2% in 2014) of the executive officers.

7.1.5.1. Equal treatment for men and women

In addition to the various collective agreements embodying its commitment to equal treatment of men and women, TOTAL signed in 2010 the Women s Empowerment Principles Equality Means Business (unglobalcompact.org), set out by the United Nations Global Compact.

The Group intends to further foster gender diversity in all the Group s professions and enable women to gain access to all levels of responsibility on equal terms with their male counterparts. In this regard, the Diversity Council monitors the following indicators:

% of women	2014	2013	2012
In recruitment on open-ended contracts	33.2%	35.9%	31.0%
Employees in management recruitment/JL[(1)] ³10	27.6%	29.2%	27.0%
Employees	31.1%	30.8%	30.0%
Employees in management/JL ³10	24.5%	23.9%	23.5%
Senior executives	17.6%	17.0%	16.3%

[(1)] *JL: the level of the job position according to the Hay method. JL10 corresponds to junior managers.*

TOTAL also participates in the Boardwomen Partners program, which aims to significantly increase the proportion of women on Boards of Directors in large European companies. Following the 2014 Shareholders Meeting, women accounted for 38.5% of TOTAL S.A. s Board members, compared with 33% at year-end 2013.

The Group also shows its commitment through agreements or provisions relating to access to employment, maternity and paternity leave, child care facilities, working conditions, balancing work and family responsibilities (agreement on teleworking signed in 2013) and managing dual careers.

In addition, the Group offers women the opportunity to share and discuss through TWICE (Total Women s Initiative for Communication and Exchange), created in 2006. The aim of this network is to promote career development for women and train and educate men and women about gender equality, in line with TOTAL s gender diversity strategy. This initiative is currently in place in France and around the world (Angola, Belgium, Cameroon, Canada, China, Gabon, Germany, Indonesia, Italy, Nigeria, Republic of the Congo, Singapore, United Arab Emirates and United States) and has over 3,400 members. TWICE offers a mentoring program that supports women in their professional development by helping them better negotiate the key phases of their career, deepen their self-exploration and expand their network. This program is currently deployed internationally with 113 mentee/mentor pairs for the 2014 campaign.

7.1.5.2. Internationalization of management

With employees representing over 140 nationalities, TOTAL enjoys broad cultural diversity, and strives to reflect this at all levels of the Company and across all business segments.

The Group s companies recruit for diverse activities and professions usually with a large technical component, and strive to prioritize local recruitment.

In 2014, 76% of managers recruited were of non-French nationality, representing close to ninety different nationalities. Several measures have been put in place to internationalize management, including harmonizing Human Resources practices (for example with regard to hiring and annual appraisals), increasing the number of foreign postings for employees of all nationalities, and integration and development training organized by large regional hubs (Houston, Johannesburg, Singapore, etc.).

% of employees of non-French nationality	2014	2013	2012
In recruitment on open-ended contracts	90.5%	90.0%	88.2%
Employees in management recruitment/JL ³10	75.8%	73.1%	71.4%
Employees	67.8%	66.6%	64.4%
Employees in management/JL ³10	61.2%	60.9%	59.3%
Senior executives	27.2%	26.2%	24.6%

7.1.5.3. Measures promoting the employment and integration of people with disabilities

For over twenty years, TOTAL has set out its disability policy in France through successive agreements signed with employee representatives to promote the employment of workers with disabilities.

While promoting the direct recruitment of disabled people and cooperation with the sector for disabled workers, TOTAL also takes various types of action:

- in-house: integration, professional training, job retention, communication, awareness sessions organized for managers and teams, Human Resources managers, etc.
- externally: cooperation with recruitment agencies, information and advertising aimed at students, attendance at specialized recruitment forums, etc.

In continuation of the work already undertaken, three new framework agreements, signed for three years (2013-2015) with the French representative unions, set out TOTAL s policy in France with regard to integrating people with disabilities into the work world. In 2014, the average employment rate was 4.27% (direct and indirect employment).

7.1.5.4. Measures promoting non-discrimination and diversity

In addition to basing its recruitment policy on the principle of non-discrimination, TOTAL is involved in a number of initiatives to promote diversity. In France, the Group is in particular a partner in the action taken by Institut Mécénat-Solidarité (IMS)-Entreprendre pour la Cité, with a view to facilitating the integration of young graduates into the workplace.

The Total Foundation also works alongside several associations that help young graduates from disadvantaged backgrounds to find jobs or support them in further education.

In 2014, the Group also signed the LGBT (lesbian, gay, bisexual and transgender) Charter. This document, prepared by the L Autre Cercle association, establishes a framework for combating discrimination related to sexual orientation and gender identity in the workplace in France.

7.2. Safety, health and environment information

TOTAL relies on the charter below, which was adopted in 2000 and updated in 2009 and 2014. This charter now covers the following areas: safety, security, health, the environment, quality and social commitment. It represents the common framework of the Group s management systems in these areas. Group directives define the minimum requirements expected in these fields and are implemented in the business segments, which subsequently factor in the specific characteristics of their operations. Recommendations, guides and manuals are regularly published and made available to the different business segments. They provide invaluable guidance and support for implementing and managing the Group s policies.

Safety Health Environment Quality Charter

In accordance with its Code of Conduct, TOTAL has adopted the following principles concerning safety, security, health, the environment, quality and societal commitment:

Article 1: TOTAL holds safety, security, health, respect for the environment, customer satisfaction, listening to all stakeholders by way of an open dialogue, as paramount priorities.

Article 2: TOTAL complies with all applicable laws and regulations wherever it conducts its business and supplements them with specific requirements and commitments when necessary.

Article 3: TOTAL promotes, among its employees a shared culture which the core components are professionalism, the rigorous compliance and application of regulations, skills management, incident feedback and continuous learning. This approach relies on the vigilance and commitment of all.

Article 4: Each and every team member, at all levels, must be aware of their role and personal responsibility in the practice of their duties. Individuals must demonstrate the strictest discipline in preventing accidents and deliberate damage; in protecting health, the environment and product and service quality whilst addressing stakeholder expectations. Rigor and exemplarity in these fields are important criteria in evaluating the performance of each member of personnel, in particular for those in positions of responsibility.

Article 5: TOTAL favors the selection of industrial and business partners on the basis of their ability to apply policies similar to its own concerning safety, security, health, the environment, quality and societal measures.

Article 6: TOTAL implements, for all of its operations, appropriate management policies regarding safety, security, health, the environment, quality, societal commitment and a periodic risk assessment of relevant policies and measures. Any development of a project or launch of a product is undertaken upon full lifecycle risk assessment.

Article 7: Appropriate safety, health, environmental, quality and societal commitment management systems for each business undergo regular assessment involving measurement of performance setting milestones, formulating relevant action plans and instituting suitable control procedures.

Article 8: TOTAL implements incident response plans and means of intervention designed to face different types of events it may encounter. Such measures are periodically updated and reviewed during exercises.

Article 9: TOTAL is committed to managing its energy consumption, emissions in natural environments (water, air and soils), production of final waste, use of natural resources and impact on biodiversity. It develops new processes, products and customer services in order to enhance energy efficiency and reduce environmental footprint.

Article 10: TOTAL adopts a constructive attitude towards safety, security, health, the environment and quality, based on transparency and an open dialogue with stakeholders and outside parties. Through its societal commitment, TOTAL is particularly keen on contributing to the sustainable development of neighboring communities, with a focus on human, economic and social issues. It conducts its operations in such a way as to responsibly ensure security, in compliance with the Voluntary Principles on Security and Human Rights.

The Industrial Safety department and the Sustainable Development and Environment department, together with the Security department, report to Corporate Affairs and provide support to the segments and ensure that they implement policies that reflect the principles of the charter in a concrete, effective manner.

In accordance with oil and gas industry best practices (set out in the IPIECA reporting guidance), the following health, safety and environment information relates to the activities, sites and industrial assets that TOTAL operates or for which it has been given contractual responsibility for managing operations, directly or through one of its companies. An exception is made for information concerning greenhouse gases, which is also

expressed as a Group share of all assets in which TOTAL has a stake. The data presented in this section are provided on a current scope basis.

7.2.1. Occupational health and safety

For many years, the Group has been developing a normative HSE framework. In this respect, directives have been drawn up for occupational health and safety. These directives set out TOTAL s requirements in these areas for personnel working on its sites. In 2013, the three business segments increased their efforts in terms of the reference frameworks of the HSE management systems in order to provide greater overall consistency, while at the same time respecting the businesses specific characteristics.

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Indicators are used to measure the main results in these areas and monthly reporting of occupational incidents is used to monitor performance at both the global and site level. The Group does not differentiate between the safety of its employees and employees of external contractors (as defined in 7.5. Reporting scopes and method for social and environmental information , below). The indicators below include incidents and hours worked by the Group s employees and those of external contractors.

	2014	2013	2012
TRIR[(a)]: number of lost time injuries per million hours worked	1.3	1.6	1.8
LTIR[(b)]: number of recorded injuries per million hours worked	0.7	0.9	1.0
SIR[(c)]: average number of days lost per lost time injury	29.7	32.0	27.2

(a) *TRIR: Total Recordable Injury Rate.*
(b) *LTIR: Lost Time Injury Rate.*
(c) *SIR: Severity Injury Rate.*

For more than ten years, the TRIR and the LTIR have declined continuously. In 2014, the TRIR for TOTAL employees was 1.1 compared with 1.3 in 2013, and the TRIR for the employees of external contractors was 1.5 in 2014 compared with 1.7 in 2013. The 2014 severity injury rate decreased compared to 2013. The increase in 2013 compared to 2012 was related to a helicopter accident that resulted in the extended absence from work of fourteen employees.

On October 20, 2014, an airplane accident upon takeoff from an airport in Russia resulted in the death of Mr. de Margerie and the crew members. An investigation was undertaken by the competent Russian authorities (MAK) together with experts from the French Office of Investigations and Analysis (*Bureau d Enquêtes et d Analyses* BEA). Its findings will not be known for several months.

In 2014, the Group experienced nine accidents that led to nine fatalities. The number of fatalities per million hours worked (Fatality Incident Rate) calculated over a three-year rolling basis is as follows: 0.025 in 2012; 0.022 in 2013 and 0.024 in 2014.

The Group s safety efforts are focused at the same time on preventing major accidents and accidental spills (refer to 7.2.2.3. Incident risk , below, and Item 3 C. Risk Factors , above), occupational accidents (see below) and transport accidents (refer to 7.3.3. Controlling the impact of the Group s activities , below). They cover both TOTAL employees and employees of external contractors. These efforts are coordinated by the Group s Industrial Safety Division and put into practice by the Group s entities, particularly the HSE departments.

Since 2010, the basic rules to be scrupulously followed by all personnel, employees and contractors alike, in all of the Group s lines of business worldwide, have been set out in a safety document entitled Safety at Work: TOTAL s Twelve Golden Rules . According to the Group s internal statistics, in more than 80% of severe incidents or near misses with high severity potential in the workplace, at least one of the Golden Rules had not been followed. The proper application of these Golden Rules, and more generally of all occupational safety procedures, is verified through site visits and internal audits. World Day for Safety at Work on April 28, 2015 will be dedicated to the Golden Rules and will be an opportunity to assess their dissemination and knowledge in the field five years after their introduction. Regular presentations and seminars are also organized with the employee representatives on the European Works Council to promote these rules.

In 2013, a worldwide safety campaign was launched in the Group in eighteen languages on the theme of commitment to safety: TOTAL commitment for me, for you, for all .

Moreover, the reporting of anomalies (959,000 in 2014) and near misses is strongly encouraged and monitored. The ability of each employee to identify anomalies or dangerous situations is a measure of the personnel s involvement and vigilance in accident prevention and reflects the safety culture level within the Group. In order to strengthen this safety culture level, the reporting of anomalies and best practices was chosen as the theme of World Day for Safety at Work in 2014. An investigation is generally launched in response to any type of accident whatsoever. The method and depth of investigation depend on the actual or potential severity level. For example, a near miss with a high severity potential level is treated in the same way as a severe incident: its analysis is considered to be a key driving force for progress and, depending on its relevance to the Group s other entities, triggers a safety alert and even the dissemination of a feedback report.

The Group s directives are equally demanding with regard to employee health. In particular, the Group s companies are expected to prepare a formal occupational risk assessment (chemical, physical, biological, ergonomic or psychosocial), create a risk management action plan and ensure medical monitoring of staff in line with the risks to which they are exposed. Two main indicators are monitored yearly:

	2014	2013	2012
Percentage of companies included in the WHRS offering employees regular medical monitoring	97%	95%	98%

Number of occupational illnesses recorded in the year (in accordance with local regulations) per million hours worked	0.81	0.68	0.86

In 2014, there was a 23% increase in recorded illnesses compared to 2013 with respect to the main occupational illnesses identified at TOTAL:

- Musculoskeletal disorders, the main cause of occupational illness, representing 57% of all recorded illnesses in 2014. This figure increased by 65% compared with 2013, proving that specific action plans to control risk and improve working conditions, must be maintained over the long-term.
- Illnesses related to asbestos exposure, which decreased by 10% compared with 2013, in line with the continuous decline over several years due to the absence of recent exposure.
- Illnesses related to noise exposure.

A Medical Advisory Committee meets regularly to discuss key health issues that may affect the Group. It consists of external scientific experts and brings together TOTAL s management team and those at the Group affected by these issues. This Committee, which provides scientific monitoring of health problems that could impact the Group, enables the best health protection strategies to be put in place, when necessary.

In support of the Group s health policy and to complement the periodic medical surveillance scheme currently in place, TOTAL set up an employee health observatory which is responsible for keeping track over the long term of any medical conditions potentially affecting employees based on employee category. This program can help to identify the emergence of certain health problems and, if applicable, suggest and oversee the appropriate preventive actions. By the end of 2014, fourteen of the Group s sites in Europe had signed up for the observatory, which monitors approximately 13% of the Group s employees worldwide.

At the same time, eight French sites give their employees a questionnaire to complete when they have periodic medical check-ups, which are used to measure the impact of the reaction to the stress factors to which they may be exposed.

On a broader level, TOTAL is associated with promoting individual and collective health in the countries where it operates (including flu vaccination campaigns and prevention and screening programs for certain diseases, such as AIDS, cancer and malaria, for employees, their families and local communities). Awareness campaigns relating to lifestyle risks in particular have also been in place for several years (including, for example, anti-smoking and anti-drinking campaigns, musculoskeletal disorder prevention programs).Through its Exploration & Production and Marketing & Services activities, TOTAL is present in West Africa, which has been affected by an Ebola epidemic since March 2014. The Group has set up a special steering committee tasked with coordinating efforts with support from an international network of doctors and in conjunction with national and international health authorities. At the Group s companies located in the affected countries, measures have been taken to inform employees about the disease and prevent and detect it in order to provide them with a high level of protection.

TOTAL decided to give €500,000 to the French Red Cross to help fight the epidemic. The agreement allows the French NGO and its national counterparts to develop emergency programs in Guinea, Liberia and Sierra Leone, the three countries most affected by the virus. The financial support provided by TOTAL is evenly distributed among the three countries.

To the Group s knowledge, none of TOTAL s employees or their family members have been infected by the Ebola virus to date.

7.2.2. Environmental protection

7.2.2.1. General policy

The main Group entities have HSE departments or units that ensure compliance with both relevant local regulations and internal requirements. In all, over 1,000 full-time equivalent positions dedicated to environmental matters were identified within the Group in 2014.

The Group steering bodies, led by the Sustainable Development and Environment department, have a threefold task:

- monitoring TOTAL s environmental performance, which is reviewed annually by the Executive Committee, for which multi-annual improvement targets are set;
- in conjunction with the business segments, handling the various environment-related subjects under their responsibility; and
- promoting the internal standards to be applied by the Group s business units as set out in the charter.

The Group s environmental objectives, which were redefined in part at the beginning of 2013 for the period up to 2017, are as follows:

- decrease flaring by 50% from 2005 to 2014 (excluding start-ups);
- improve the energy efficiency of Group installations by 1.5% on average per year from 2012 to 2017;
- decrease greenhouse gas emissions (GHG) by 15% from 2008 to 2015;
- obtain the Total Ecosolutions label for more than 50 products or services by 2015;
- develop a Biodiversity Action Plan by 2015 for all Group industrial sites(1) located in a UICN(2) I to IV or Ramsar convention protected area;
- decrease by 40% the volume of hydrocarbons discharged in the Group s onshore and coastal wastewater from 2011 to 2017;
- decrease Group SO_2 emissions by 20% from 2010 to 2017; and
- certify ISO 14001 all of TOTAL s production sites(3) by 2017.

In 2014, 305 sites operated by the Group were ISO 14001-certified (compared to 314 in 2013), out of a total of 819 operated sites. The goal is to obtain certification for all production sites that emit more than 10 kt of GHG per year. In 2014, 100% of the 79 production sites in this situation were certified. In addition, two new or recently acquired sites were concerned by the Group s policy to allow two years to obtain certification.

The environmental risks and impacts of any planned investment, disposal or acquisition subject to Executive Committee approval are assessed and reviewed before the final decision is made.

TOTAL ensures that all employees are aware of its environmental protection requirements and employees are given training in the required skills. TOTAL also raises employee awareness through internal communication campaigns (*e.g.*, in-house magazines, intranet, posters) and provides annual information about the Group s environmental performance through circulation of the annual report on CSR topics.

Two three-day training courses on all aspects of HSE are also made available to the business units. HSE Implementation sessions are aimed at employees whose job is specifically to handle one or more HSE or operational areas within a business unit (three sessions were held in 2014 with fifty-six participants). The training session HSE for Managers is aimed at senior operational or functional managers who are currently or will in the future be responsible for one of the Group s business units (five sessions were held in 2014 with 228 participants). Lastly, a HSE leadership for Group senior executives course focusing on management styles has been organized since 2012 (five sessions were held in 2014 with 102 participants). Since 2012, close to 250 senior executives have taken part in this program.

7.2.2.2. Environmental footprint

TOTAL implements an active policy of monitoring, managing and reducing the environmental footprint of its operations. As part of this policy, emissions are identified and quantified by environment (water, air and soil) so that appropriate measures can be taken to better control them.

i. Water, air: The Group s operations generate chronic emissions, such as fumes at combustion plants, emissions into the atmosphere from the various conversion processes and discharges into wastewater. In addition to complying with applicable legislation, the Group s companies actively pursue a

(1) *This excludes exploration wells, seismic surveys and distribution and storage of products.*
(2) *International Union for the Conservation of Nature.*
(3) *Defined as the sites emitting more than 10 kt/year of GHG, with a 2-year tolerance.*

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policy aimed at reducing the amount of emissions. Sites use various treatment systems that include different types of measures:

- organizational measures (*e.g.*, using predictive models to control peaks in SO_2 emissions based on weather forecast data, combustion processes management); and
- technical measures (such as building wastewater treatment plants).

These measures can be preventive to avoid generating pollutants (such as low NOx burners for combustion plants) or curative (such as biological treatment of processed water to reduce the hydrocarbon content of the final effluent).

To ensure the quality of its wastewater discharge, TOTAL has set, for all of its offshore exploration and production operations, a target of complying with the hydrocarbon concentration requirements set out in the OSPAR standard (less than 30 mg/l), which is only mandatory in the North Sea. In 2014, the Group achieved this goal for the sixth consecutive applicable year, based on yearly averages.

In 2013, the Normandy platform (petrochemical plant) hosted E4WATER, a European research project aimed at developing tomorrow s technologies that would permit recycling water based on a petrochemical pollution matrix. This involves testing seven pilot processes (sand filtration, ozonation for cooling, UV disinfection treatment, ozonation for wastewater, bio-filtration, ultrafiltration and reverse osmosis) on two aqueous flows at the site: wastewater and cooling water. These technologies are mature, but their combination on a petrochemical matrix is innovative. On completion of this project in 2015, the knowledge acquired will be used locally for a recycling project (40% reduction in withdrawal) or globally (recycling program for Exploration & Production and Refining & Chemicals segments). This project aims at both decreasing the discharge of hazardous substances into the natural environment and saving natural resources by recycling water in the processes used by the Group.

The table below shows changes in chronic emissions into the atmosphere (excluding greenhouse gas; refer to 7.2.2.5. Climate change , below) and discharged water quality:

	2014	2013	2012
SO_2 emissions (kt)	65	75	79
NOx emissions (kt)	93	91	88
Hydrocarbons in discharged water (t, onshore and coastal, excluding Specialty Chemicals)	295	306	437
Chemical oxygen demand (COD) in water discharged by specialty chemicals (t)	172	270	275

The presentation of hydrocarbon discharges in effluents was changed in 2013 to obtain an indicator consistent with the target set by the Group (40% reduction in onshore and coastal hydrocarbon discharges between 2011 and 2017). In order to compare 2014 performance with that of previous years, the concentration of hydrocarbons in water discharged by Exploration & Production was 16 mg/l in 2014 compared to 17 mg/l in 2013 and 23 mg/l in 2012.

The decrease in SO_2 emissions between 2013 and 2014 was driven by the decrease of flaring and the change of fuel in the Group s refineries (from oil to gas); the vast majority of the fuels used at the Group s refineries are now gaseous, and have a much lower sulfur content than liquid fuels.

In 2014, NOx emissions produced by Exploration & Production increased by 3 kt due to the increase in logistics and drilling activities, and therefore of diesel consumption.

The amount of hydrocarbons discharged at the coasts and onshore has slightly declined due to the improved performance of the Group s water treatment.

Below are the Group s achievements at year-end 2014 based on the objectives set at the beginning of 2013:

- 22% reduction in hydrocarbon discharges in water (onshore and coastal) since 2011 compared to the 40% target set for 2017; and
- 34% reduction in SO_2 emissions compared to 2010, that is, exceeding the -20% target set for 2017.

The decrease in chemical oxygen demand in water discharged by Specialty Chemicals, in metric tons, is primarily due to the increased reliability of the measurement of this indicator.

ii. Soil: The risks of soil pollution related to TOTAL s operations come mainly from accidental spills (refer to 7.2.2.3. Incident risk , below) and waste storage (see below).

The Group s approach to preventing and controlling these types of pollution is based on four cornerstones:

- leak prevention, by implementing industry best practices in engineering, operations and transport;
- maintenance at appropriate intervals to minimize the risk of leaks;
- overall monitoring of the environment to identify any increase in soil pollution; and
- controlling pollution from previous activities by means of containment or reduction operations.

Moreover, for all entities for which a Group company may be held liable from an environmental standpoint, a Group directive published in 2014 established the following requirements:

- systematic identification of the sites and their environmental and health impacts related to possible soil and groundwater contamination;
- the impacts resulting from soil and groundwater contamination are assessed based on the extent of the pollution (inside or outside the site s boundaries), the nature and concentrations of pollutants, the presence of a vector that could allow the pollution to migrate, and use of the land and groundwater in and around the site; and
- the health or environmental impacts identified are managed based on the use of the site (current or future, if any) and according to the risk acceptability criteria recommended by the World Health Organization (WHO) and the Group. This management is performed by treating the source of the pollution (for example, elimination, chemical, physical or biological treatment), by stopping the transfer of the pollution (for example through appropriate monitoring, capture, soil impermeability, retention ponds, containment), or by eliminating or limiting targets exposure (for example, by limiting access).

Lastly, decommissioned Group facilities (*e.g.*, chemical plants, service stations, mud pits or lagoons resulting from hydrocarbon extraction operations, wasteland on the site of decommissioned refinery units, etc.) impact the landscape and may, despite all of the precautions taken, be sources of chronic or accidental pollution. TOTAL ensures that they are remediated in order to allow new operations to be set up once the future use of the land has been determined in agreement with the authorities. This continuous task is performed by various teams within the Group, sometimes organized as subsidiaries, and has been governed by a Polluted soil and site remediation Group policy since 2012.

iii. Waste: The Group s companies are focused on controlling the waste produced at every stage in their operations. This commitment is based on the following four principles, listed in decreasing order of priority:

1. reducing waste at source, by designing products and processes that generate as little waste as possible, as well as minimizing the quantity of waste produced by the Group s operations;
2. reusing products for a similar purpose in order to prevent them from becoming waste;
3. recycling residual waste; and
4. recovering energy, wherever possible, from non-recycled products.

For example, TOTAL has developed a partnership with Veolia through its involvement in the Osilub project, which culminated in the construction of a used motor oil recycling plant in Le Havre, France. The plant, in which TOTAL holds a 35% share, entered into production in 2012 and has a processing capacity of 120,000 t/y of oil (50% of all the used motor oil collected in France); the recycled oil is used to make Vacuum Gas Oil (VGO) for refinery production of lubricants and fuels.

A Group directive issued in 2012 sets out the minimum requirements related to waste management. It is carried out in four basic stages:

- waste identification (technical and regulatory);
- waste storage (soil protection and discharge management);
- waste traceability, from production through to disposal (*e.g.*, notes, logs, statements); and
- waste processing, with technical and regulatory knowledge of the relevant channels, under site responsibility.

TOTAL is especially committed to managing and treating waste classified as hazardous. Depending on its type, waste is mainly processed outside the Group by specialized companies:

	2014	2013	2012
Volume of hazardous waste treated outside the Group (kt)	223	232	237

Since 2012, TOTAL has also been monitoring the different waste treatment technologies used for the following categories:

	2014	2013	2012
Recycling	47%	37%	38%
Waste-to-energy recovery	9%	7%	9%
Incineration	8%	12%	12%
Landfill	20%	23%	20%

iv. Environmental nuisance: TOTAL s operations may cause environmental nuisances for residents near its industrial sites. These may be sound or odor nuisances, but can also result from vibrations or road, sea or river traffic.

Most sites have a system for receiving and handling residents complaints, the aim of which is to take account of and gain a clearer insight into the different types of nuisances and to minimize them (refer to 7.3.3. Controlling the impact of the Group s activities , below). Monitoring systems can also be put in place, such as sound level measurements at the site perimeter or networks of sensors to determine the origin and intensity of odors.

7.2.2.3. Incident risk

In addition to setting up management structures and systems, TOTAL strives to minimize the industrial risks and the environmental impacts associated with its operations by:

- performing rigorous inspections and internal audits;
- training staff and raising the awareness of all parties involved (refer to 7.2.2.1. General policy , above); and
- implementing an investment policy.

In particular, TOTAL strives to prevent accidental spills. A common technological risk management approach has been developed to formalize this requirement at the Group s industrial sites. The methodology is gradually being implemented in all operated businesses exposed to technological risks and sets out a risk analysis based on incident scenarios for which the severity of the consequences and the probability of occurrence are assessed. These parameters are used to create a decision matrix that identifies the required level of mitigation.

With regard to shipping, the Group has an internal policy setting out the rules for selecting vessels. These rules are based on the recommendations of the Oil Company International Marine Forum (OCIMF), an industry association consisting of the main global oil companies that promotes best practices in oil shipping, and its Ship Inspection Report (SIRE) Programme. TOTAL does not charter any single-hulled vessels for shipping hydrocarbons and the average age of the fleet chartered on time by TOTAL s Shipping division is less than six years.

The Tier 1 indicator loss of primary containment (standard defined by the American Petroleum Institute (API) and the International Association of Oil & Gas Producers (IOGP)) is monitored at the Group level. In 2014, thirty-seven Tier 1 events were identified in all sites operated by the Group, compared with sixty-six in 2013.

In accordance with industry best practices, TOTAL particularly monitors accidental liquid hydrocarbon spills of a volume of more than one barrel. Spills that exceed a certain severity threshold (whether in terms of volume spilled, toxicity of the product in question or sensitivity of the natural environment affected) are reviewed on a monthly basis and annual statistics are sent to the Group s Management Committee. All accidental spills are followed by corrective action aimed at returning the environment to its original state as quickly as possible.

The table below shows the number and volume of accidental hydrocarbon spills with an environmental impact and that are greater than one barrel in volume:

	2014	2013	2012
Number of hydrocarbon spills with an environmental impact	129	169	219
Total volume of hydrocarbon spills with an environmental impact (thousands of m^3)	5.8	1.8	2.0

Note: Soil on sites is deemed to form part of the natural environment unless sealed.

The sharp increase of volumes spilled in the environment in 2014 is due to the Ile-de-France pipeline accident. This event led to remediation operations that enabled nearly all spilled hydrocarbons to be recovered. Excluding this incident, the volume of spills for other events decreased compared to 2013. This trend is in line with the number of registered events, also clearly down (-24%) compared to 2013.

While risk prevention is emphasized, TOTAL regularly trains in crisis management on the basis of risk scenarios identified through

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analyses. In 2014, feedback from past events prompted the head office to set up a new crisis management center at the Group level. These facilities allow the management of two crises occurring simultaneously.

In particular, the Group has emergency plans and procedures in place in the event of a hydrocarbon leak or spill. For accidental spills that reach the surface, anti-pollution plans are regularly reviewed and tested during exercises. These plans are specific to each company or site and are adapted to their structure, activities and environment while complying with Group recommendations. In 2012, the Group s requirements for preparing emergency plans and the associated exercises were set out in a Group directive.

The Group uses the following indicators to measure its readiness to counteract pollution:

	2014	2013
Number of sites whose risk analysis identified at least one scenario of major accidental pollution to surface water	155	150
Proportion of those sites with an operational anti-pollution plan	90%	87%
Proportion of those sites that have performed at least one anti-pollution exercise during the year	82%	82%

Also available to the Group s companies, the PARAPOL (Plan to Mobilize Resources Against Pollution) alert scheme is used to facilitate crisis management at the Group level. Its main aim is to mobilize the internal and external human and material resources necessary to respond in the event of pollution of marine, coastal or inland waters, without geographical restriction, at any time, at the request of any site.

The Group and its companies have assistance agreements with the main bodies specializing in oil spill management, such as Oil Spill Response Limited, CEDRE and Clean Caribbean & Americas. Their role is to provide expertise, resources and equipment in all of the regions where TOTAL has operations. TOTAL has also forged partnerships with entities that specialize in oiled wildlife care.

Following the blowout of the Macondo well in the Gulf of Mexico in 2010 (in which the Group was not involved), TOTAL created three task forces in order to analyze risks and issue recommendations.

- Task Force 1 reviewed the safety aspects of deep offshore drilling operations (well architecture, design of blow-out preventers, training of personnel based on lessons learned from serious accidents that have occurred recently in the industry). Its efforts have led to the implementation of even more stringent controls and audits on drilling operations.
- Task Force 2, in coordination with the Global Industry; Response Group (GIRG) created by the IOGP, developed deep offshore oil capture systems and planned related containment operations in case of a pollution event in deep waters. Several of these systems were positioned in various parts of the world in 2013 and one of them was tested by TOTAL in November 2013 during a large-scale exercise in Angola; and
- Task Force 3 addressed plans to fight accidental spills in order to strengthen the Group s ability to respond to major accidental pollution, such as a blow-out or a total loss of containment from an FPSO (Floating Production, Storage and Offloading facility). This initiative has led, in particular, to a sharp increase in the volume of dispersants available within the Group.

This work is now complete and the Group s efforts to deploy solutions to minimize such risks are ongoing, in particular regarding

works on wells, subsea dispersant injection, the tracking and predicting of oil slick locations and crisis management organization.

In 2014, the last of the four capping systems resulting from the work carried out as part of the Subsea Well Response Project (SWRP), a consortium of nine oil companies including TOTAL, was deployed. These systems are positioned in various parts of the world (South Africa, Brazil, Singapore, Norway) to provide solutions that can be launched into action in the event of deep offshore drilling pollution incidents. Additionally, as part of TOTAL s own Subsea Emergency Response System (SERS) project, the construction of capping equipment resulting from this work is complete and deployment is scheduled for 2015 in the Gulf of Guinea where TOTAL is strongly present in subsea production.

In November 2013, a large-scale exercise to simulate a massive oil leak in deep offshore waters was conducted in Angola. During this three-day emergency exercise, known as Lula , the Angolan entity deployed the resources that would have been needed to manage an actual event of this kind (*e.g.*, several ships, an airplane, helicopters, teams working on the FPSO, at the headquarters of Total E&P Angola in Luanda and the Group in Paris, etc.). It provided the opportunity to test a number of the systems implemented by the post-Macondo task forces:

- deployment of a subsea dispersant injection system;
- supply chain for large quantities of dispersants;

- surface anti-pollution mechanisms (*e.g.*, dispersion, recovery);
- systems for tracking and modeling of oil slick migration (*e.g.*, satellite tracking, prediction models based on oceanographic/ meteorological data, etc.); and
- mobilization of partners that specialize in crisis management and pollution control.

Many lessons have been learned from this exercise and a detailed feedback report was drafted in 2014 to strengthen the Group s ability to respond to an accident of this scale. The roles of and relationships between each party in the emergency response were fine-tuned. The time needed to make dispersion systems available was measured and their availability tracked. Pollution assessment and monitoring was tested, in particular regarding the means and information necessary to ensure the tracking and modeling of oil slick migration.

7.2.2.4. Sustainable use of resources

i. Water: The worldwide distribution of available fresh water varies greatly in space and time. The issue of water consumption therefore requires different responses depending on the regional and technical context.

In order to establish which facilities are affected by this issue as a priority, TOTAL conducts the following:

- identification of water withdrawals and discharges across all of its sites; and
- identification of sites located in water stress areas (watersheds that will have less than 1,700 m³ of renewable freshwater available per person and per year by 2025, according to the Falkenmark indicator), using the global water tool for oil & gas developed jointly by the World Business Council for Sustainable Development and IPIECA, and water stress levels are reevaluated each year.

	2014	2013	2012
Fresh water withdrawals excluding cooling water (million m^3)	112	126	143
Percentage of Group sites, excluding Marketing, located in water-stressed areas	53%[(a)]	49%	49%

(a) *Percentage calculated using the 2015 version of Global Water Tool.*

The decrease in water withdrawals between 2012 and 2014 is due mainly to the deconsolidation of Fertilizers in 2013 and the Sobegi site in France in 2014.

The increase in the percentage of sites located in water-stressed areas is linked to the evolutions of the Global Water Tool databases in 2014 (source: World Resource Institute, WRI Aqueduct), but also to a global fall in the number of sites located in so-called water-sufficient or water-abundant areas, according to the indicator used (Falkenmark, 2025 projection).

In 2013, the Group launched an initiative to identify the risk levels of its sites (with withdrawals of more than 500,000 m^3 per year) located in water stress areas. The Local Water Tool developed by the Global Environmental Management Initiative (GEMI) is used to perform these assessments. It targets the main risks related to water resources, including effluents, and therefore helps to guide the actions needed to reduce these risks in order to optimize the use of water resources at these sites. This program will be gradually expanded based on the sites water stress levels and changes to them.

The Optimization of water consumption at industrial facilities guide sets out best practices for saving and recycling water at all Group sites. The guide has been widely distributed throughout the Group since 2007. In addition, several other technical guides on water management specific to the oil industry are used by the Group, including those of the IPIECA and the IOGP on efficient management of the resource for exploration, production and refining, in order to integrate the best and most recent techniques into its practices.

In Exploration & Production operations, reinjecting water extracted at the same time as the hydrocarbons, called produced water, back into the original reservoir is one of the methods used to maintain reservoir pressure. The technical specifications in force in the Group stipulate that this option is given priority over other methods. The Group s R&D programs are an opportunity to study the best techniques for treating this produced water so as to facilitate its reinjection or allow its discharge into the natural environment, if reinjection is not possible, while respecting natural and regulatory constraints.

At refineries and petrochemical sites, water is mainly used to produce steam and for cooling units. Increasing recycling and replacing water cooling with air cooling are TOTAL s preferred approaches for reducing freshwater withdrawals.

ii. Soil: TOTAL uses the ground surface that it needs to safely conduct its industrial operations and, at present, does not make extensive use of ground surfaces that could substantially conflict with the various natural ecosystems or with agriculture.

For open-pit oil sands mining projects, TOTAL emphasizes an awareness by the operator of environmental issues, in particular remediation of affected sites.

iii. Raw materials: Hydrocarbons, an energetic material, are the Group s main raw material. Optimum use of hydrocarbons therefore lies in what is known as energy efficiency , as described in 7.2.2.5. Climate change , below.

Since 2011, TOTAL has measured the raw material loss rate for each line of business, *i.e.* the percentage of converted raw materials that are neither delivered to any of the business line s customers nor used for energy purposes.

Raw material loss rate	2014	2013	2012
Hydrocarbon production business	2.4%	2.5%	2.8%
Refining business	0.5%	0.5%	0.5%

7.2.2.5. Climate change

The Group s approach to climate and energy is to satisfy a growing demand for energy while providing concrete solutions, as needed, to limit the effects of climate change.

To do so, the Group has built its action around five focal points:

1. focusing on the development of natural gas as the primary fossil energy source due to its low carbon intensity;
2. developing the solar energy offer as the renewable energy of choice in the evolution of the energy mix;
3. improving the energy efficiency of the Group s facilities, products and services, and maintaining efforts in terms of direct emissions of greenhouse gas (GHG);
4. increasing access to a more sustainable energy, for the highest number of people; and
5. making public commitments regarding the industry s acknowledgment of climate issues and working on the challenge posed by climate change.

i. The role of gas: The Group believes in the essential role of natural gas as one of the solutions to climate change issues. Indeed, replacing coal with natural gas at power plants could help reduce worldwide CO_2 emissions by 5 Bt/y, *i.e.*, approximately 15% of the effort that must be made by 2030 to remain within the 2 °C warming limit[(1)]. This reduction of GHG emissions can only be accomplished by limiting methane losses to less than 3% throughout the entire production value chain.

Natural gas rose from 35% in 2005 to more than 50% in 2014 of TOTAL s production and is expected to contribute to approximately half of the Group s production in the coming years.

Methane losses for the Group are below 3%. Indeed, TOTAL is particularly focused on controlling methane since methane s global warming potential is twenty-five times higher than CO_2[(2)] and given its short life span in the atmosphere, a reduction in methane emissions is expected to play a significant role in the fight against climate change. To support this effort, TOTAL became one of the first members of the partnership between governments and industry companies regarding the improvement of tools to measure and control methane emissions set up by the Climate and Clean Air Coalition and promoted by the United nations Environment Programme and the non-profit organization Fund Environmental Defense.

ii. Continuing to develop new energies: TOTAL has long been committed to developing renewable energies. The main focus in developing renewable energies is solar energy through SunPower (world s second-largest player, 59.77%-owned by the Group as of December 31, 2014).

For nearly thirty years, SunPower has developed high-efficiency photovoltaic technologies and has progressively established itself as one of the foremost specialist in solar energy in the World, in particular with regard to the reliability of its solutions. SunPower operates across the entire energy chain, from the production of photovoltaic cells to the designing of turnkey solar plants or residential solar energy installations.

In addition to solar energy, biomass is another TOTAL strategic development point in the field of new energies. Biomass

[(1)] *The New Climate Economy report, published in 2014.*
[(2)] *Fifth assessment report of the Intergovernmental Panel on Climate Change (IPCC).*

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represents approximately 10% of worldwide energy consumption and is mostly used for heating or cooking purposes. Biomass is the only renewable alternative to fossil resources for the provision of liquid fuel for transport (biodiesel, bioethanol, biokerosene), lubricants and base molecules for chemicals (solvents or polymers).

The Group has therefore launched various ambitious research programs and entered into innovative industrial partnerships in order to identify, test, and industrialize the most promising avenues for biomass transformation in societal, environmental and economic terms.

TOTAL invests in R&D to reduce direct GHG emissions into the atmosphere by other means. For example, through Total Energy Ventures (TEV), its venture capital firm created in 2008, the Group supports the development of companies that offer innovative technologies or business models in such areas as renewable energies, energy efficiency, energy storage, GHG reduction, sustainable mobility, etc. For instance, in 2014 TEV acquired a stake in Solidia, a start-up that has developed a technology that uses CO_2 in the production of cement and concrete with high environmental performance. At year-end 2014, TEV had made twenty investments.

iii. Energy efficiency and ecoperformance: In its area of activity, TOTAL has made reducing GHG emissions one of its priorities. It has set the objective of reducing GHG emissions from its operations by 15% from 2008 to 2015. At this stage, this objective has been met. This reduction entails reducing continuous flaring and improving energy efficiency.

	2014	2013	2012
Operated direct GHG emissions (Mt CO_2 equivalent) (100% of emissions from sites operated by the Group)	44	46	47
Daily volumes of gas flared (million m³ per day)	9.8	10.8	10.8
Group share of direct GHG emissions (Mt CO_2 equivalent)	54	51	53

Reducing continuous flaring

Since 2000, TOTAL has made a commitment to stop continuous flaring of gas associated with crude production for its new projects. The Group s objective to reduce continuous flaring (excluding the start-up of new facilities) by half between 2005 and 2014 has been achieved.

Flaring of associated gas was down in 2014, in particular due to an operational improvement campaign led on the Republic of the Congo fields. Excluding volumes related to the start-up of facilities, the volume of flared associated gas totaled 7.5 Mm³/d in 2014. The Group has thus reached its target of a 50% reduction of flared associated gas between 2005 and 2014, excluding start-up phases of new facilities.

In 2014, TOTAL joined the initiative launched by the World Bank and made a commitment to eliminate continuous flaring from its operations by 2030. For over ten years, as part of the Global Gas Flaring Reduction program, TOTAL has worked alongside the World Bank to help producing countries and industrial players control continuous flaring of associated gas. TOTAL s support for the international program spearheaded by the World Bank is a logical continuation of its long-standing efforts in this area.

Improving the energy efficiency of the Group s facilities

One of the Group s performance targets is to better control its energy consumption. Internal documents (roadmaps and guides) describe the challenges, set out methodologies and action plans, and even include quantified goals to reduce consumption. Since

the beginning of 2013, a Group directive has defined the requirements to be met by 2016 at operated sites that use more than 50,000 tons of oil equivalent per year of primary energy.

In early 2013, the Group set an objective to improve energy efficiency by 1.5% per year on average between 2012 and 2017 within Exploration & Production, Refining and Petrochemicals (with the exception of the resins business which has now been sold). These activities represent over 95% of the Group s net primary energy consumption. A Group Energy Efficiency Index (GEEI) was created in early 2013 to assess the Group s performance in this area. It consists of a combination of energy intensity ratios (ratio of net primary energy consumption to the level of activity) per business, reduced to base 100 and consolidated with a weighting by each business s net primary energy consumption. Its value was defined as 100 in 2012 and the goal is therefore to reach 92.5 by 2017.

	2014	2013	2012

Net primary energy consumption (TWh)	153	157	159
Group Energy Efficiency Index (base 100 in 2012)	101.0	102.3	100

The decrease in net primary energy consumption is due primarily to the good performance of refining, on a same level of activity basis, as well as the decrease of activity in Exploration & Production.

The Group s energy efficiency improved in 2014 compared to 2013 despite taking into account the start-up of CLOV in Angola which deteriorated Exploration & Production s performance as the flaring of associated gas during the startup phase of CLOV lasted longer than expected. Excluding flaring related to the start-up of facilities, the performance was 100.7 in 2014.

Improving the footprint of the Group s services and products

TOTAL is also committed to its clients and employees.

Approximately 85% of GHG from oil and gas are emitted during the customer usage phase, compared with 15% during the production phase. For this reason, in addition to the measures taken by TOTAL at its industrial sites, the Group believes that improving the footprint of its products and services is a key factor in the fight against climate change.

In France, Energy Efficiency Certificates (*Certificats d économies d énergie* CEE) are awarded by the administration in recognition of energy-saving activities. TOTAL encouraged its customers to reduce their energy consumption by 50 TWh (over the entire service life of the product) from 2011 to 2014.

Through the Total Ecosolutions program, the Group is also developing innovative products and services that perform above market average on the environmental front, in particular in terms of curbing energy use and GHG emissions. At year-end 2014, seventy products and services bore the Total Ecosolutions label, which puts the Group ahead of its target of fifty products and services by year-end 2015 thanks to the labeling of such product ranges as Azalt Eco bitumen for warm-mix asphalt (bitumen that allows the mixing phases to be completed and executed at temperatures 40 °C lower than those required for traditional bitumen), and despite the loss of several products resulting from sales of subsidiaries in progress or completed (CCP Composites, Bostik, Totalgaz). The CO_2 eq emissions avoided throughout the life cycle by the use of Total Ecosolutions products and services, compared to the use of benchmark products on the market and for an equivalent level of service, are measured annually based on sales volumes. This represented 1.5 Mt CO_2 eq in 2014.

In 2012, TOTAL introduced an Energy Efficiency scheme that allows its employees in France to improve the energy efficiency of their homes. This scheme was expanded in 2014 to allow them to perform an energy audit of their homes (two-thirds financed) and to receive investment subsidies for energy efficiency upgrades under the Energy Efficiency Certificate program in France, as well as a Group contribution for two upgrade projects and special discounts from building professionals who partner with the Group. By combining an energy audit, energy efficiency certificates and contributions from the Group, employees can receive up to €1,500 in assistance to complete their project.

iv. Access to energy: To date, the World Bank estimate for people without access to electricity has exceeded 1.3 billion. In 2011, TOTAL therefore launched a range of innovative solar energy solutions, accessible to the highest number of people, the main project of which is *Awango by Total* (refer to 7.3.4. Creating local value , below).

v. Public commitments: To ensure that investment projects are as profitable as anticipated in the desirable event that the international community agrees to put a cost on CO_2 emissions, investments have been valued since 2008 generally based on a cost of CO_2 emissions of €25 per metric ton of CO_2 emitted.

Moreover, in 2014 TOTAL decided to join the call of the United Nations Global Compact, which encourages companies to consider a CO_2 price internally and publicly support the importance of such a price via regulation mechanisms suited to the local contexts. In particular, TOTAL advocates the emergence of a balanced, progressive international agreement that prevents the distortion of competition between industries or regions of the world. Drawing attention to future constraints on GHG emissions is crucial to changing the energy Mix.

According to the IEA, the electricity-generating sector is the sector that must contribute most to the decrease of CO_2 emissions in the World by 2035 in order to remain within the 450 ppm of CO_2 (electricity generation contributes for more than 65% to the emission reduction effort, compared to 11% for the industrial sector, 16% for transport and 4% for the construction sector). Substituting coal for gas in the electricity-generating sector is to date the fastest and cheapest way to reduce worldwide CO_2 emissions. This solution is immediately available and offers the necessary flexibility to electric networks, which supplements intermittent energies. Hence TOTAL supports standards that impose emission thresholds on electricity generation, expressed in gCO_2/kWh produced. Such standards are being discussed in the United States and the United Kingdom.

In 2014, TOTAL was actively involved in launching and developing the Oil and Gas Climate Initiative, a global industry partnership announced at the UN Climate Summit in New York on September 23, 2014. The aim of this initiative, which at early 2015 included seven major international energy players, is to share experiences, advance technological solutions and catalyze meaningful action in order to assist the evolution of the energy mix in a manner compatible with climate change issues.

TOTAL also actively participates in the debate on climate issues and has long-term partnerships with key stakeholders. For example, TOTAL funds research programs in France conducted by the ADEME, Paris-Saclay and the Climate Economics Chair at Paris-Dauphine University, as well as the Massachusetts Institute of Technology (MIT) in the United States. TOTAL also joined the World Business Council for Sustainable Development (WBCSD) in 2014. Lastly, TOTAL offers training and makes presentations at several universities, thereby taking part in the debate.

vi. Adapting the Group s facilities to climate change: The Group assesses the vulnerability of its existing and future facilities based on predictions related to climate change.

Climate conditions are factored into the design of industrial facilities, which are not only built to withstand extreme events observed in the past, but also to include additional safety margins.

The Group s operations can be adversely affected by climate change in many ways. Declining water resources could have a negative effect on the Group s operations in certain regions of the world, higher sea levels could affect certain coastal activities and a growing number of extreme weather events could damage the land-based and offshore facilities. These climate risk factors are continuously assessed in TOTAL s management and risk prevention plans.

7.2.2.6. Protecting biodiversity and ecosystem services

Given their nature, the Group s projects, and particularly Exploration & Production projects, may be located in sensitive natural environments. TOTAL s operations can therefore have an impact on ecosystems and their biodiversity. More specifically, impacts may be:

- related to environmental footprints linked to construction sites, access roads, linear infrastructures, etc., which can result in habitat fragmentation;
- physicochemical, leading to changes in environments and habitats, or which might affect or interfere with certain species;
- related to the propagation of invasive species in terrestrial and marine environments; and
- the result of the migratory influx of humans.

TOTAL is aware of these challenges and takes biodiversity and ecosystem services into account in its guidelines and operations:

in the Safety Health Environment Quality Charter (refer to to 2. Safety, health and environment information , above), which specifies that through its societal commitment, TOTAL is particularly keen on contributing to the sustainable development of neighboring communities and that TOTAL is committed to managing its ( ) use of natural resources and impact on biodiversity and therefore supports ecosystem services; and
in the biodiversity policy that details the Group s principles for action in this area:

1. Taking an approach based on identifying the risks and sensitivities of environments as early as the project approval process, with special attention given to operations in regions whose biological diversity is particularly rich or sensitive. For example, TOTAL has made a commitment not to engage in oil and gas exploration or extraction operations at natural sites included on the UNESCO World Heritage List of June 4, 2013. In addition, TOTAL currently does not conduct any exploration activities in oil fields under the ice cap.

2. Incorporating biodiversity protection into the environmental management system, particularly into initial analyses and social and environmental impact studies. This effort to assess sensitivity is founded on a constructive attitude based on transparency and dialogue with third parties and benefits from partnerships with biodiversity experts (for example, United Nations Environment Programme-World Conservation Monitoring Center UNEP-WCMC).

3. Following the impact mitigation hierarchy, starting with avoidance, whenever possible, and then minimizing the impact of operations on biodiversity throughout the life

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cycle of the facilities and during their reclamation. TOTAL also assesses biodiversity offsetting approaches.

4. Informing and raising the awareness of employees, customers and the public by helping them better understand biodiversity and ecosystems. The Group is actively involved in research in these areas, including through its partnerships. The Total Foundation also develops initiatives in this area (refer to 7.3.5. Partnerships and philanthropy , below).

This policy is implemented by means of a number of tools and rules. Throughout the Group, and particularly in Exploration & Production, directives, rules, guides and specifications govern the performance of baseline surveys and environmental impact assessments, which allows an approach based on the impact mitigation hierarchy, up to the implementation of management of biodiversity impacts in the field and performance monitoring.

Since 2011, all of the Group s business units have had access to a detailed mapping tool that shows the world s protected areas based on data updated regularly by its UNEP-WCMC partner. TOTAL classifies protected areas around the world according to the categories defined by the IUCN (International Union for the Conservation of Nature), while taking into account protected areas that may not yet be categorized and other sensitive areas in terms of biodiversity. For industrial sites and new projects[(1)] located in the most sensitive protected areas corresponding to IUCN categories I to IV, such as national parks, in addition to its biodiversity policy, TOTAL develops specific biodiversity action plans based on industry best practices. Each development project, particularly new fields, is therefore the subject of an in-depth biodiversity study.

For example, in 2012 TOTAL acquired acreage near Lake Albert in Uganda in partnership with CNOOC and Tullow Oil (33% each). TOTAL is the operator of Block 1 of this license, most of which is located within Murchison Falls National Park and the Ramsar zone of the Albert Nile Delta. This IUCN II-classified park was created in particular to protect its fauna, which includes such iconic species as large mammals (for example, elephants and Rothschild s giraffes), reptiles and numerous birds (including the shoebill). In light of this site s unique biodiversity, and in addition to applying the general principles of the Group s biodiversity policy, Total E&P Uganda set as its objective a net increase in biodiversity. To this end, Total E&P Uganda has taken the impact mitigation hierarchy approach based on specific operating rules, such as using wireless geophone systems for seismic campaigns, limiting the size of drilling pads to 1 hectare (100 m x 100 m) and mapping biodiversity hotspots to prevent interference with areas sensitive for fauna (*e.g.*, breeding grounds) during the seismic campaign, especially in the Albert Nile Delta. A dedicated social and environmental team, whose members include specialists in biodiversity and ecosystem services, has been created. A Biodiversity and Livelihood Advisory Committee has been set up with external stakeholders from national and international organizations specializing in nature conservation and relations between communities and wildlife. Its role is to ensure that Total E&P Uganda is aware of and implements best practices for its operations inside the park in order to help it meet its objective of a net increase in biodiversity, which is currently among the best practices related to biodiversity management.

In addition, the Group benefits from and actively contributes to the development of best practices related to biodiversity and ecosystem services management in the extractive industry through its partnerships with the IPIECA and the Cross-Sector Biodiversity Initiative (an initiative that brings together the Equator Principles signatory banks and the mining and oil industries). Its partnership with the *Fondation pour la Recherche sur la Biodiversité* (foundation for biodiversity research) in France continues. In 2014, TOTAL also teamed up with the Business and Biodiversity Offset Programme, which will be launched in 2015, in order to strengthen offset mechanisms related to biodiversity damage resulting from its new projects. TOTAL also participated in the IUCN 2014 World Park Congress in Sydney, Australia, where it presented its overall approach to biodiversity management and, together with its peers, demonstrated the oil industry s ability to operate, particularly in sensitive areas in terms of biodiversity.

7.2.3. Consumer health and safety

Many of the products that TOTAL markets pose potential risks, for example if they are used incorrectly. The Group therefore meets its current and future obligations with regard to information and prevention in order to minimize the risks throughout its product s life cycle.

TOTAL uses various guidelines to ensure compliance with the necessary measures to be implemented to promote consumer health and safety:

- the Safety Health Environment and Quality Charter (articles 1 and 6; refer to 2. Safety, health and environment information , above);
- a health policy that sets out the Group s principles for action in relation to incident prevention and protecting the health of people in direct or indirect contact with its products throughout the entire product life cycle, including customers, users and anyone else involved; and
- a directive stating the minimum requirements for marketing products worldwide in order to avoid or reduce potential risks to consumer health and the environment.

TOTAL identifies and assesses the risks inherent to its products and their use, and then informs customers and users of these risks and the applicable prevention and protection measures. The material safety data sheets (MSDS) that accompany all products marketed by the Group (in at least one of the languages used in the country) and product labels are two key sources of information in this regard. All new products comply fully with the regulatory requirements in the countries and markets for which they are intended.

As part of the first phase of the European Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (REACH), the Group has registered a total of 214 chemical substances. This regulation aims to protect the health of consumers and professionals by means of a stringent assessment of the toxicological effects for each substance use scenario and the implementation of appropriate mitigation measures.

(1) *Excluding exploration wells, seismic surveys and distribution and storage of products.*

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7.3. Societal information

7.3.1. TOTAL s societal approach

Wherever the Group operates, and in line with the values and principles set out in its Code of Conduct and Safety Health Environment and Quality Charter, TOTAL places its commitment to community development at the heart of its corporate responsibility in order to create value that is shared with those living near its facilities, its suppliers and its employees.

Formalized in 2011 and accompanied by a directive intended to facilitate its practical implementation within the Group, the societal policy is one of the cornerstones underpinning TOTAL s commitment to meeting the challenges of sustainable development. The societal policy and directive apply to all Group entities and subsidiaries in compliance with their own decision-making process. This approach, which is deployed in direct relation with operations, encompasses the actions taken to improve the Group s integration into the countries where it operates. Openness, dialogue and engagement are essential for developing constructive and transparent relations with all stakeholders.

To better monitor the societal initiative as a whole, and in line with the strategic priorities as defined by the Group societal policy, societal reporting tools make it possible to both survey the whole range of societal actions conducted locally by the operational divisions and to assess the extent to which the societal directive is implemented within the Group.

This annual reporting aims to improve the assessment of the efforts made by the Group in this field. As of 2013, eight indicators of societal performance, defined on the basis of the societal policy, have enabled a more accurate analysis of the societal approach of the subsidiaries and sites and served as a tool to monitor the Group s societal actions. These indicators measure the quality of social dialogue with stakeholders, the management of the impact of the Group s activities, economic and social development projects and access to energy.

The Group s expertise is based on the continuous professionalization of its societal development engineers. Tools such as structuring projects, setting goals and monitoring and assessment indicators have enabled TOTAL to progress from an aid-giving approach to one in which communities take charge of their own development. In Exploration & Production, more than 400 people are involved in the societal area (including experts under contract), with over 360 involved on a full-time basis. Several documents have been created to formalize the societal methodology at TOTAL: *guide to local dialogue, guide to local content, practical guide to local development projects, the Exploration & Production societal guide and manual.*

This organization is completed by the presence of a Head Office representative who is fully dedicated to relations with NGOs.

7.3.2. Dialogue and involvement with stakeholders

Since about twenty years, changes in the regulatory framework have promoted the information, consultation and dialogue with stakeholders prior to making decisions that have a significant impact on the environment.

In addition to complying with regulations, TOTAL sets up structures for dialogue at every level within the Group. The foremost requirement of the Group s societal directive is that *each asset must consult its stakeholders regularly to gain a clearer understanding of their expectations and concerns, measure their level of satisfaction regarding the Group and identify avenues of improvement for its societal strategy* .

7.3.2.1. Stakeholder consultation processes

TOTAL strives to develop a continuous dialogue with its stakeholders and to ensure the long-term sustainability of this relationship through various mechanisms and structures. Along these lines, the Group has launched various initiatives in recent years.

In the Group s Exploration & Production entities, the role of the Community Liaison Officers (CLO) is often decisive. Generally members of the local community, whose language they speak and whose customs they understand, they are employed by TOTAL and trained to the culture and specific characteristics of the oil industry so that they can maintain the dialogue between the subsidiary and the local communities. CLOs promote the Company s integration in the local context and are the first link in its societal initiative.

For example, Total E&P Bolivia is currently recruiting a number of CLOs within the framework of the Azero exploration license acquired in 2013. Similarly, in the Democratic Republic of the Congo, two CLOs have been recruited, a community representative undertakes spot assignments as required and consultation committees have been set up at various levels (local authorities, NGO, local populations). In addition, the CLOs receive regular training to ensure greater familiarization with TOTAL s societal practices: in 2014, this applied in particular to Yemen.

Dialogue prior to exploration and production activities

This dialogue can be initiated by local consultants within the framework of social baseline studies. This occurred in 2014 as part of the study conducted for the development of the Absheron field in the Caspian Sea for which interviews were conducted by Azeri consultants in the five villages located in a radius of 10 km around the future offshore terminal:

- 400 interviews to obtain socioeconomic information directly from the population (living conditions, access to services and infrastructure, economic activities, etc.);
- ten discussion groups (groups of ten people each, two groups per village, with men and women forming different groups to ensure that everyone felt at ease to express his or her point of view); and
- thirty interviews with key stakeholders (government and local authorities, local industrialists, community associations).

The aim of this preliminary dialogue is to identify at a very early stage, and even before the start of operational activities on site, the stakeholders that may potentially be affected and to understand the human socioeconomic context in this geographical area. This dialogue with the stakeholders will be continued as part of the study of potential impacts and the ways they can be taken into account that will be conducted in 2015.

Agreements may be signed with the communities in order to organize relations with the stakeholders. For example, thirteen five-year Memorandums of Understanding (MoU) are in effect in Nigeria in connection with onshore activities.

Public consultations, meetings with stakeholders, and media campaigns are also organized. In 2014, consultations were held in many different countries, in particular in Bolivia, Bulgaria, Denmark, Mauritania, Myanmar and the Republic of the Congo.

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In Denmark, the local subsidiary plans to drill an exploration well to explore for shale gas in the northern part of the Jutland province. For more than two years, a CLO recruited from the local community has been responsible for communications with the stakeholders. In early 2014, a formal period of consultation with the stakeholders began, including a public consultation together with a presentation of the results of the impact study. Following this meeting, a large number of questions were sent by stakeholders, and Total E&P Denmark provided the necessary technical information to the local authority. Since the end of this formal phase, regular meetings have been organized with residents to explain the operating process and its scheduling. Civil engineering work to prepare for drilling started in the fall of 2014 and local associations, the local community, and local and national government bodies are kept regularly informed of the progress of operations.

In France, within Refining & Chemicals, site monitoring commissions were set up in 2014 at the main industrial sites, pursuant to the French technological risk prevention act. These commissions replaced the local information and consultation committees. The site monitoring commission is a regulatory information-sharing structure which is required to be set up in France in facilities classified for environmental protection (*Installation classée pour la protection de l environnement* ICPE). The commission allows a dialogue to be established, to provide information relating to the operation of the facility and in particular its impact on people and the environment. The commission regroups representatives of public administrations, of the facility s owner and its employees, communities and associations for the protection of the environment or consumers. The commission is chaired by the prefect.

In Belgium, the safety and environment commission of the Feluy industrial park, which was set up on TOTAL s initiative in 2014, is a permanent voluntary forum for dialogue among industrial players, authorities and residents on the impacts of companies operations in the areas of safety, health and environmental protection.

In the United States, as of the signature in 1991 of Responsible Care®, a voluntary commitment of the global Chemicals industry, Community Advisory Panels have been actively working in cooperation with local residents.

7.3.2.2. SRM+ dialogue tool

To put its societal approach at its sites and subsidiaries on a professional footing, TOTAL implemented the internal SRM+ (Stakeholder Relationship Management) methodology in 2006. Its aims are to identify and map the main stakeholders, schedule meetings with them and understand their perceptions and stakes, and then define an action plan for building a long-term relationship. This mechanism represents a unique opportunity to explain the Group s activities and present the actions it implements, but also to listen to the expectations of local stakeholders and answer questions. It also makes it possible to establish a trust-based relationship and demonstrate that TOTAL is completely transparent in its activities. Ultimately, these discussions allow the Group to consolidate its strategy and identify expectations to which it can respond.

In 2014, SRM+ was rolled out to a number of Group entities.

Exploration & Production, in particular, has undertaken new deployments:

- In three countries (South Africa, Uruguay and Bulgaria) in which the development of oil-related activities is still at a low level, SRM+ has been deployed at a very early stage of activity within the exploration process. This approach has made it possible to create a climate of confidence and openness and to launch a dialogue which has enabled the subsidiary to develop a strategy for its relations and communication with stakeholders; and
- In the Republic of the Congo, the SRM+ approach has made it possible to better understand changes in stakeholders expectations. In 2014, a new module was developed and tested in Pointe-Noire. From now on, it will ensure that the portfolio of community development activities is better harmonized with these expectations.

Marketing & Services has also undertaken new SRM+ deployments in 2014:

- At the Hsinchu lubricants plant in Taiwan, sixteen stakeholders were interviewed, raising subjects such as information on Group activities and road safety. The use of the SRM+ tool has enabled the generation of a suitable action plan by the teams and the validation of a number of actions in consultation with the management of the subsidiary. Initiatives in the field of road safety are underway and include, in particular, the planned installation of a road safety cube in a nearby school. Following the deployment of the tool, meetings with the various stakeholders (NGOs, authorities) have also been held in order to define joint actions in a number of different fields and increase familiarity with the Group s activities at a local level;
- In the United States, the Linden lubricants plant (New Jersey) has been part of the city s urban and industrial landscape since the 19th century. Eight stakeholders were interviewed during the SRM+ study which was conducted in 2014. The main concerns related to the human and social development of the community in the vicinity of the plant. More specifically, the action plan included visits to the site, a closer partnership with the local university, TOTAL s participation in its partners representative bodies, and involvement in events and local activities;
- In Africa/Middle East, SRM+ was implemented at forty-two sites in 2014. Nine new subsidiaries drew up action plans following consultations with the relevant stakeholders (Burkina Faso, Chad, Egypt, Eritrea, Jordan, Niger, Saudi Arabia, Togo and Zambia), thus bringing the number of countries in which

the approach has been adopted in the region to thirty-one. SRM+ has been implemented in the vicinity of depots, service stations and the head offices of subsidiaries; and

SRM+ has proved to be a very useful tool, for example during the construction of a service station in the Republic of the Congo where the increase in traffic volumes had caused concern among the local population. These fears led the subsidiary to target its interventions on the nearby school in order to familiarize local children with road hazards. In Ethiopia, local communities in Dukam expressed their wish to be involved in a tree planting program around the depot. As a result, 3,000 trees were planted with the help of employees and local residents. This operation, which is known as Green village of Total Ethiopia and Dukam Town administration village will be repeated each year. Much appreciated by stakeholders as an original initiative, the SRM+ approach has led to the organization of open-day events at a number of the Group s gas depots in South Africa, thus increasing the level of familiarity with TOTAL s sites and reassuring local residents about the Group s activities.

Finally, in Refining & Chemicals, the SRM+ approach is currently being implemented at the Donges refinery in France.

7.3.2.3. Dialogue with indigenous and tribal peoples

TOTAL is aware of the specificities of indigenous and tribal peoples (as identified in the International Labor Organization s Convention

No. 169), and has introduced a charter regarding indigenous and tribal peoples with guidelines and principles to be followed with communities that are in contact with its subsidiaries. Under this charter and in compliance with its Code of Conduct, the Group strives to identify and understand the legitimate needs of the communities neighboring its subsidiaries. In particular, this charter encourages the subsidiaries to call on experts to identify and understand the expectations and specificities of indigenous peoples, to consult and dialogue with them before starting industrial projects and to make a positive contribution to their socioeconomic development.

Fully aware that taking human rights into consideration is one of the cornerstones of its industrial projects with respect to local populations, in 2012 TOTAL participated in the work of IPIECA (the global oil and gas industry association for environmental and social issues) to develop the guide entitled Indigenous Peoples and the oil and gas industry: context, issues and emerging good practices . The Group thus shared its experience with the Guarani people in Bolivia. Total E&P Bolivia has started a partnership with the Guarani communities in the Santa Cruz area and has launched a number of socioeconomic development initiatives, by engaging in the fight against discrimination, and especially gender discrimination.

Dialogue with indigenous communities in Bolivia

Since 2011, Total E&P Bolivia has been developing a gas field discovered in 2004 in the eastern lowlands of Bolivia. The Incahuasi project involves the construction of a gas plant located on the Guarani territory of Alto Parapeti as well as a 100 km-long pipeline which will run through three other Guarani territories. The legal framework within which the project is being conducted is extremely protective of the rights of indigenous peoples. The consultation process must make it possible to identify the economic and sociocultural impacts of the project and determine the economic compensation for unavoidable impacts.

The consultation process initiated by the subsidiary in 2011 to obtain the environmental permit was suspended in the wake of opposition from an indigenous organization that owns a part of the area regarding rights of use and passage.

Consultation with the indigenous peoples was resumed again from May to September 2013. Total E&P Bolivia played an extremely active role in the consultation process and negotiations resulted in an agreement concerning the joint identification of the environmental, social, economic and cultural impacts. The unavoidable sociocultural impacts will give rise to compensation, which is to be negotiated between the indigenous organizations and the Company. Open-mindedness of spirit coupled with perseverance have enabled the community development team to build an atmosphere of trust and conduct discussions with a wide range of partners, including both official and unofficial leaders, as part of a direct dialogue with the communities rather than simply with their representatives.

2014 was marked by extensive negotiations with four indigenous Guarani organizations and involved more than thirty meetings.

Transparency with regard to the agreements signed with the local authorities and respect for their application are key principles underpinning the responsible, credible management that makes it possible to construct a long-lasting trusting relationship. The community leaders, though sometimes reticent, recognize the positive impact of this approach, including in terms of their own role within their communities.

The implementation of a procedure for the handling of grievances represented a major challenge. In a country which is used to seeing demonstrations and blockades of all types, this new mechanism had to prove its effectiveness. Of forty complaints received since the beginning of the year, only two are still currently unresolved.

The participatory approach set up to identify, monitor and assess societal projects encourages the involvement of the persons who are affected. Partnerships with institutions possessing in-depth expertise have strengthened the credibility of the societal team. The communities involved sometimes prefer to entrust Total E&P Bolivia and its partner institutions with the responsibility of implementing the projects in order to guarantee that all their members share equitably and transparently in the benefits.

7.3.3. Controlling the impact of the Group s activities

In order to better control the impact of the Group s operations, the societal approach is integrated into its operational processes.

Since 2012, societal issues have been integrated into Exploration & Production s and Refining & Chemical s HSE management systems, known as MAESTRO (Management and Expectations Standards Towards Robust Operations). Seven audits were conducted within the Exploration & Production division in 2014 (Algeria, Gabon, Indonesia, Italy, Myanmar, Nigeria and the Netherlands). In total, these audits have given rise to sixty-seven recommendations and will help support efforts to improve control of the societal impacts of the Group s operations. The HSE approach has been extended to H3SE (Health, Safety, Security, Society, Environment), with Societal and Security being added to Safety.

7.3.3.1. Understanding the social context: baseline studies

To gain a better understanding of the socioeconomic context, it is first necessary to conduct a baseline study. On average, these studies last between three and six months and are generally accompanied by a consultation phase involving local stakeholders. In the onshore Neuquén basin in Argentina, the baseline study lasted more than six months during 2014.

As part of the Azero exploration Block in Bolivia, a socioeconomic baseline study is currently underway over an area of 786,000 hectares on which exploration work will take place. This area includes six indigenous Guarani territories, fifty Quechua communities, eleven municipalities and two parks (one national and the other regional). This study will make it possible to launch a dialogue with all these new stakeholders at an early stage of activities. To undertake this action, the subsidiary s societal team is growing stronger, in particular by recruiting new CLOs.

7.3.3.2. Avoid, reduce, compensate: impact studies

In Exploration & Production, impact studies are carried out before any operation in accordance with TOTAL s standards. In 2014, such studies were conducted or launched, for example in Mauritania (prior to the drilling of a deep offshore exploration well), in Myanmar (new deep offshore exploration block) and in Uganda. For the Group s other activities, impact studies are conducted on a case-by-case basis.

Within the context of the eleven new offshore exploration blocks acquired in Brazil, the terms of reference of the impact studies are currently being defined.

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Item 4 - C. Other Matters

As part of the redevelopment of offshore production at the Bul Hanine and Al Khalij fields in Qatar, the state-owned company Qatar Petroleum has asked TOTAL to conduct impact studies.

In the Democratic Republic of the Congo (DRC), Total E&P RDC became an operator in Block III of the Graben Albertine. TOTAL made the commitment not to carry out any exploration activity in the Virunga national park, partly located in Block III. In agreement with the national Congolese authorities and in compliance with the Group s own internal rules, a human rights and conflict probability assessment was conducted in 2013 and 2014 by the International Alert NGO, specialized in conflict-related studies. This assessment was carried out in parallel with the environmental and social impact assessment study, which was conducted from September 2012 to June 2013 and involved two visits to the block. The results of this study were made public to the representatives of the local population, the local authorities and NGOs in October 2014. TOTAL has committed to applying its recommendations.

In Uganda, Total E&P Uganda is in particular operator of Block EA1. According to Ugandan law, TOTAL is not required to carry out an impact assessment until the government has approved the project. However, Total E&P Uganda has asked a team of international and national experts to perform a number of social screening studies. The results of these studies led to significant changes in the project to avoid or minimize the impact on the communities living close to future facilities. The specifications for the environmental and social impact study for the Buliisa development project have written. TOTAL has been working together with the international organization SNV since 2012 to develop agricultural diagnostics based on a methodology developed by French agricultural engineers (AgroParisTech). The study consists of a qualitative and quantitative analysis of the most important agricultural value chains present in the area covered by the exploration block (maize, cassava, rice, honey, vegetables and dairy products). The aim is to provide support for the existing agricultural systems and help accelerate development by making it easier for traditional rural communities to gain access to major national buyers (tools, training and contact platform, purchasing center, storage sites).

In Nigeria, research commissioned since 2008 to the Advanced High School of Economic and Commercial Sciences/Institute for Research and Education in Negotiation in Europe (ESSEC/IRENE) on the impact of oil production activities on people living in the Niger Delta, and involving field surveys and interviews with the concerned populations (Onelga and Eastern Obolo), has been finalized and consolidated. Two surveys conducted in 2008 and 2012 have made it possible to perform better assessments of the area and monitor the evolution of indicators.

In addition, the Group regularly uses CDA, an independent, non-profit organization, to assess the impact of its operations and socioeconomic programs in host countries. For example, CDA conducted an evaluation mission in Myanmar in November 2014. The corresponding results are available online on the organization s website.

Finally, the Management Operational Societal Tool (MOST), originally introduced in 2011 to assist in the management of local development projects by subsidiaries, has expanded in scope. The tool is now deployed in sixteen sites in thirteen countries and is used to manage other aspects of societal projects: relations with stakeholders (contacts, events, issues), site-related grievances, land acquisitions, compensation relating to the Group s industrial activity, temporary employment during seismic survey campaigns.

The use of this tool forms part of the process of increasing the professionalism of local teams and introducing better structured reporting to serve as a basis for the analysis of societal performance.

7.3.3.3. Handling grievances from local communities

In Exploration & Production, subsidiaries are progressively setting up grievance mechanisms for local communities impacted by industrial projects. Inspired by the United Nations Guiding Principles on Business & Human Rights, a guide covering this procedure for the handling of grievances was drawn up and published in August 2013. This procedure is an integral part of the societal management plan and represents a concrete expression of the first requirement of the Group s societal directive. For example, a dedicated mechanism for the handling of grievances was introduced in Uruguay as part of stakeholder communications as early as the seismic campaign (exploration phase). This plan, which was drawn up by the subsidiary s societal team, is supported by the presence in the field of a CLO who is a member of the local community. Similarly, in Uganda, dedicated grievance handling mechanisms based on the local presence of CLOs have been prepared or existing plans have been updated as part of the overall societal management plan.

In 2012, IPIECA, working in combination with the Triple Alliance agency, launched seven pilot projects to improve the management of the processes used to gather and handle grievances. Total E&P Congo was chosen to participate in one of these pilot studies. This process is consistent with a desire to enhance the dialogue between Total E&P Congo and the Djeno community, in order to avert societal risks and foster the proactive and responsible management of the subsidiary s operations. Following various missions undertaken by Triple Alliance in 2012 and 2013, Total E&P Congo has developed a new procedure for gathering and handling grievances and this was introduced in 2014.

In 2014, Marketing & Services published a brochure designed to raise awareness of grievance management issues in order to allow the segment s subsidiaries and operating sites to get familiar with this subject and introduce systems for the handling of grievances separate from those used to deal with commercial complaints. This mechanism is currently being tested in a number of subsidiaries. It should encourage the rapid expansion of this good practice through the adaptation of the existing procedures.

7.3.3.4. Managing impacts: road safety, a priority

As a key element of safety management, road safety is one of the Group s main societal priorities.

Consequently, TOTAL launched a sweeping inspection program for its transporters in Africa and the Middle East in 2012. This improvement program goes beyond merely auditing, in that the transporters are assisted in improving their transport management systems in order to achieve compliance with the safety requirements set out by TOTAL. In order to ensure objectivity, this initiative benefits from the support of independent transport experts.

These inspections are based on four interdependent audit items: driver training, the technical standards met by the vehicle fleets, itinerary management, and the existence of a management system. They enable a dialogue to be started with the transporters and lead to an assessment which, if necessary, is followed up by an improvement plan. In such cases, a follow-up inspection performed the following year enables the validation of the improvements made. Alternatively, if the requested progress has not been achieved, these inspections may result in the termination of the contract. More than 90% of the transporters contracted to the subsidiaries of Marketing & Services in Africa Middle East were inspected between December 2012 and October 2014. 70% obtained a rating complying with TOTAL s standards and requirements. The contracts of those who did not meet the expected standards within six months were terminated. Thus, at end 2014, 28% of the contracts of inspected transporters were terminated (*i.e.* 90 out of 326). Some rare exceptions were granted a derogation to be reinspected.

In 2014, 66 initial and 101 follow-up inspections were performed. Even at this stage in the project, it has already been possible to note a fall in the number of accidents, the optimization of truck rotation, and improved profitability which has allowed transporters to modernize their fleets. This approach has made it possible to gather the best available practices and has led to the production of a booklet intended for all transporters.

As of 2013, the Africa-Middle East division has implemented a light vehicles policy which has been deployed in all the subsidiaries of the region. It sets out the requirements for vehicles owned or hired by the Group entities. This policy introduces or serves as a reminder of safety regulations, including the need to use suitable, roadworthy vehicles, improvements of drivers skills and behavior, the analysis of traffic risks, itinerary management and the feedback of information about events and dangerous situations. Various criteria (ABS, age and mileage, airbag, safety belts, onboard computers, etc.) have been identified to enable the monitoring of the conscientious application of these rules. The result has been the early renewal of the vehicle fleet to ensure compliance. Almost all of the vehicles now comply with requirements. In order to ensure these rules are effectively complied with, the procedure provides for preventive driving training every two years and annual awareness-raising sessions at which drivers can share their experiences. The analysis of traffic risks, together with the events and dangerous situations reported by drivers, are key elements in evaluating driving practices and ensuring the continuous improvement of the procedure.

In line with the United Nations resolution on the decade of action for road safety, TOTAL has signed a partnership with the World Bank relating to the introduction of the African Road Safety Corridors Initiative (ARSCI), a scheme intended to improve road safety and reduce accidents and the number of victims on two cross-border road corridors characterized by particularly high fatality levels. Bringing together a number of private and public partners, collaboration within the ARSCI project has helped to identify the northern corridor (linking Mombasa to Kampala) and the central corridor (between N Djamena and Douala).

In 2012, to help mobilize the public and private sectors as well as the associations that are active in the field, TOTAL set up an independent organization known as Safe Way Right Way (SWRW). It aims at uniting and mobilizing partners in order to raise funds and implement actions and awareness campaigns in cooperation with the authorities, all of this with a view to improving regulations and their implementation. Through SWRW, TOTAL is working together with partners in Kenya, Cameroon and Uganda to encourage the development of road safety initiatives. In 2014, awareness campaigns were organized in Kenya as part of the road safety week and a special day dedicated to the commemoration of victims of road accidents. In Cameroon, nearly 100,000 peop