

REPSOL Group

2017 Information on oil
and gas exploration
and production activities

*Translation of a report
originally issued in Spanish.
In the event of a discrepancy,
the Spanish language version prevails*



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(1) Information on oil and gas exploration and production activities

This document contains information on the Repsol Group's oil and gas exploration and production activities. This unaudited information is published on an annual basis and is prepared in accordance with the criteria contained in Topic 932 of the "Financial Accounting Standards Boards" (FASB), which contains the principles that are generally applied in the oil and gas industry.

This information includes:

- **Information on acreage.**
- **Exploration and development activities.**
- **Net proven reserves**, which represent the volume of proven developed and undeveloped reserves of oil and gas.
- **Future net cash flows**, which represents an estimate of standardized measure of discounted future net cash flows relating to proven oil and gas reserves.
- **Changes in Future net cash flows**, which reflects the changes in standardized measure of discounted future net cash flows relating to proven oil and gas reserves with respect to those presented for the previous year
- **Production of oil and gas of the year.**
- **Results of oil and gas exploration and production activities**, including revenue and expenses directly associated to this activity.
- **Accumulated investment** (Capitalized cost), which shows capitalized historical costs.
- **Investments of the year** (Cost incurred), which represent the amounts capitalized during the year, including the dismantling obligations.

The financial information included in this document is consistent with that stated in the Group financial statements and management report (accessible at www.repsol.com), but there might be some differences due to the fact that the information included in the current document is presented in accordance with US GAAP (Topic 932 FASB) and the Group's official financial information is presented accordingly to International Financial Reporting Standards endorsed by the European Union (IFRS-UE).

Repsol Group estimates its proven reserves according to the standards established by the SPE-PRMS system.

The information here contained refers to the last three years (2017, 2016 and 2015). From 2016 on, the Group capitalizes the costs of geology and geophysics (G&G), net of tax benefits, in the exploratory phase. In 2017 Oceania has been integrated in the geographic area 'Asia and Oceania'. To facilitate the comparability of the information, data corresponding to year 2016 and 2015 have been re-stated applying the same accounting standard.

(2) Information on acreage

The following tables disclose details of Repsol's acreage and exploration and development activities by geographical region:

(km ²)	Developed and undeveloped acreage											
	2017				2016				2015			
	Developed ⁽¹⁾		Undeveloped ⁽²⁾		Developed ⁽¹⁾		Undeveloped ⁽²⁾		Developed ⁽¹⁾		Undeveloped ⁽²⁾	
	Gross ⁽³⁾	Net ⁽⁴⁾	Gross ⁽³⁾	Net ⁽⁴⁾	Gross ⁽³⁾	Net ⁽⁴⁾	Gross ⁽³⁾	Net ⁽⁴⁾	Gross ⁽³⁾	Net ⁽⁴⁾	Gross ⁽³⁾	Net ⁽⁴⁾
Europe	1,816	680	37,775	15,891	1,892	686	60,186	28,888	1,428	525	68,862	32,409
Norway	303	107	4,609	1,660	303	107	9,842	4,539	324	92	10,676	4,608
United Kingdom	1,490	555	430	105	1,567	561	699	236	1,082	416	2,148	684
Rest of Europe	22	17	32,736	14,126	22	17	49,645	24,113	22	17	56,038	27,117
Latin America	3,006	688	117,655	51,550	3,131	715	132,471	57,207	2,974	698	142,580	61,725
Brazil	838	80	2,236	316	838	80	2,448	363	549	36	2,736	407
Colombia	369	78	73,382	27,525	509	112	74,956	28,036	651	134	73,357	27,460
Peru	238	48	12,755	10,348	225	41	21,748	13,346	200	28	21,772	13,359
Trinidad & Tobago	151	45	3,653	1,076	152	45	6,238	2,109	180	66	7,973	3,327
Venezuela	806	192	2,185	661	803	192	2,187	661	789	189	2,200	664
Rest of Latin America	606	245	23,443	11,624	604	245	24,895	12,691	605	245	34,542	16,508
North America	6,028	2,199	17,213	8,538	5,606	2,184	35,745	20,473	5,435	2,358	44,054	24,540
Canada	2,517	1,580	10,673	5,567	2,586	1,570	27,171	16,651	2,518	1,747	27,730	17,400
United States	3,511	620	5,947	2,615	3,020	614	8,574	3,822	2,917	611	16,324	7,140
Rest of North America	-	-	593	356	-	-	-	-	-	-	-	-
Africa	4,347	1,234	51,793	23,899	2,566	713	87,592	56,825	2,670	673	97,921	59,966
Asia and Oceania	2,290	982	136,872	99,721	1,402	564	160,302	113,633	1,759	724	144,956	91,872
Indonesia	615	219	15,583	12,261	661	242	20,613	16,737	1,010	390	27,940	23,818
Malaysia	1,221	560	4,108	2,566	414	193	4,984	2,952	414	199	8,456	4,162
Russia	46	23	3,386	2,418	222	109	4,692	4,135	221	108	10,771	9,670
Rest of Asia and Oceania	408	180	113,794	82,476	104	20	130,012	89,808	114	27	97,789	54,222
Total	17,487	5,783	361,308	199,599	14,598	4,862	476,297	277,027	14,266	4,978	498,373	270,512

(1) Developed acreage is the number of acres that are allocated or assignable to productive wells. The figures shown reflect operating acreage.

(2) Undeveloped acreage is acreage on which wells have not been drilled or completed to a point that would permit the production of commercial quantities of oil and gas, regardless of whether or not the acreage contains proved reserves.. Also includes exploration surface area.

(3) Gross acreage is the total acres in which Repsol owns an interest.

(4) Net acreage is the total of the fractional interest in the gross acreage position.

	Acreage											
	Gross area (km²) ⁽¹⁾						Gross area (km²) ⁽¹⁾					
	Development			Exploration			Development			Exploration		
	2017	2016	2015	2017	2016	2015	2017	2016	2015	2017	2016	2015
Europe	2,743	2,845	2,882	36,848	59,233	67,408	1,199	1,230	1,312	15,373	28,344	31,622
Norway	851	876	853	4,062	9,269	10,147	324	343	411	1,444	4,304	4,289
United Kingdom	1,492	1,570	1,630	428	695	1,600	543	555	569	117	242	531
Rest of Europe	400	399	399	32,358	49,269	55,661	331	332	332	13,812	23,798	26,802
Latin America	15,236	16,883	18,119	105,425	118,719	127,435	4,475	4,736	5,884	47,763	53,186	56,539
Brazil	973	1,185	1,185	2,100	2,100	2,100	100	147	147	296	296	296
Colombia	1,357	2,196	1,647	72,394	73,270	72,360	219	375	276	27,383	27,773	27,318
Peru	1,413	2,020	2,020	11,580	19,952	19,952	141	202	202	10,255	13,185	13,185
Trinidad & Tobago	3,804	3,804	5,579	-	2,585	2,574	1,121	1,121	2,363	-	1,034	1,030
Venezuela	2,990	2,990	2,990	-	-	-	853	853	853	-	-	-
Rest of Latin America	4,698	4,688	4,698	19,351	20,812	30,449	2,041	2,038	2,043	9,828	10,899	14,710
North America	10,252	10,881	16,205	12,989	30,470	33,284	5,234	5,316	6,442	5,503	17,342	20,456
Canada	5,180	5,549	5,934	8,009	24,208	24,314	3,779	3,813	4,375	3,368	14,408	14,772
United States	5,072	5,332	10,271	4,387	6,262	8,970	1,455	1,503	2,067	1,780	2,934	5,684
Rest of North America	-	-	-	593	-	-	-	-	-	356	-	-
Africa	12,725	12,725	12,846	43,416	77,434	87,745	2,744	2,744	2,709	22,389	54,794	57,930
Asia and Oceania	10,060	11,280	10,328	129,101	150,423	136,387	4,105	4,638	4,319	96,598	109,560	88,277
Indonesia	3,124	4,279	4,837	13,074	16,996	24,113	1,011	1,589	1,809	11,469	15,391	22,399
Malaysia	2,324	2,393	2,311	3,005	3,005	6,559	1,022	1,041	1,014	2,104	2,104	3,347
Russia	346	1,312	1,411	3,085	3,602	9,581	169	642	691	2,272	3,602	9,088
Rest of Asia and Oceania	4,267	3,297	1,769	109,935	126,820	96,134	1,902	1,365	805	80,754	88,463	53,443
Total	51,016	54,614	60,380	327,779	436,280	452,259	17,757	18,664	20,666	187,625	263,226	254,824

(1) Gross acreage surface area is the area in which Repsol owns an interest. Net acreage surface area is the sum of the gross surface areas of each acreage, in respect of Repsol's respective interests.

(3) Exploration and development activities

The following tables show Repsol's completed exploratory wells by geographical region:

	Exploration wells completed and in progress ⁽¹⁾														
	Positive			Negative			Under assessment			Total			In progress		
	2017	2016	2015	2017	2016	2015	2017	2016	2015	2017	2016	2015	2017	2016	2015
Europe	-	-	-	2	-	6	-	1	-	2	1	6	-	1	1
Norway	-	-	-	1	-	4	-	-	-	1	-	4	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rest of Europe	-	-	-	1	-	2	-	1	-	1	1	2	-	1	1
Latin America	3	-	-	4	2	2	-	-	1	7	2	3	5	1	1
Brazil	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
Colombia	-	-	-	2	2	-	-	-	-	2	2	-	3	-	1
Peru	-	-	-	1	-	2	-	-	-	1	-	2	-	1	-
Trinidad & Tobago	2	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Venezuela	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rest of Latin America	1	-	-	1	-	-	-	-	-	2	-	-	2	-	-
North America	1	-	1	-	-	2	-	-	-	1	-	3	2	-	-
Canada	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-
United States	1	-	1	-	-	1	-	-	-	1	-	2	2	-	-
Africa	-	-	2	1	1	3	-	1	-	1	2	5	1	-	-
Asia and Oceania	1	-	1	2	6	-	-	2	1	3	8	2	-	-	2
Indonesia	-	-	-	1	1	-	-	2	-	1	3	-	-	-	2
Malaysia	-	-	-	-	3	-	-	-	1	-	3	1	-	-	-
Russia	-	-	1	1	-	-	-	-	-	1	-	1	-	-	-
Rest of Asia and Oceania	1	-	-	-	2	-	-	-	-	1	2	-	-	-	-
Total	5	-	4	9	9	13	-	4	2	14	13	19	8	2	4

(1) Excluding appraisal wells (2 in 2017: 1 positive y 1 negative; 8 in 2016: 3 positive, 2 negative, 1 in evaluation y 2 still in progress; 14 in 2015: 12 positive, 1 in evaluation y 1 still in progress. The Hendrix well was declared negative, although it was still in progress at December 31, 2017.

	Completed development wells											
	Positive			Negative			Under assessment			Total		
	2017	2016	2015	2017	2016	2015	2017	2016	2015	2017	2016	2015
Europe	4	3	4	-	-	-	-	-	-	4	3	4
Norway	3	1	3	-	-	-	-	-	-	3	1	3
United Kingdom	1	2	1	-	-	-	-	-	-	1	2	1
Rest of Europe	-	-	-	-	-	-	-	-	-	-	-	-
Latin America	69	52	62	2	2	3	3	7	5	74	61	70
Brazil	3	4	10	-	-	-	-	-	1	3	4	11
Colombia	25	3	20	-	-	-	1	1	-	26	4	20
Peru	-	3	-	-	-	-	-	1	-	-	4	-
Trinidad & Tobago	17	8	3	-	-	-	1	5	2	18	13	5
Venezuela	17	25	22	-	-	2	-	-	-	17	25	24
Rest of Latin America	7	9	7	2	2	1	1	-	2	10	11	10
North America	153	150	282	-	-	1	-	-	16	153	150	299
Canada	57	31	30	-	-	-	-	-	6	57	31	36
United States	96	119	252	-	-	1	-	-	10	96	119	263
Africa	12	8	2	1	1	1	-	1	-	13	10	3
Asia and Oceania	31	46	43	1	-	3	3	-	-	35	46	46
Indonesia	-	1	1	-	-	-	-	-	-	-	1	1
Malaysia	-	-	-	-	-	-	3	-	-	3	-	-
Russia	25	45	42	1	-	2	-	-	-	26	45	44
Rest of Asia and Oceania	6	-	-	-	-	1	-	-	-	6	-	1
Total	269	259	393	4	3	8	6	8	21	279	270	422

(4) Net proven oil and gas reserves

The tables below reflect the net developed and undeveloped proved reserves of crude oil, condensates, LPG and natural gas, including the volume of reserves equivalent to the financial income obtained under certain production-sharing contracts in force as of December 31, 2017, 2016 and 2015, and the variations therein.

In determining net reserves, we exclude from our reported reserves royalties due to others, whether payable in cash or in kind, where the royalty owner has a direct interest in the underlying production and is able to make lifting and sales arrangements independently. By contrast, to the extent that royalty payments required to be made to a third party, whether payable in cash or in kind, are a financial obligation, or are substantially equivalent to a production or severance tax, the related reserves are not excluded from our reported reserves despite the fact that such payments are referred to as “royalties” under local rules. We follow the same methodology in reporting our production amounts.

Repsol applies the criteria established by the Society of Petroleum Engineers’ Petroleum Resource Management System (SPE-PRMS) to estimate its proven, probable and possible reserves. See Note 3 “Accounting estimates and judgments” of the 2017 Consolidated Financial Statements.

In accordance with these rules, 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 commercially 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, regardless of whether deterministic or probabilistic methods are used for the estimation. The project to extract the hydrocarbons must have commenced or the operator must be reasonable certain that it will commence the project within a reasonable time.

All of Repsol’s oil and gas reserves have been estimated by the company’s petroleum engineers.

To control the quality of reserves booked, Repsol has established a process that is integrated into Repsol’s internal control system. The process to manage reserves booking is centrally controlled by the Reserve Control Direction which is independent from the upstream activities and it is overseen by the Audit and Control Committee. Furthermore, the volumes booked are submitted to third party engineers for a reserves audit on a periodic basis (at least 95% of the reserves are externally audited on a three years cycle).

For those areas submitted to third party audit, Repsol’s proved reserves figures have to be within 7% of the third party reserves audit figures for Repsol to declare that the reserves information meets the third party reserves audit standards. In the event that the difference is greater than 7% tolerance, Repsol reestimates its proved reserves to achieve this tolerance level or discloses the third party reserves audit figures. In 2017, Repsol commissioned an external audit for various areas of South America, North America, Africa and Asia.

Proved developed and undeveloped reserves of crude oil, condensate GPL:

Millions of barrels

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Fully-consolidated entities								
Reserves at December 31st, 2014 (1)(2)	278	3	-	84	45	40	105	-
Revisions of previous estimates	20	7	-	-	4	10	(1)	2
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	17	-	-	-	10	6	-	-
Purchases of minerals in place	138	8	-	-	48	53	8	20
Sales of minerals in place	(13)	-	-	-	(13)	-	-	-
Production (1)	(44)	(4)	-	(4)	(13)	(14)	(3)	(5)
Reserves at December 31st, 2015 (1)(2)	396	13	-	80	82	96	110	16
Revisions of previous estimates	28	9	-	4	1	3	1	10
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	27	-	-	17	6	4	-	-
Purchases of minerals in place	1	-	-	-	-	1	-	-
Sales of minerals in place	(20)	-	-	-	-	(19)	-	(1)
Production (1)	(51)	(8)	-	(5)	(12)	(16)	(3)	(7)
Reserves at December 31st, 2016 (1)(2)	380	14	-	96	77	68	107	18
Revisions of previous estimates	42	5	-	-	(6)	10	13	19
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	19	-	-	-	16	3	-	-
Purchases of minerals in place	2	-	-	-	-	-	-	2
Sales of minerals in place	-	-	-	-	-	-	-	-
Production (1)	(52)	(6)	-	(5)	(10)	(13)	(12)	(5)
Reserves at December 31st, 2017 (1)	391	12	-	92	77	68	108	34

Millions of barrels

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Equity-accounted investees								
Reserves at December 31st, 2014 (1)(2)	163	-	42	-	-	90	-	30
Revisions of previous estimates	8	(9)	4	-	-	9	-	3
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	-	-	-	-	-	-	-	-
Purchases of minerals in place	52	44	-	-	-	9	-	-
Sales of minerals in place	-	-	-	-	-	-	-	-
Production (1)	(31)	(5)	(5)	-	-	(17)	-	(4)
Reserves at December 31st, 2015 (1)(2)	192	30	42	-	-	91	-	29
Revisions of previous estimates	30	18	11	-	-	(3)	-	4
Improved recovery	19	-	-	-	-	19	-	-
Extensions and discoveries	-	-	-	-	-	-	-	-
Purchases of minerals in place	-	-	-	-	-	-	-	-
Sales of minerals in place	-	-	-	-	-	-	-	-
Production (1)	(38)	(8)	(5)	-	-	(21)	-	(4)
Reserves at December 31st, 2016 (1)(2)	204	40	48	-	-	87	-	29
Revisions of previous estimates	63	9	15	-	-	35	-	4
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	-	-	-	-	-	-	-	-
Purchases of minerals in place	-	-	-	-	-	-	-	-
Sales of minerals in place	-	-	-	-	-	-	-	-
Production (1)	(41)	(9)	(5)	-	-	(23)	-	(4)
Reserves at December 31st, 2017 (1)	226	40	59	-	-	99	-	29
Total reserves ad Decemeber 31st, 2017	617	52	59	92	77	167	108	63

Proved developed reserves of crude oil, condensate GPL:

	Total	Europe	Venezuela	Peru	United States	Rest of America	Africa	Asia and Oceania
At December 31st, 2014 (2)	265	3	31	52	25	65	65	24
Fully-consolidated entities	181	3	-	52	25	36	65	-
Equity-accounted investees	84	-	31	-	-	29	-	24
At December 31st, 2015 (2)	418	36	32	50	52	137	71	40
Fully-consolidated entities	283	13	-	50	52	82	71	15
Equity-accounted investees	135	23	32	-	-	55	-	25
At December 31st, 2016 (2)	407	50	33	48	46	123	68	40
Fully-consolidated entities	250	13	-	48	46	59	68	17
Equity-accounted investees	157	37	33	-	-	64	-	23
At December 31st, 2017	430	47	37	60	38	148	63	37
Fully-consolidated entities	248	11	-	60	38	61	63	16
Equity-accounted investees	182	36	37	-	-	88	-	21

Note: The aggregated changes in reserves and total reserves at December 31 may differ from the individual values shown because the calculations use more precise figures than those shown in the table.

(1) Total net proved developed and undeveloped reserves at December 31, 2017, 2016, 2015 and 2014 include an estimated volume of approximately 47, 45, 45 and 46 million barrels of oil equivalent, respectively, corresponding to royalty payments which, as described above, constitute a financial obligation or are substantially equivalent to a production or equivalent tax. Net production in 2017, 2016, 2015 and 2014 includes an estimated volume of 5, 4, 4 and 4 million barrels of oil equivalent, respectively, in connection with such

(2) Figures for 2016, 2015 and 2014 have been restated as a result of the change of geographical areas established in 2017 following which Asia and Oceania are presented together.

Developed and undeveloped proved reserves of natural Gas:

Thousand Millions of Standard Cubic Feet

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Fully-consolidated entities								
Reserves at December 31st, 2014 (1)(2)	2,088	-	82	1,553	83	256	113	-
Revisions of previous estimates	120	3	(29)	48	(51)	121	5	23
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	278	-	-	-	194	85	-	-
Purchases of minerals in place	2,985	16	-	-	1,691	419	-	858
Sales of minerals in place	(49)	-	-	-	(49)	-	-	-
Production (1)	(383)	(6)	(6)	(52)	(134)	(86)	(16)	(82)
Reserves at December 31st, 2015 (1)(2)	5,039	14	47	1,549	1,733	794	103	799
Revisions of previous estimates	247	24	2	106	(28)	(7)	11	140
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	545	-	-	310	111	95	-	30
Purchases of minerals in place	15	-	-	-	10	4	-	-
Sales of minerals in place	(198)	-	-	-	(6)	(6)	-	(192)
Production (1)	(533)	(16)	(5)	(68)	(180)	(124)	(16)	(124)
Reserves at December 31st, 2016 (1)(2)	5,116	21	44	1,897	1,646	757	98	653
Revisions of previous estimates	59	11	4	-	(87)	39	20	72
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	387	-	-	-	343	44	-	-
Purchases of minerals in place	13	-	-	-	1	4	-	8
Sales of minerals in place	(17)	-	-	-	(5)	(12)	-	(1)
Production (1)	(494)	(13)	(5)	(67)	(174)	(116)	(8)	(111)
Reserves at December 31st, 2017 (1)	5,064	20	42	1,830	1,724	717	110	620

Thousand Millions of Standard Cubic Feet

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Equity-accounted investees								
Reserves at December 31st, 2014 (1)(2)	4,076	-	2,177	-	-	1,844	-	55
Revisions of previous estimates	1,173	5	952	-	-	216	-	-
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	-	-	-	-	-	-	-	-
Purchases of minerals in place	75	25	-	-	-	51	-	-
Sales of minerals in place	-	-	-	-	-	-	-	-
Production (1)	(338)	(1)	(63)	-	-	(260)	-	(15)
Reserves at December 31st, 2015 (1)(2)	4,986	28	3,067	-	-	1,851	-	40
Revisions of previous estimates	369	(1)	86	-	-	253	-	32
Improved recovery	7	-	-	-	-	7	-	-
Extensions and discoveries	-	-	-	-	-	-	-	-
Purchases of minerals in place	-	-	-	-	-	-	-	-
Sales of minerals in place	-	-	-	-	-	-	-	-
Production (1)	(385)	(1)	(124)	-	-	(247)	-	(14)
Reserves at December 31st, 2016 (1)(2)	4,977	26	3,029	-	-	1,864	-	58
Revisions of previous estimates	177	(1)	(33)	-	-	205	-	6
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	-	-	-	-	-	-	-	-
Purchases of minerals in place	-	-	-	-	-	-	-	-
Sales of minerals in place	(53)	-	-	-	-	-	-	(53)
Production (1)	(407)	(4)	(125)	-	-	(267)	-	(11)
Reserves at December 31st, 2017 (1)	4,693	20	2,871	-	-	1,802	-	-
Total reserves ad Decemeber 31st, 2017	9,757	40	2,913	1,830	1,724	2,519	110	620

Proved developed reserves of natural gas:

Thousand Millions of Standard Cubic Feet

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
At December 31st, 2014 (2)	2,251	-	195	926	49	1,016	65	-
Fully-consolidated entities	1,262	-	37	926	49	218	32	-
Equity-accounted investees	989	-	158	-	-	798	33	-
At December 31st, 2015 (2)	5,697	15	1,308	926	1,120	1,622	33	673
Fully-consolidated entities	3,475	14	47	926	1,120	681	33	654
Equity-accounted investees	2,222	1	1,261	-	-	941	-	19
At December 31st, 2016 (2)	6,054	21	2,014	933	1,112	1,403	18	554
Fully-consolidated entities	3,249	19	44	933	1,112	596	18	528
Equity-accounted investees	2,805	2	1,971	-	-	807	-	26
At December 31st, 2017	6,212	35	1,945	1,163	1,158	1,447	11	452
Fully-consolidated entities	3,486	16	39	1,163	1,158	646	11	452
Equity-accounted investees	2,726	19	1,906	-	-	801	-	-

Notes: The aggregated changes in reserves and total reserves at December 31 may differ from the individual values shown because the calculations use more precise figures than those shown in the table.

(1) Total net proved developed and undeveloped reserves at December 31, 2017, 2016, 2015 and 2014 include an estimated volume of approximately 1,245, 1,273, 1,264 and 1,144 billion cubic feet of gas, respectively, corresponding to royalty payments which, as described above, constitute a financial obligation or are substantially equivalent to a production or equivalent tax. Net production in 2017, 2016, 2015 and 2014 includes an estimated volume of 50, 64, 47 and 32 billion cubic feet of gas, respectively, in connection with such payments.

(2) Figures for 2016, 2015 and 2014 have been restated as a result of the change of geographical areas established in 2017 following which Asia and Oceania are presented together.

Proved developed and undeveloped reserves of crude oil, condensate, natural gas liquids and natural gas:

Millions of Barrels of Oil Equivalent

	Total	Europe	Venezuela	Peru	United States	Rest of America	Africa	Asia and Oceania
Fully-consolidated entities								
Reserves at December 31st, 2014 (1)(2)	650	3	15	361	60	86	125	-
Revisions of previous estimates	42	7	(5)	9	(5)	31	-	6
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	66	-	-	-	45	21	-	-
Purchases of minerals in place	669	11	-	-	350	128	8	173
Sales of minerals in place	(22)	-	-	-	(22)	-	-	-
Production (1)	(112)	(6)	(1)	(13)	(37)	(30)	(5)	(20)
Reserves at December 31st, 2015 (1)(2)	1,293	16	8	356	390	237	128	158
Revisions of previous estimates	72	13	-	23	(4)	2	3	35
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	124	-	-	72	25	21	-	6
Purchases of minerals in place	4	-	-	-	2	1	-	-
Sales of minerals in place	(55)	-	-	-	-	(20)	-	(35)
Production (1)	(146)	(11)	(1)	(17)	(44)	(38)	(6)	(29)
Reserves at December 31st, 2016 (1)(2)	1,291	17	8	434	370	203	125	135
Revisions of previous estimates	52	7	1	-	(21)	17	17	32
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	88	-	-	-	77	11	-	-
Purchases of minerals in place	5	-	-	-	-	1	-	3
Sales of minerals in place	(3)	-	-	-	(1)	(2)	-	-
Production (1)	(140)	(9)	(1)	(17)	(41)	(34)	(14)	(25)
Reserves at December 31st, 2017 (1)	1,293	15	8	417	384	196	128	145

Millions of Barrels of Oil Equivalent

	Total	Europe	Venezuela	Peru	United States	Rest of America	Africa	Asia and Oceania
Equity-accounted investees								
Reserves at December 31st, 2014 (1)(2)	889	-	430	-	-	419	-	40
Revisions of previous estimates	216	(8)	174	-	-	47	-	3
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	-	-	-	-	-	-	-	-
Purchases of minerals in place	66	48	-	-	-	18	-	-
Sales of minerals in place	-	-	-	-	-	-	-	-
Production (1)	(92)	(5)	(16)	-	-	(63)	-	(7)
Reserves at December 31st, 2015 (1)(2)	1,080	35	588	-	-	420	-	36
Revisions of previous estimates	96	18	27	-	-	42	-	9
Improved recovery	21	-	-	-	-	21	-	-
Extensions and discoveries	-	-	-	-	-	-	-	-
Purchases of minerals in place	-	-	-	-	-	-	-	-
Sales of minerals in place	-	-	-	-	-	-	-	-
Production (1)	(106)	(8)	(27)	-	-	(65)	-	(7)
Reserves at December 31st, 2016 (1)(2)	1,090	45	588	-	-	419	-	39
Revisions of previous estimates	95	9	9	-	-	71	-	5
Improved recovery	-	-	-	-	-	-	-	-
Extensions and discoveries	-	-	-	-	-	-	-	-
Purchases of minerals in place	-	-	-	-	-	-	-	-
Sales of minerals in place	(9)	-	-	-	-	-	-	(9)
Production (1)	(114)	(10)	(27)	-	-	(71)	-	(6)
Reserves at December 31st, 2017 (1)	1,062	43	570	-	-	420	-	29
Total reserves ad Decemeber 31st, 2017	2,355	59	577	417	384	615	128	174

Proved developed reserves of crude oil, condensate, natural gas liquids and natural gas

Millions of Barrels of Oil Equivalent

	Total	Europe	Venezuela	Peru	United States	Rest of America	Africa	Asia and Oceania
At December 31st, 2014 (2)	666	3	66	217	33	245	102	-
Fully-consolidated entities	405	3	7	217	33	74	71	-
Equity-accounted investees	261	-	59	-	-	171	31	-
At December 31st, 2015 (2)	1,430	38	264	214	251	426	77	160
Fully-consolidated entities	901	15	8	214	251	204	77	132
Equity-accounted investees	529	23	256	-	-	222	-	28
At December 31st, 2016 (2)	1,485	53	392	214	244	373	71	139
Fully-consolidated entities	829	16	8	214	244	165	71	111
Equity-accounted investees	656	37	384	-	-	208	-	28
At December 31st, 2017	1,536	53	383	267	244	406	65	118
Fully-consolidated entities	869	13	7	267	244	176	65	97
Equity-accounted investees	667	40	376	-	-	230	-	21

Notes: The aggregated changes in reserves and total reserves at December 31 may differ from the individual values shown because the calculations use more precise figures than those shown in the table.

(1) Total net proved developed and undeveloped reserves at December 31, 2017, 2016, 2015 and 2014 include an estimated volume of approximately 269, 272, 271 and 250 million barrels of oil equivalent, respectively, corresponding to royalty payments which, as described above, constitute a financial obligation or are substantially equivalent to a production or equivalent tax. Net production in 2017, 2016, 2015 and 2014 includes an estimated volume of 14, 15, 12 and 10 million barrels of oil equivalent, respectively, in connection with such payments.

(2) Figures for 2016, 2015 and 2014 have been restated as a result of the change of geographical areas established in 2017 following which Asia and Oceania are presented together.

(5) Standardized future cash flows

Standardized measure of discounted future net cash flows and changes therein relating to proved oil and gas reserves

Projected net cash flows were estimated in accordance with the criteria established by the “SPE/WPC/AAPG/SPEE Petroleum Resources Management System, commonly referred to by its acronym, SPE-PRMS (SPE standing for the Society of Petroleum Engineers)”. Oil and gas prices and other financial assumptions regarding the outlook for costs reflect the Company's best estimates for the purposes of valuing its assets. These assumptions are applied to estimated future production in respect of its proved oil and gas reserves as of the most recent reporting date, less estimated future development and production costs (based on current costs) in respect of these same proved reserves, all of which assuming that prevailing economic conditions are sustained.

Future production costs were estimated on based on the cost structure at the end of the year and are projected on the basis of the above-mentioned assumptions. Future development costs were calculated on the basis of technical studies conducted by Repsol and by the operators holding joint title with Repsol. The taxes projected for each of the future years were determined under the contractual and tax regime prevailing at the end of the year. The rate used to discount the future net revenues was 10%.

The present value of the future net cash flows estimated on the basis of the aforementioned assumptions is not intended to be interpreted, and should not be interpreted, as the fair value of the Group's oil and gas reserves. An estimation of the fair value of these reserves should also include the future exploitation of reserves not yet classified as proved reserves and costs and a discount rate which represents the time value of money at the calculation date and the uncertainties inherent to estimating the reserves.

The following table shows the present value of the future net revenues relating to proved oil and gas reserves, calculated on the basis of the aforementioned assumptions.

Millions of euros

At December 31st 2015	Total	Europe	Venezuela	Peru	United States	Rest of America	Africa	Asia and Oceania
Fully-consolidated entities								
Future cash inflows	47,888	792	123	8,255	14,679	8,570	8,521	6,948
Future production costs	(17,649)	(648)	(32)	(3,731)	(6,047)	(4,405)	(1,131)	(1,655)
Future development and abandonment costs	(8,115)	(1,477)	(1)	(969)	(2,017)	(2,744)	(404)	(503)
Future income tax expenses	(6,433)	1,622	(28)	(1,136)	(448)	(242)	(4,197)	(2,004)
Future net cash flows after taxes	15,691	289	62	2,419	6,167	1,179	2,789	2,786
10% annual discount for estimated timing of cash flows	(6,996)	(429)	(24)	(1,545)	(3,151)	287	(1,176)	(958)
Discounted future net cash flows	8,695	(140)	38	874	3,016	1,466	1,613	1,828
Equity-accounted investees								
Future cash inflows	29,182	2,149	16,313	-	-	9,153	-	1,567
Future production costs	(12,127)	(2,293)	(5,315)	-	-	(3,642)	-	(877)
Future development and abandonment costs	(7,488)	(4,249)	(951)	-	-	(2,187)	-	(101)
Future income tax expenses	(3,740)	997	(3,904)	-	-	(690)	-	(143)
Future net cash flows after taxes	5,827	(3,396)	6,143	-	-	2,634	-	446
10% annual discount for estimated timing of cash flows	(2,642)	1,786	(3,656)	-	-	(570)	-	(202)
Discounted future net cash flows	3,185	(1,610)	2,487	-	-	2,064	-	244
Total discounted future net cash flows (1)	11,880	(1,750)	2,525	874	3,016	3,530	1,613	2,072

Millions of euros

At December 31st 2016	Total	Europe	Venezuela	Peru	United States	Rest of America	Africa	Asia and Oceania
Fully-consolidated entities								
Future cash inflows	48,018	1,014	120	11,673	12,744	7,195	8,969	6,303
Future production costs	(11,034)	(602)	(34)	(5,048)	(1,845)	(877)	(1,086)	(1,542)
Future development and abandonment costs	(7,938)	(1,650)	(6)	(607)	(1,141)	(2,987)	(682)	(865)
Future income tax expenses	(7,722)	1,536	(27)	(2,011)	(951)	(227)	(4,441)	(1,601)
Future net cash flows after taxes	21,324	298	53	4,007	8,807	3,104	2,760	2,295
10% annual discount for estimated timing of cash flows	(11,361)	(477)	(25)	(2,677)	(5,335)	(1,178)	(1,044)	(625)
Discounted future net cash flows	9,963	(179)	28	1,330	3,472	1,926	1,716	1,670
Equity-accounted investees								
Future cash inflows	33,358	3,166	17,310	-	-	11,167	-	1,715
Future production costs	(13,832)	(2,967)	(5,826)	-	-	(4,129)	-	(910)
Future development and abandonment costs	(8,139)	(4,480)	(1,041)	-	-	(2,495)	-	(123)
Future income tax expenses	(4,376)	1,020	(4,160)	-	-	(1,123)	-	(113)
Future net cash flows after taxes	7,011	(3,261)	6,283	-	-	3,420	-	569
10% annual discount for estimated timing of cash flows	(2,784)	1,874	(3,675)	-	-	(728)	-	(255)
Discounted future net cash flows	4,227	(1,387)	2,608	-	-	2,692	-	314
Total discounted future net cash flows (1)	14,190	(1,566)	2,636	1,330	3,472	4,618	1,716	1,984

Millions of euros

At December 31st 2017	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Fully-consolidated entities								
Future cash inflows	40,133	796	91	9,185	11,091	5,141	7,674	6,155
Future production costs	(12,634)	(510)	(33)	(4,278)	(3,126)	(2,014)	(956)	(1,717)
Future development and abandonment costs	(7,408)	(1,209)	(10)	(428)	(1,918)	(2,220)	(565)	(1,058)
Future income tax expenses	(5,627)	1,144	(19)	(1,343)	(275)	(194)	(3,694)	(1,246)
Future net cash flows after taxes	14,464	221	29	3,136	5,772	713	2,459	2,134
10% annual discount for estimated timing of cash flows	(6,494)	(451)	(16)	(2,056)	(2,895)	351	(852)	(575)
Discounted future net cash flows	7,970	(230)	13	1,080	2,877	1,064	1,607	1,559
Equity-accounted investees								
Future cash inflows	30,323	2,658	15,157	-	-	11,006	-	1,502
Future production costs	(12,713)	(2,247)	(4,616)	-	-	(4,912)	-	(938)
Future development and abandonment costs	(6,284)	(3,349)	(902)	-	-	(1,926)	-	(107)
Future income tax expenses	(3,954)	1,038	(3,780)	-	-	(1,130)	-	(82)
Future net cash flows after taxes	7,372	(1,900)	5,859	-	-	3,038	-	375
10% annual discount for estimated timing of cash flows	(2,789)	1,278	(3,257)	-	-	(617)	-	(193)
Discounted future net cash flows	4,583	(622)	2,602	-	-	2,421	-	182
Total discounted future net cash flows	12,553	(852)	2,615	1,080	2,877	3,485	1,607	1,741

(1) Figures for 2016 and 2015 have been restated as a result of the change of geographical areas established in 2017 following which Asia and Oceania are presented together.

Changes in Standardized measure of discounted future net cash flows relating to proved oil and gas reserves

The detail of the changes in the standardized measure of discounted future net cash flows for 2015, 2016 and 2017 as follows:

Millions of euros

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Fully-consolidated entities								
Balance at December 31st, 2014 (1)	5,006	70	47	773	1,369	870	1,877	-
Changes due to sale or transfer prices of future production costs	(4,465)	(67)	4	(65)	(942)	(847)	(2,251)	(297)
Changes in future development costs	210	(7)	7	113	78	(33)	52	-
Oil and gas sales and transfers in the period	(2,032)	(82)	(4)	(129)	(852)	(485)	(91)	(389)
Net changes due to extensions, discoveries and improvements in the recovery of reserves	460	-	-	-	324	136	-	-
Net changes due to purchases/sales of assets	5,204	163	-	-	1,729	920	190	2,202
Net changes due to revisions in quantity estimates	340	12	(33)	(31)	231	288	(174)	47
Previously estimated development costs incurred in the year	1,270	104	17	62	474	336	153	124
Effect of discounting to a different date and exchange rate effect	1,084	6	11	170	296	180	386	35
Other non-specific changes	-	-	-	-	-	-	-	-
Changes in income tax	1,618	(339)	(11)	(19)	309	101	1,471	106
Net change	3,689	(210)	(9)	101	1,647	596	(264)	1,828
Balance at December 31st, 2015 (1)	8,695	(140)	38	874	3,016	1,466	1,613	1,828
Changes due to sale or transfer prices of future production costs	(352)	71	(6)	69	(255)	(261)	(83)	113
Changes in future development costs	(477)	(162)	(2)	161	(105)	(50)	(192)	(127)
Oil and gas sales and transfers in the period	(1,273)	(41)	(12)	(50)	(436)	(246)	(36)	(452)
Net changes due to extensions, discoveries and improvements in the recovery of reserves	642	-	-	311	198	120	-	13
Net changes due to purchases/sales of assets	(195)	5	-	-	21	23	-	(244)
Net changes due to revisions in quantity estimates	871	108	1	(90)	61	525	85	181
Previously estimated development costs incurred in the year	620	47	1	64	216	121	63	108
Effect of discounting to a different date and exchange rate effect	1,119	(18)	3	137	399	200	220	178
Other non-specific changes	-	-	-	-	-	-	-	-
Changes in income tax	313	(49)	5	(146)	357	28	46	72
Net change	1,268	(39)	(10)	456	456	460	103	(158)
Balance at December 31st, 2016 (1)	9,963	(179)	28	1,330	3,472	1,926	1,716	1,670
Changes due to sale or transfer prices of future production costs	(2,528)	50	(20)	(368)	(791)	(438)	(463)	(498)
Changes in future development costs	424	532	(2)	(2)	45	(191)	(19)	61
Oil and gas sales and transfers in the period	(1,807)	(133)	-	(116)	(528)	(289)	(215)	(526)
Net changes due to extensions, discoveries and improvements in the recovery of reserves	619	-	-	-	574	45	-	-
Net changes due to purchases/sales of assets	33	-	-	-	(5)	(6)	-	44
Net changes due to revisions in quantity estimates	237	(208)	4	(47)	(238)	37	200	489
Previously estimated development costs incurred in the year	773	65	-	106	232	36	134	200
Effect of discounting to a different date and exchange rate effect	(336)	1	-	(30)	(114)	(73)	(51)	(69)
Other non-specific changes	-	-	-	-	-	-	-	-
Changes in income tax	592	(358)	3	207	230	17	305	188
Net change	(1,993)	(51)	(15)	(250)	(595)	(862)	(109)	(111)
Balance at December 31st, 2017	7,970	(230)	13	1,080	2,877	1,064	1,607	1,559

Millions of euros

	Total	Europe	Venezuela	Peru	United States	Rest of America	Africa	Asia and Oceania
Equity-accounted investees								
Balance at December 31st, 2014 (1)	4,328	-	1,475	-	-	2,522	-	331
Changes due to sale or transfer prices of future production costs	(2,120)	(236)	120	-	-	(1,843)	-	(161)
Changes in future development costs	304	-	111	-	-	201	-	(8)
Oil and gas sales and transfers in the period	(1,662)	25	(282)	-	-	(1,317)	-	(88)
Net changes due to extensions, discoveries and improvements in the recovery of reserves	-	-	-	-	-	-	-	-
Net changes due to purchases/sales of assets	(1,355)	(1,624)	-	-	-	269	-	-
Net changes due to revisions in quantity estimates	1,748	98	1,111	-	-	492	-	47
Previously estimated development costs incurred in the year	1,235	196	318	-	-	701	-	20
Effect of discounting to a different date and exchange rate effect	914	(29)	358	-	-	517	-	68
Other non-specific changes	-	-	-	-	-	-	-	-
Changes in income tax	(208)	(40)	(724)	-	-	521	-	35
Net change	(1,144)	(1,610)	1,012	-	-	(459)	-	(87)
Balance at December 31st, 2015 (1)	3,185	(1,610)	2,487	-	-	2,064	-	244
Changes due to sale or transfer prices of future production costs	236	184	(84)	-	-	104	-	32
Changes in future development costs	(617)	(141)	(182)	-	-	(275)	-	(19)
Oil and gas sales and transfers in the period	(992)	85	(355)	-	-	(681)	-	(41)
Net changes due to extensions, discoveries and improvements in the recovery of reserves	579	-	-	-	-	579	-	-
Net changes due to purchases/sales of assets	-	-	-	-	-	-	-	-
Net changes due to revisions in quantity estimates	510	(8)	152	-	-	335	-	31
Previously estimated development costs incurred in the year	1,031	292	231	-	-	493	-	15
Effect of discounting to a different date and exchange rate effect	481	(160)	328	-	-	281	-	32
Other non-specific changes	-	-	-	-	-	-	-	-
Changes in income tax	(186)	(29)	31	-	-	(208)	-	20
Net change	1,042	223	121	-	-	628	-	70
Balance at December 31st, 2016 (1)	4,227	(1,387)	2,608	-	-	2,692	-	314
Changes due to sale or transfer prices of future production costs	(603)	230	16	-	-	(722)	-	(127)
Changes in future development costs	861	599	51	-	-	237	-	(26)
Oil and gas sales and transfers in the period	(1,201)	(144)	(302)	-	-	(699)	-	(56)
Net changes due to extensions, discoveries and improvements in the recovery of reserves	-	-	-	-	-	-	-	-
Net changes due to purchases/sales of assets	(1)	-	-	-	-	-	-	(1)
Net changes due to revisions in quantity estimates	791	(150)	119	-	-	777	-	45
Previously estimated development costs incurred in the year	615	201	89	-	-	307	-	18
Effect of discounting to a different date and exchange rate effect	(213)	6	(101)	-	-	(112)	-	(6)
Other non-specific changes	-	-	-	-	-	-	-	-
Changes in income tax	107	23	122	-	-	(59)	-	21
Net change	356	765	(6)	-	-	(271)	-	(132)
Balance at December 31st, 2017	4,583	(622)	2,602	-	-	2,421	-	182
TOTAL	12,553	(852)	2,615	1,080	2,877	3,485	1,607	1,741

(1) Figures for 2016, 2015 and 2014 have been restated as a result of the change of geographical areas established in 2017 following which Asia and Oceania are presented together.

(6) Production of oil and gas

The next table shows the productions in volume and the number of Repsol's productive wells by geographic area:

	Net Production of liquids and natural gas by area									Productive wells by area					
	Liquids (Mbbbl)			Natural gas (bcf)			Total (Mbep)			Oil			Gas		
	2017	2016	2015	2017	2016	2015	2017	2016	2015	2017	2016	2015	2017	2016	2015
Europe	16	16	9	17	17	7	19	19	10	222	236	231	6	3	2
Norway	6	7	3	13	16	6	8	10	4	55	60	67	3	1	-
United Kingdom	9	8	5	4	1	1	10	8	5	157	166	154	2	1	1
Rest of Europe	1	1	1	-	-	-	1	1	1	10	10	10	1	1	1
Latin America	38	39	35	498	486	419	127	125	110	873	953	1,130	241	216	233
Brazil	17	14	11	9	5	3	18	15	12	30	28	26	-	-	-
Colombia	5	5	4	7	11	10	6	7	6	398	395	414	-	-	17
Peru	5	5	4	67	68	52	17	17	13	-	-	-	27	27	27
Trinidad & Tobago	1	4	4	217	188	216	40	37	43	1	-	91	73	55	55
Venezuela	5	5	5	130	129	69	28	28	17	247	324	376	32	32	34
Rest of Latin America	5	6	7	68	85	69	17	21	19	197	206	223	109	102	100
North America	18	20	18	256	262	182	63	67	51	2,657	2,924	2,852	2,219	2,610	2,664
Canada	8	8	5	82	82	48	22	23	14	1,098	1,126	1,151	1,055	1,574	1,593
United States	10	12	13	174	180	134	41	44	37	1,559	1,798	1,701	1,164	1,036	1,071
Africa	12	3	3	8	16	16	14	6	5	248	128	86	84	79	78
Asia and Oceania	9	11	10	122	137	98	31	36	28	606	621	619	78	91	99
Indonesia	0	1	1	80	94	63	15	18	12	6	55	89	42	45	55
Malaysia	3	4	3	30	28	19	8	9	6	75	90	87	33	38	36
Russia	4	4	4	11	14	15	6	7	7	472	448	403	-	8	8
Rest of Asia and Oceania	2	2	2	1	1	1	2	2	3	53	28	40	3	-	-
Total	93	89	75	901	918	722	254	253	204	4,606	4,862	4,918	2,628	2,999	3,076

(7) Results of oil and gas exploration and production activities

The following table shows the revenues and expenses associated directly with the Group's oil and gas exploration and production activities. It does not include any allocation of the finance costs or general expenses, except for the accretion expense, and, therefore, is not necessarily indicative of the contribution to consolidated net profit of the oil and gas activities.

Millions of euros

At December 31st
2015

	Total	Europe	Venezuela	Peru	United States	Rest of America	Africa	Asia and Oceania
Fully-consolidated entities								
Income								
Sales to non-Group companies	2,043	169	12	178	387	606	36	655
Sales between business segments and to Group Companies	698	63	-	30	383	130	92	-
Total income	2,741	232	12	208	770	736	128	655
Production costs (1)	(1,316)	(180)	(63)	(147)	(184)	(353)	(81)	(308)
Exploration expenses (2)	(1,805)	(350)	-	(46)	(590)	(96)	(602)	(121)
Other operating expenses	(76)	(26)	-	-	(6)	(20)	(17)	(7)
Depreciation and amortisation charge (3)	(4,056)	(370)	(66)	(42)	(1,417)	(1,004)	(292)	(865)
Profit (Loss) before taxes and charges	(4,512)	(694)	(117)	(27)	(1,427)	(737)	(864)	(646)
Taxes and charges	1,359	278	12	6	455	176	267	165
Results of oil and gas production activities	(3,153)	(416)	(105)	(21)	(972)	(561)	(597)	(481)
Equity-accounted investees								
Income								
Sales to non-Group companies..	1,716	253	363	-	-	962	-	138
Sales between business segments and to Group Companies	294	-	-	-	-	294	-	-
Total income	2,010	253	363	-	-	1,256	-	138
Production costs (1)	(1,457)	(249)	(386)	-	-	(741)	-	(81)
Exploration expenses (2)	(7)	(1)	-	-	-	22	(28)	-
Other operating expenses	(15)	-	(3)	-	-	(12)	-	-
Depreciation and amortisation charge (3)	(1,073)	(2)	(452)	-	-	(598)	-	(21)
Profit (Loss) before taxes and charges .	(542)	1	(478)	-	-	(73)	(28)	36
Taxes and charges	(56)	-	50	-	-	(107)	8	(7)
Results of oil and gas production activities	(598)	1	(428)	-	-	(180)	(20)	29
Total results of oil and gas activities (4)(5)	(3,751)	(415)	(533)	(21)	(972)	(741)	(617)	(452)

Millions of euros

At December 31st
2016

	Total	Europe	Venezuela	Peru	United States	Rest of America	Africa	Asia and Oceania
Fully-consolidated entities								
Income								
Sales to non-Group companies	2,445	366	11	210	464	538	20	836
Sales between business segments and to Group Companies	460	29	-	12	271	42	106	-
Total income	2,905	395	11	222	735	580	126	836
Production costs (1)								
Production costs (1)	(1,525)	(223)	(22)	(152)	(317)	(375)	(70)	(366)
Exploration expenses (2)	(541)	(133)	-	(60)	(103)	(10)	(140)	(95)
Other operating expenses	11	128	(113)	25	17	(26)	(23)	3
Depreciation and amortisation charge (3)	(1,548)	(137)	42	(50)	(604)	(354)	(159)	(286)
Profit (Loss) before taxes and charges	(698)	30	(82)	(15)	(272)	(185)	(266)	92
Taxes and charges	(41)	(151)	(137)	4	264	28	86	(135)
Results of oil and gas production activities	(739)	(121)	(219)	(11)	(8)	(157)	(180)	(43)
Equity-accounted investees								
Income								
Sales to non-Group companies..	1,686	322	480	-	-	752	-	132
Sales between business segments and to Group Companies	345	-	-	-	-	345	-	-
Total income	2,031	322	480	-	-	1,097	-	132
Production costs (1)								
Production costs (1)	(1,296)	(358)	(255)	-	-	(600)	-	(83)
Exploration expenses (2)	(36)	(2)	-	-	-	(34)	-	-
Other operating expenses	111	46	(25)	-	-	91	-	(1)
Depreciation and amortisation charge (3)	(821)	(9)	(326)	-	-	(470)	-	(16)
Profit (Loss) before taxes and charges .	(11)	(1)	(126)	-	-	84	-	32
Taxes and charges	(88)	-	(188)	-	-	108	-	(8)
Results of oil and gas production activities	(99)	(1)	(314)	-	-	192	-	24
Total results of oil and gas activities (4)(5)	(838)	(122)	(533)	(11)	(8)	35	(180)	(19)

Millions of euros

At December 31st
2017

	Total	Europe	Venezuela	Peru	United States	Rest of America	Africa	Asia and Oceania
Fully-consolidated entities								
Income								
Sales to non-Group companies	2,577	347	2	283	560	528	6	851
Sales between business segments and to Group Companies	688	32	-	8	312	61	275	-
Total income	3,265	379	2	291	872	589	281	851
Production costs (1)	(1,394)	(181)	(15)	(159)	(326)	(320)	(100)	(293)
Exploration expenses (2)	(547)	(136)	-	43	(145)	(135)	(54)	(120)
Other operating expenses	328	20	(2)	20	(60)	5	310	35
Depreciation and amortisation charge (3)	(1,152)	(99)	(67)	(42)	(556)	81	(102)	(367)
Profit (Loss) before taxes and charges	500	(17)	(82)	153	(215)	220	335	106
Taxes and charges	(880)	(57)	22	(7)	(236)	(292)	(239)	(71)
Results of oil and gas production activities	(380)	(74)	(60)	146	(451)	(72)	96	35
Equity-accounted investees								
Income								
Sales to non-Group companies..	2,226	431	525	-	-	1,106	-	164
Sales between business segments and to Group Companies	494	-	-	-	-	494	-	-
Total income	2,720	431	525	-	-	1,600	-	164
Production costs (1)	(1,363)	(325)	(164)	-	-	(786)	-	(88)
Exploration expenses (2)	(27)	-	-	-	-	(17)	-	(10)
Other operating expenses	693	902	(265)	-	-	62	-	(6)
Depreciation and amortisation charge (3)	(1,353)	(103)	(638)	-	-	(598)	-	(14)
Profit (Loss) before taxes and charges .	670	905	(542)	-	-	261	-	46
Taxes and charges	56	-	146	-	-	(74)	-	(16)
Results of oil and gas production activities	726	905	(396)	-	-	187	-	30
Total results of oil and gas activities (5)	346	831	(456)	146	(451)	115	96	65

- (1) Production costs include local taxes, production taxes and other similar payments amounting to €526, €361 and €347 million in 2017, 2016 and 2015, respectively. It also includes transport and other costs totalling €808, €856 and €893 million in 2017, 2016 and 2015, respectively. Additionally, to facilitate the comparability of the information, €231 million corresponding to 2016 has been reclassified among production cost and other operating expenses
- (2) Operating expenses include charges for the impairment of exploration assets of €339, €74 and €588 million in 2017, 2016 and 2015, respectively. This same heading also includes provisions for onerous drilling platform contracts in the amount of €109 in 2016.
- (3) The depreciation and provisions heading includes charges for the impairment of producing and development assets and provisions for onerous contracts totaling €335, €267 and €2,933 million in 2017, 2016 and 2015, respectively.
- (4) Figures for 2016 and 2015 have been restated as a result of a change in the Group's accounting principles and as a result of the change of geographical areas established in 2017, following which Asia and Oceania are presented together. This has resulted in a decrease in 2015 results of 179 million euros.
- (5) Results generated for divestments are not included

(8) Investments

Investments of the year (cost incurred)

The costs incurred represent amounts capitalised during the year relating to acquisitions of properties and for exploration and development activities, including dismantling costs.

Millions of euros

At December 31st
2015 (1)

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Fully-consolidated entities								
Acquisition of proved properties	6,666	354	-	-	2,191	1,217	203	2,701
Acquisition of unproved properties	7,213	102	-	-	2,217	2,631	165	2,098
Exploration costs	1,287	179	-	34	552	111	261	150
Development costs	760	65	2	(41)	367	185	100	82
Costs Incurred	15,926	700	2	(7)	5,327	4,144	729	5,031
Equity-accounted investees								
Acquisition of proved properties	358	-	-	-	-	358	-	-
Acquisition of unproved properties	91	-	-	-	-	91	-	-
Exploration costs	118	12	-	-	-	104	1	1
Development costs	1,481	200	535	-	-	728	-	18
Costs Incurred	2,048	212	535	-	-	1,281	1	19
Total Costs Incurred (2)	17,974	912	537	(7)	5,327	5,425	730	5,050

Millions of euros

At December 31st
2016

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Fully-consolidated entities								
Acquisition of proved properties	54	-	-	-	2	52	-	-
Acquisition of unproved properties	-	-	-	-	-	-	-	-
Exploration costs	556	90	-	13	100	57	72	224
Development costs	1,085	20	2	56	274	256	225	252
Costs Incurred	1,695	110	2	69	376	365	297	476
Equity-accounted investees								
Acquisition of proved properties	-	-	-	-	-	-	-	-
Acquisition of unproved properties	-	-	-	-	-	-	-	-
Exploration costs	79	1	-	-	-	78	-	-
Development costs	1,091	145	107	-	-	822	-	17
Costs Incurred	1,170	146	107	-	-	900	-	17
Total Costs Incurred (2)	2,865	256	109	69	376	1,265	297	493

Millions of euros

At December 31st
2017

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Fully-consolidated entities								
Acquisition of proved properties	5	-	-	-	-	-	-	5
Acquisition of unproved properties	-	-	-	-	-	-	-	-
Exploration costs	528	104	-	1	74	186	48	115
Development costs	968	56	1	32	376	194	168	141
Costs Incurred	1,501	160	1	33	450	380	216	261
Equity-accounted investees								
Acquisition of proved properties	-	-	-	-	-	-	-	-
Acquisition of unproved properties	-	-	-	-	-	-	-	-
Exploration costs	48	(1)	-	-	-	35	-	14
Development costs	534	(27)	26	-	-	522	-	13
Costs Incurred	582	(28)	26	-	-	557	-	27
Total Costs Incurred	2,083	132	27	33	450	937	216	288

(1) At December 31, 2015, this heading mainly includes the addition of exploration, development and producing assets related to the acquisition of Talisman Energy Inc. amounting to €14,178 million, of which €13,729 million correspond to fully-consolidated companies and €449 million to investees.

(2) Figures for 2016 and 2015 have been restated as a result of a change in the Group's accounting principles and as a result of the change of geographical areas established in 2017, following which Asia and Oceania are presented together. This has resulted in a decrease in 2015 results of 78 million euros.

Accumulated investments (capitalised costs)

Capitalised costs represent the historical costs capitalised related to oil and gas exploration and production activities, including auxiliary equipment and facilities, and the related accumulated depreciation and accumulated impairment losses.

Millions of euros

At December 31st
2015

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Fully-consolidated entities								
Capitalised costs of proved oil and gas properties	16,311	713	74	1,026	6,296	3,486	1,900	2,816
Capitalised costs of unproved oil and gas properties	10,102	156	-	71	4,250	2,847	373	2,405
	26,413	869	74	1,097	10,546	6,333	2,273	5,221
Auxiliary equipment and facilities	1,972	330	18	22	1,021	189	390	2
Total capitalised costs	28,385	1,199	92	1,119	11,567	6,522	2,663	5,223
Accumulated depreciation and impairment losses	(9,665)	(768)	(72)	(192)	(4,129)	(2,192)	(1,440)	(872)
Net amount	18,720	431	20	927	7,438	4,330	1,223	4,351
Equity-accounted investees								
Capitalised costs of proved oil and gas properties	7,524	-	1,243	-	-	6,102	-	179
Capitalised costs of unproved oil and gas properties	1,081	-	-	-	-	1,044	-	37
	8,605	-	1,243	-	-	7,146	-	216
Auxiliary equipment and facilities	2,362	-	1,139	-	-	1,223	-	0
Total capitalised costs	10,967	-	2,382	-	-	8,369	-	216
Accumulated depreciation and impairment losses	(4,535)	-	(568)	-	-	(3,900)	-	(67)
Net amount	6,432	-	1,814	-	-	4,469	-	149
Total Net amounts (1)	25,152	431	1,834	927	7,438	8,799	1,223	4,500

Millions of euros

At December 31st
2016

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Fully-consolidated entities								
Capitalised costs								
of proved oil and gas properties	17,527	812	77	1,112	6,748	3,592	2,261	2,925
Capitalised costs								
of unproved oil and gas properties	9,223	184	-	48	4,377	2,162	320	2,132
	<u>26,750</u>	<u>996</u>	<u>77</u>	<u>1,160</u>	<u>11,125</u>	<u>5,754</u>	<u>2,581</u>	<u>5,057</u>
Auxiliary equipment and facilities	1,890	340	22	19	1,074	32	399	4
Total capitalised costs	<u>28,640</u>	<u>1,336</u>	<u>99</u>	<u>1,179</u>	<u>12,199</u>	<u>5,786</u>	<u>2,980</u>	<u>5,061</u>
Accumulated depreciation and impairment losses	(10,643)	(921)	(95)	(248)	(4,862)	(1,939)	(1,627)	(951)
Net amount	<u>17,997</u>	<u>415</u>	<u>4</u>	<u>931</u>	<u>7,337</u>	<u>3,847</u>	<u>1,353</u>	<u>4,110</u>
Equity-accounted investees								
Capitalised costs								
of proved oil and gas properties	9,579	912	1,400	-	-	7,034	-	233
Capitalised costs								
of unproved oil and gas properties	1,664	-	67	-	-	1,543	-	54
	<u>11,243</u>	<u>912</u>	<u>1,467</u>	<u>-</u>	<u>-</u>	<u>8,577</u>	<u>-</u>	<u>287</u>
Auxiliary equipment and facilities	2,934	-	1,172	-	-	1,761	-	1
Total capitalised costs	<u>14,177</u>	<u>912</u>	<u>2,639</u>	<u>-</u>	<u>-</u>	<u>10,338</u>	<u>-</u>	<u>288</u>
Accumulated depreciation and impairment losses	(6,032)	(324)	(924)	-	-	(4,682)	-	(102)
Net amount	<u>8,145</u>	<u>588</u>	<u>1,715</u>	<u>-</u>	<u>-</u>	<u>5,656</u>	<u>-</u>	<u>186</u>
Total Net amounts (1)	<u>26,142</u>	<u>1,003</u>	<u>1,719</u>	<u>931</u>	<u>7,337</u>	<u>9,503</u>	<u>1,353</u>	<u>4,296</u>

Millions of euros

At December 31st
2017

	<u>Total</u>	<u>Europe</u>	<u>Venezuela</u>	<u>Peru</u>	<u>United States</u>	<u>Rest of America</u>	<u>Africa</u>	<u>Asia and Oceania</u>
Fully-consolidated entities								
Capitalised costs								
of proved oil and gas properties	14,525	776	67	521	6,374	2,679	1,520	2,588
Capitalised costs								
of unproved oil and gas properties	8,282	174	-	20	3,534	2,551	278	1,725
	<u>22,807</u>	<u>950</u>	<u>67</u>	<u>541</u>	<u>9,908</u>	<u>5,230</u>	<u>1,798</u>	<u>4,313</u>
Auxiliary equipment and facilities	3,784	303	36	526	1,025	754	955	185
Total capitalised costs	<u>26,591</u>	<u>1,253</u>	<u>103</u>	<u>1,067</u>	<u>10,933</u>	<u>5,984</u>	<u>2,753</u>	<u>4,498</u>
Accumulated depreciation and impairment losses	(10,547)	(919)	(99)	(265)	(4,706)	(1,836)	(1,525)	(1,197)
Net amount	<u>16,044</u>	<u>334</u>	<u>4</u>	<u>802</u>	<u>6,227</u>	<u>4,148</u>	<u>1,228</u>	<u>3,301</u>
Equity-accounted investees								
Capitalised costs								
of proved oil and gas properties	8,665	829	1,561	-	-	6,096	-	179
Capitalised costs								
of unproved oil and gas properties	2,136	1,154	-	-	-	866	-	116
	<u>10,801</u>	<u>1,983</u>	<u>1,561</u>	<u>-</u>	<u>-</u>	<u>6,962</u>	<u>-</u>	<u>295</u>
Auxiliary equipment and facilities	3,156	351	757	-	-	2,047	-	1
Total capitalised costs	<u>13,957</u>	<u>2,334</u>	<u>2,318</u>	<u>-</u>	<u>-</u>	<u>9,009</u>	<u>-</u>	<u>296</u>
Accumulated depreciation and impairment losses	(6,909)	(795)	(1,389)	-	-	(4,652)	-	(73)
Net amount	<u>7,048</u>	<u>1,539</u>	<u>929</u>	<u>-</u>	<u>-</u>	<u>4,357</u>	<u>-</u>	<u>223</u>
Total Net amounts	<u>23,092</u>	<u>1,873</u>	<u>933</u>	<u>802</u>	<u>6,227</u>	<u>8,505</u>	<u>1,228</u>	<u>3,524</u>

(1) Figures for 2016 and 2015 have been restated as a result of a change in the Group's accounting principles and as a result of the change of geographical areas established in 2017, following which Asia and Oceania are presented together. As a result, total figures for 2015 have increased by 84 million euros.